

Decision Making as Coping

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This article reviews a model of emotional trade-off difficulty in decision making. The model argues that decision makers are motivated to cope with the negative emotion associated with decision-processing operations, notably emotion generated by explicit trade-offs between highly valued attributes. The article begins to explore implications of this model for patient decision making in the cancer control domain. For instance, the model points to emotional reactions to decisions as both a cost and a barrier in the move toward greater patient participation in health care decision making.

Keywords: medical decision making, emotion and coping, trade-offs

This article reviews a model for understanding whether and how the trade-offs that characterize decision making generate threat and therefore coping behavior. This theoretical model of “emotional trade-off difficulty” is based on the work of Luce, Bettman, and Payne (1997, 2001). One of their primary conclusions is that researchers can better understand and predict decision behavior if they recognize that people will seek to mitigate the emotional costs of specific decision operations.

While the model’s framework is designed to address decision making in general, rather than health care or cancer control behavior in particular, few words rival *cancer* for pure emotional impact, and decisions regarding cancer control are likely among the most threatening decisions that many individuals will ever make. Thus, there are clear and direct applications of the general theoretical viewpoint to decision making in cancer control; some beginning applications are outlined after the model is reviewed.

Model of Emotional Trade-Off Difficulty

The model of emotional trade-off difficulty started with the observation that decisions are often inherently stressful; thus, an important goal may be to cope with decision-generated negative emotion. *Decision-generated emotion* is defined as emotion elicited by the perception that there is a meaningful decision to be made. A decision situation implies the presence of multiple viable options (rather than only one possible option or one option that is clearly better than any competing options) and thus implies that decision trade-offs prioritizing some goal(s) over another (others) must be resolved. An example of such a trade-off would be a 5% decrease in immediate mortality risk from radiation versus a 2-year increase in posttreatment life expectancy from surgery. As developed in more detail later, I believe that an important strategy for coping with decision-generated emotion is avoiding the distress associated with explicit trade-offs between attributes.

The general theoretical approach discussed in Luce et al. (1997) grew from Payne, Bettman, and Johnson’s (1993) effort–accuracy framework for understanding decision behavior. They argued that

decision makers decide how to make a decision by trading off the cognitive effort required by a potential decision strategy against the potential accuracy provided by that strategy. Thus, Luce et al. have specifically sought to determine whether and how emotion minimization goals might alter decision processes in ways that are not explainable in terms of effort and accuracy meta-goals. The general conclusion has been that postulating an emotion minimization meta-goal does provide unique predictive power. One reason for this, they argued, is that some of the specific operations promoting accuracy in decision processing will often be particularly anxiety provoking. Thus, aspects of decision behavior that might seem reasonable from a pure effort–accuracy trade-off perspective (notably careful and explicit trade-offs between desired goals) may be avoided by decision makers who are concerned with minimizing negative emotion.

To specifically theorize how decision makers might go about emotion minimization, Luce et al. (1997) consulted the general literature on coping, most notably the work by Lazarus and Folkman (1984). The coping literature is notable for the wide variety of behaviors that have been documented to serve coping functions, with such behavior ranging from attacking problems directly to altogether avoiding them. Some of these coping behaviors address emotional response directly, whereas others are concerned with the underlying problem generating this negative emotion. These various coping behaviors (e.g., more emotion focused vs. more problem focused) often work in tandem, for instance, when initial coping directed at mitigating emotional response paves the way for later coping aimed at solving the underlying problem. Finally, these coping behaviors are expected to be anticipated during the appraisal processes that determine emotion generation. Thus, for example, even a cancer patient’s initial emotional reaction to an unfavorable diagnosis may be influenced by his or her anticipation of coping with the situation by seeking out family support.

While the emotional trade-off difficulty model seeks to leverage general theoretical work on emotion and coping, the model is also designed to specifically address decision behavior. Decisions are only one relatively small class of all stressful encounters. For instance, a cancer diagnosis is stressful because of the substantial associated threats (e.g., to survival, happiness, well-being of family members). Contained within that generally stressful (nondecision) situation there might be several emotion-laden decisions to be made, most notably decisions regarding potential treatment

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options (e.g., surgery vs. radiation, getting adjuvant therapy or not, receiving treatment at a university vs. a community hospital, even whether to start treatment on a loved one's birthday). These decisions may themselves present unique and identifiable threats, as the decision maker must give up the advantages of one option in order to obtain the advantages of another option. Luce et al.'s (1997, 2001) theoretical model draws on the coping literature to make predictions regarding how people will cope with emotion-laden decisions and how such coping goals might alter decision-processing patterns and outcomes.

Of course, any decision trade-off could generate negative emotion. For instance, a fortunate decision maker choosing between a beach and a mountain resort vacation may feel anxiety regarding the potentially foregone advantages of either trip. Luce, Bettman, and Payne (2001) made predictions regarding the variation in emotion-eliciting potential across decision situations. They found, for instance, that both the presence of attributes linked to highly valued goals and the perception that alternatives are relatively unfavorable (vs. generally favorable) result in more negative emotion. It seems that cancer control decisions are often characterized by such emotion-eliciting aspects, notably conflict between highly valued goals, often in the context of generally unfavorable outcomes (e.g., losses as compared with a likely reference or desired state of perfect health).

Within the context of a decision episode, Luce et al. (1997) believe that two important coping motivations often coexist. First, emotion may give rise to the motivation to work harder in order to best solve the choice problem with which one is confronted (e.g., see Janis & Mann's, 1977, discussion of vigilant decision making). Thus, for instance, decision-generated emotion may function as a signal that the decision maker should work hard to identify the best option rather than trying to minimize the effort (e.g., length of time, difficulty) associated with decision processing. Because effort feedback in particular (as opposed to feedback regarding whether the best option will be ultimately identified) is both available to the decision maker and often relatively observable by others, increased processing effort is specifically expected (e.g., thinking time) to be the major result of this motivation. Taking theoretical perspective of the effort-accuracy model for decision making, one could simply postulate that coping considerations cause an increased focus on accuracy-maximization over effort-minimization goals. However, as is argued next, a second important coping motivation is proposed to coexist with the previous process.

Second, decision makers may be motivated to avoid particularly distressing decision operations. Explicit trade-offs between attributes are often associated with such distress (e.g., Hogarth, 1987). Thus, for instance, a cancer patient may understand that the focal trade-off in a choice between surgery and radiation is increased immediate mortality risk against better long-term prospects of cure. However, he or she may avoid explicitly considering that trade-off because of the emotional stress it generates. Thus, trade-offs may create the necessity for decision processing and represent the very aspect of decision processing that the decision maker desires to avoid. The emotional trade-off difficulty model proposes that this tension is often resolved by making trade-offs implicitly rather than explicitly. For instance, a cancer patient threatened by the prospect of enduring painful or disfiguring surgery in order to increase his or her life expectancy may shield him- or herself from this problematic trade-off by considering only

long-term survival during decision processing, refusing to directly confront the advantages to be obtained by anything other than a survival maximizing option. Alternatively, he or she may cling to an initially chosen (by him- or herself or perhaps by the doctor) treatment path, even if new (and potentially better) treatment options become available. Note that these decision strategies make the problematic trade-offs implicit in that the decision maker never directly confronts the advantages he or she could have obtained from the foregone options. While many authors have noted that decision makers find explicit trade-offs problematic, the emotional trade-off difficulty model focuses on the observation that avoidance of these trade-offs serves as a potential coping function.

Thus, the model predicts that decision makers will adjust their patterns of processing in response to coping goals. This general hypothesis has been operationalized through predictions regarding relatively specific aspects of decision-processing patterns and outcomes. For instance, the motivation to cope by working harder is predicted to give rise to longer decision times. The motivation to cope by avoiding explicit trade-offs is predicted to influence two aspects of decision behavior. First, avoidance motivations should encourage consideration of options in an attribute-based manner (e.g., screening on survival rates and then considering quality of life) so that difficult between-attribute trade-offs (e.g., reconciling the value of an option that offsets a decrement in survival with an increase in quality of life) are not explicitly confronted. Second, avoidance motivations should increase the tendency to prefer choices that are recommended by reasons that are independent of the alternative's inherent characteristics. For instance, a patient may avoid the stress associated with confronting difficult trade-offs by focusing on decision criteria such as a doctor's recommendation or the status of a particular treatment as the "best established" or "most technologically advanced." These labels may be useful precisely because they are independent of the difficult trade-offs characterizing the set of possible options.

The emotional trade-off difficulty model advocates analysis of specific links between coping goals and decision-processing operations in order to make precise predictions regarding decision behavior in emotion-laden domains. One potential ambiguity in the model, as in many coping-based analyses of behavior, is the inconsistency between generally approach-based, problem-focused coping behaviors and often more avoidance-based, emotion-focused coping behaviors. The model assumes that coping with emotion-laden decisions typically involves aspects of both general coping strategies and resolves this inconsistency by analyzing the specific aspects of decision behavior likely to be aligned with approach (e.g., increased response times) or avoidance (e.g., attribute-based processing or choice based on trade-off-independent labels). In the next section, I review two experiments that were conducted in order to validate the model of emotional trade-off difficulty by relating emotion minimization goals to specific decision-processing patterns and outcomes (see also, e.g., Luce et al., 1997, 2001).

Example Empirical Research

A primary goal of the empirical work related to the emotional trade-off difficulty model is to determine whether emotion minimization goals have a unique influence on decision behavior, after accounting for other well-established effects on decision strategy selection, notably effort and accuracy goals. To do so, I (Luce

1998) used a hypothetical decision situation in which participants were asked to imagine that they were deciding among one of four available automobiles. The choice task was characterized by substantial conflict between attribute values (i.e., a good value on one attribute was generally associated with poor values on others), so substantial trade-offs of decision attributes were required.

One goal of this study was to manipulate emotional trade-off difficulty through inherent aspects of a decision. Thus, a manipulation that altered the identity of the attributes used to describe available options was developed. In general, attributes that are rated as more important (e.g., safety in automobiles) have more potential to generate emotion than do less important attributes (e.g., cup holders in automobiles). However, it is possible to decouple emotional potential from attribute importance. Such decoupling was deemed desirable because prior research indicates that choices differing in terms of the profile of attribute importance weights also differ in terms of both effort-accuracy trade-offs provided by various strategies and associated decision-processing patterns (Payne et al., 1993). Thus, an emotional trade-off difficulty manipulation was developed based on a pretest using multiple measures to identify two sets of attributes that altered the potential for eliciting negative emotion but held constant attribute importance weights. In the low-emotion (control) condition, available cars were described in terms of *routine handling* and *sound system quality*, among other attributes; in contrast, in the emotion-laden condition, the attributes *occupant survival* (in an accident) and *pollution caused* were used. Pretest results indicated that occupant survival and routine handling were both given relatively high importance ratings, while pollution caused and sound system were given lower ratings. However, the former attribute in each pair was associated with more highly valued abstract goals and hence more potential for emotion generation. Of course, decision makers were not actually choosing a car in this laboratory task. It seems that these hypothetical decisions can generate negative emotion at least in part because participants are concerned with their self-esteem and self-presentation as decision makers (e.g., Janis & Mann, 1977). Also, note that one might expect more emotion, and hence stronger effects, in real-world decisions characterized by higher threat.

In the same experiment, a second between-subjects manipulation altered the nature of participants' choices and, in particular, whether and how the act of choosing a particular type of alternative might function as an avoidance coping mechanism. One group of participants, denoted the control group, simply indicated a choice among four cars. For a second group, the experimental goal was to provide a choice method consistent with decision makers' proposed coping motivations. This group was asked to imagine that they had tentatively chosen one of the four available cars. Thus, for this group, the choice was framed as including the possibility to resolve the choice by "doing nothing" and maintaining the status quo. Apart from the application of this status quo label to one of the four alternatives from the control group choice situation, the status quo and control group conditions were identical. The rationale for this manipulation was that the status quo label would provide a method for the decision maker to explain and justify his or her choice (to him- or herself and others) in a way that was independent of explicit trade-offs among attributes. The description of this condition was constructed to minimize the likelihood that decision makers would assume that the status quo car (i.e., the one purported to have been tentatively chosen in the

past) was a better match for their preferences. In particular, instructions emphasized that the additional (non-status quo) options were newly available, rather than having been previously chosen against, and instructions also noted that there was no penalty (e.g., no foregone deposit) associated with choosing against the status quo option. Even in the presence of such controls, a general tendency to do nothing and maintain the status quo has been well documented in the literature on decision making. However, as is addressed next, this bias toward a status quo option has generally been attributed to considerations regarding cognitive effort minimization (e.g., Samuelson & Zeckhauser, 1988).

As expected, the tendency to choose the status quo increased when the decision task was defined in terms of more (vs. less) emotion-laden attributes. As the means in Table 1 indicate, a statistically significant bias in favor of the status quo option was only observed in the high-emotion trade-off difficulty condition. This is consistent with the prediction that coping considerations would result in increased motivations to avoid explicit trade-offs between attributes (as one has to do in order to determine which of several alternatives is best) and instead make a choice based on factors (here, the status quo label) independent of inherent choice trade-offs.

The tendency for maintaining the status quo (in effect "doing nothing" and, in particular, avoiding working through various between-attribute trade-offs) to increase in the more emotion-laden situation could potentially be explained without reliance on coping as an explanatory mechanism. As noted previously, it is reasonable to assume that choosing the status quo is less effortful than alternative choices. If one further assumes that considering more emotion-laden attributes is more cognitively demanding, then it is possible to explain the previous *choice patterns* as indicative of effort minimization concerns. However, auxiliary measures related to decision *processing* (i.e., emotion ratings taken during processing and decision response times) contradict this view and instead suggest that emotion minimization is independently influencing decision making.

Direct emotion ratings are the first process measures that point to an emotion minimization explanation of the previous status quo bias. Participants were asked to report their expectations regarding the emotionality of the decision task if they were to repeat this same decision in the real world. For this measure, the control group showed a significant increase in negative emotion with more

Table 1
Experimental Results

Measure	Low trade-off difficulty		High trade-off difficulty	
	Control group	Status quo group	Control group	Status quo group
Choosing target option (%)	43	55	43	87
Rating of negative emotion	1.76	1.71	2.53	1.79

Note: The target option was the status quo option in the status quo group. In the control group, the target option was identical to the status quo option in terms of attribute characteristics (e.g., described price) but was not associated with a status quo label. Negative emotion ratings were taken on a 1–5 scale.

emotion-laden attributes (see Table 1). However, emotion ratings in the status quo group were not significantly affected by the attribute identity manipulation. Furthermore, mediation analyses indicated that participants who actually chose to maintain the status quo (vs. the participants who did not choose to select an available status quo option) were driving this lessened response to the emotional trade-off difficulty manipulation. That is, choice of the status quo option (vs. choice of another option) was followed by lower assessed emotionality in the high-emotion trade-off difficulty condition.

A replication experiment measured negative emotion during decision processing. Once again, higher emotional trade-off difficulty (operationalized as previously indicated) was associated with increased choice of the status quo alternative. Furthermore, in this experiment, an initial phase of processing in which attributes were introduced to participants was carried out before the status quo manipulation was implemented. Participants in the status quo group who rated this initial processing phase as more emotion laden were more likely to choose the status quo alternative when it became available later. This mediation of the status quo choice effect by self-reported negative emotion again suggests that status quo choice is a mechanism for avoiding the emotion associated with decision trade-offs.

Response time data also independently cast doubt on an effort minimization explanation. Mediation analyses indicate that choice of the status quo alternative followed increased decision response times in this experimental context. Therefore, it does not seem that status quo choice was used as a method to decrease cognitive effort.

In addition to pointing toward an influence of coping goals on decision-processing patterns, the two experiments outlined previously illustrate the dynamic relation between emotion and coping as proposed by Lazarus and Folkman (1984). Specifically, decision makers who feel more initial negative emotion are more likely to choose the status quo once it becomes available, but decision makers who choose such an option report lower levels of later emotion. I believe these emotion patterns occur because status quo choice is a mechanism for coping with emotion-laden decision trade-offs. Other work from this research program, for instance, Luce et al. (1997), used different specific measures of decision processing to support the proposition that explicit trade-off avoidance can function as a coping mechanism. Note that as the stakes of a decision increase, the desire to manage or minimize one's negative emotion is likely to have a greater influence on choice. Thus, somewhat paradoxically, an individual may be more likely to use a type of strategy that decision-making experts would recommend (i.e., one that carefully and explicitly considers relevant trade-offs) when choosing relatively low-stake consumer goods than when making crucial health care decisions.

Summary

The emotional trade-off difficulty model argues that decision-processing patterns (how people go about choice resolution) and outcomes (final decisions) are responsive to considerations regarding coping with negative emotion. In the illustrative experiments previously mentioned, and across the emotional trade-off difficulty research program more generally, it is often difficult to distinguish between the influence of various meta-goals based on decision outcomes alone. For instance, a decision maker may choose to do

nothing and maintain the status quo because it allows for cognitive effort minimization (i.e., it simply seems easier than alternative strategies) or because it allows for emotional minimization (i.e., it provides a mechanism to make choices without confronting trade-offs). Luce et al. (2001) have used detailed process evidence (e.g., reported emotion, response times) to tie choice patterns to emotion-minimization goals for decision making. They concluded that explicit between-attribute trade-offs, often considered the essence of choice itself, may be avoided in high-stake situations because they are particularly emotionally taxing.

The emotional trade-off difficulty model has several applications to decision making in cancer control. Much research addresses how patients cope with cancer diagnoses and progression of the disease (e.g., see Helgeson, Snyder, & Seltman, 2004; Sears, Stanton, & Danoff-Burg, 2003), and this research often draws on the same theoretical frameworks (e.g., Lazarus & Folkman, 1984) that the emotional trade-off difficulty model utilizes. However, it seems that patients may also need to specifically cope with cancer-related decisions. Thus, researchers may further their understanding of cancer control behavior if they explicitly recognize that the motivation to cope with the negative emotion generated by decision processing itself may shape decision-processing patterns and outcomes. This topic is potentially quite important, as patients' cancer control decisions are a central component of much cancer prevention and care. Specific applications are briefly addressed next.

Application to Decision Making in Cancer Control

Decision making in the health care domain has long been recognized as presenting special theoretical and practical problems. For instance, the renowned economist Kenneth Arrow (1963) noted that consumer health care decisions are characterized by a fundamental problem regarding uncertainty. Arrow characterized this issue as a shopping problem, noting that information gathering is complicated because individual consumer demand is irregular and no two consumers are alike. More specifically, Arrow's original characterization focuses on patients' inability to collect or understand relevant information. An apparent assumption is that patients would be willing to make the relevant trade-offs if given the appropriate informational input. The emotional trade-off difficulty model moves beyond this view by noting that the decision maker may also be influenced by his or her need to cope with the difficult trade-offs often characterizing health care decision making. Thus, emotion minimization considerations may generate a desire to avoid the relevant trade-offs, regardless of the available information. In fact, the provision of trade-off-relevant information or the explicit ceding of decisional control to a patient may actually increase decision-related threats.

This observation has implications for the general public policy debate regarding doctor-patient decision making. Recent health care trends have resulted in individual patients being more responsible for decision making regarding their care. The historical model of physician paternalism has been roundly criticized (e.g., Katz, 1984). Many health care practitioners have moved toward a model of informed consent in which clinicians provide patients with options and probabilities, and patients, in turn, are expected to evaluate these with respect to their utilities and preferences (e.g., Elstein, 2004). For example, oncologists may be encouraged to move from directly recommending adjuvant therapy in borderline

situations to laying out the pros and cons of such treatment, thus allowing the patient to decide. If increased (perceived) patient responsibility for decision trade-offs generates increased emotional costs, then these costs could be one reason for the difficulty with the informed consent model that is sometimes observed in practice. For instance, Schneider (1998) reviewed research indicating that patients are sometimes adverse to their own autonomy over health care decision making. He argued that patients' general desires for competence and kindness from health care professionals are often independent of, and even potentially at odds with, recent moves toward patient empowerment.

Put simply, patient control over a decision might lead to increased decision-generated threats. This proposal may seem counterintuitive, as it goes against some conventional wisdom that control generally facilitates coping and lowers stress. However, particularly in situations in which positive outcomes are not assured, control may actually heighten stress (see Folkman, 1984, for a discussion). Thus, making a patient responsible for his or her health care decisions might actually increase stress if it is seen as reducing his or her ability to cope by avoiding decision trade-offs.

Beyond postulating trade-off avoidance as a downstream coping mechanism, the emotional trade-off difficulty model predicts that the availability of coping strategies will moderate even initial emotional reactions to the relevant-decision situations. Specifically, decision-generated stress may be one aspect of the stress of initial cancer diagnosis that is relatively open to mitigation by thoughtful clinical interactions. For example, physicians are relatively limited in their ability to shield patients from the emotional impact of an initial diagnosis of prostate cancer; however, physicians may be able to mitigate decision-generated stress through reassurance that the patient will have a physician's guidance regarding treatment decisions if the patient desires it. Mitigating decision stress at these crucial junctures could have long-term advantages. For instance, Revenson and Pranicoff (2005) reported preliminary evidence indicating that women's initial experiences with breast cancer diagnosis and treatment shape their future fears regarding potential recurrence.

Recognition of the emotional costs of decision trade-offs in particular might suggest opportunities for developing decision counseling or aiding tools. Myers (2005) reports data from a decision counseling context showing that affective evaluations were a more prominent basis for obtaining prostate screening than were cognitive (or social) evaluations. He concludes that while the decision counseling currently provided to patients tends to focus on preference clarification, more work is needed to address how patient cognitions and feelings interact in informed decision making. These conclusions could be interpreted as initial support for a general notion that patients benefit from emotional as well as informational decision support. Similarly, Schwartz, Peshkin, Ter-cyak, Taylor, and Vadismarsdottir (2005) report on a computer-based decision aid provided to patients for use at home and at their own pace. The aid was focused on breast cancer treatment options and included both medical and psychosocial information. They found that use of the aid reduced decision conflict at the 6-month follow-up. Thus, providing decision support seemed to mitigate potential lingering distress regarding treatment options. In both decision counseling and aiding contexts, tools may address the emotional dynamics of patient decision making more effectively if they reflect the observation that explicit between-attribute trade-offs may be particularly threatening.

Of course, the observation that decisions create emotional costs is not a general argument for taking control of health care away from patients. Instead, a delicate balance may need to be struck between drawing patients into decision making and exacerbating an already stressful time by imposing (potentially) unwanted decision responsibility and hence decision-generated stress. For instance, Goldering, Taylor, Kemeny, and Anton (2002) found that stronger physician recommendations result in increased patient adherence to a drug regimen, but only for patients who perceive that there is a shared decision-making relationship with their doctor. Of course, one further complication in this regard is that patients seem likely to vary substantially in terms of how much decision control they desire or to what degree they trust their physician(s) to lift their decision burdens.

Beyond reliance on physicians to avoid difficult decision trade-offs, a patient may seek trust in a doctor because trust in and of itself accomplishes a coping function. Seeking social support is also a fundamentally important type of coping in its own right. Thus, if one recognizes cancer control decisions as potent stressors, then it is clear that there is a potential role for health care professionals to play as coping support in those decision episodes. For instance, in a detailed, naturalistic analysis of patient-provider communication, Siminoff and Step (2005) address both information exchange and relationship development. They argue that increased psychosocial communication and partnership building during the patient-physician encounter increases patient satisfaction and decreases decisional regret and conflict. In summary, the emotional trade-off difficulty model's suggestion that patients may be actively coping with the medical decisions they make widens the view of the physician's role from simply providing information to potentially providing various forms of coping support.

Finally, one commonly suggested approach to the problem of medical decision making is to have patients articulate their values in advance, for instance, through a living will. Presumably, one advantage of such advance planning is that it allows patients to think through decision trade-offs in a context in which decision-generated stress (e.g., from thinking through the implications of severe disability or early death) is divorced from the stress of medical diagnosis or crisis. However, beginning evidence indicates this approach may be problematic. For instance, Ditto and Hawkins (2005) report that advance directives do not significantly improve surrogates' judgments about treatment preferences nor do preferences expressed in this manner remain stable over time. It is possible that misjudgments as to the role of emotion and coping are underlying some of these difficulties. Thus, for instance, a trade-off that seems reasonable from a distance (e.g., a trade-off involving accepting a lower life expectancy for better current quality of life) may seem impossible when the patient is confronted with an actual decision situation. More generally, individuals may mispredict their decision-related coping just as they apparently mispredict their coping with medical events such as the onset of disability (e.g., Ubel, Loewenstein, Schwarz, & Smith, 2005).

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