

The downside of persistence: The effects of mood on an escalation of commitment paradigm

by

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Abstract

Escalation of commitment is a decision-making phenomenon that continues to impact the performance of managers. This continuation of investments into a losing course of action has been documented in a variety of settings (e.g., performance appraisals; Bazerman, Beekun, & Schoorman, 1982; Schoorman, 1988; Slaughter & Greguras, 2008). This study contributes to the literature on escalation of commitment by analyzing the specific effects of mood (positive, negative, and neutral) on the occurrence of escalation. To date, the literature lacks a complete investigation of the effects of mood on escalation of commitment (see Wong, Yik, & Kwong, 2006 for an exception). The Affect as Information model (AAI) proposed by Schwarz and Clore (1983) indicates that individuals in a positive mood tend to apply more heuristic information processing, whereas those in a negative mood tend to use a more deliberate approach. Given these tendencies, the current study hypothesized that negative moods will lead to less escalation of commitment, and positive mood to more escalation of commitment. Further, a research question explored the impact of escalation condition on the total escalation of participants. Four hundred and thirty five undergraduate participants completed a mood induction study and a “separate” escalation of commitment decision task. Results indicated an interaction between mood and escalation conditions, and a main effect for escalation condition. No significant main effect was found for mood. Implications for escalation of commitment research and affective differences in decision making are discussed.

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Introduction

The escalation of commitment to a losing course of action has been a topic of interest since it was identified in the seminal work of Staw (1976). Defined as the persistence in a losing course of action by a decision-maker, escalation of commitment is marked by the continued investment of resources (e.g., time, money) despite negative feedback about a previous decision (Brockner & Rubin, 1985; Staw, 1997). Specifically, in order for a decision to be considered escalation of commitment there must be (1) a previous loss; (2) the option to either continue or withdraw from the decision situation; and (3) uncertain consequences of making the decision to continue or withdraw (Staw 1997).

This maladaptive decision-making phenomenon has been documented in a variety of settings including: performance appraisals (Bazerman, Beekun, & Schoorman, 1982; Schoorman, 1988; Slaughter & Greguras, 2008), the banking loan industry (McNamara, Moon, & Bromiley, 2002; Staw, Barsade, & Koput, 1997), NBA player retention and play time (Staw & Hoang, 1995), cross cultural samples (Chinese and Mexican cultures; Chow, Harrison, Lindquist, & Wu 1997, Greer & Stephens, 2001; Keil et al. 2000), and group decision making (Bazerman, Giuliano, & Appelman, 1984; Haslam et al., 2006). Further, research has proposed the impact of project aspects (Karlsson, Juliusson, & Garling, 2005), psychological mechanisms such as self-justification and prospect theory (Staw, 1976, and Kahneman & Tversky, 1979; respectively), sunk costs (Arkes & Blumer, 1985; Garland, 1990), and individual differences (e.g, Moon, 2001a; Moon 2001b) as possible explanations and means for understanding escalation of commitment. In addition to the psychological and contextual investigations of this phenomenon,

there has been some work on the effects of emotions and negative affect on escalation of commitment (e.g., Tsai & Young, 2010; Wong & Kwong, 2007; Wong, Yik, & Kwong, 2006). Much of the literature has focused on discrete emotions such as anger and fear (Tsai & Young, 2010), and regret (Ku, 2008a; Wong & Kwong, 2007), or the more general negative affect (Wong, Yik, & Kwong, 2006). Thus far there is no work exploring the potentially differential effects of positive and negative moods on the occurrence of escalation of commitment. The current work seeks to address the affective gap in the escalation literature and answer the call to examine affect in organizational behavior (Barsade & Gibson, 2007)

The current work will explore the relationship between escalation of commitment and mood first by describing escalation of commitment. Further, the various currently identified causes and explanations for this phenomenon will be explored. Secondly, a theory will be discussed which describes the relationship between mood and information processing. Then the current, limited, work on the effects of emotion and negative affect on escalation of commitment are discussed. Lastly, the rationale for specific hypotheses for the effect of mood on escalation of commitment is described.

Escalation of Commitment

Escalation of commitment is a phenomenon distinct from others investigated in the decision-making literature. Not all situations in which an individual makes a poor decision upon receiving negative feedback are examples of escalation of commitment. There are three major, established criteria in order for a poor decision to be considered escalation of commitment (Staw, 1976; 1997). First, there must be sunk costs from a previous decision. In other words, some type or resource, whether money, time or effort, must have been present in a prior decision. Second, the decision-maker must have the opportunity to either continue or withdraw from the situation.

Lastly, the consequences of the decision to either withdraw or continue with further investment must not be clear. The decision-maker must not be immediately aware of the consequences of their future decision. This definition, as set forth by the seminal works in escalation of commitment (Staw, 1976), is the definition adopted in the current work.

The mechanisms underlying escalation of commitment as a decision-making phenomenon have been explored since Staw (1976) identified the tendency of individuals to make continued investments to a losing cause. Most of the work to date has centered around three main explanations for why individuals “throw good money after bad” (Garland, 1990): sunk costs, self-justification and prospect theory.

Psychological determinants of escalation of commitment.

Sunk Costs. Arkes and Blumer (1985) initially identified the sunk cost effect and subsequent escalation of commitment in their work highlighting a series of ten studies. These authors demonstrated that individuals are willing to ignore the more logical aspects of a decision situation and use the least rational explanation for their decisions, prior sunk costs. Further, the authors explain that economic theory dictates sunk costs should not be important, because regardless of the decision (to withdraw or persist) these costs will remain the same and cannot be recovered. For example, if you have been waiting at a bus stop for 10 minutes and have to decide between continuing to wait for the bus or take the subway, the time already spent at the bus stop is the same and you cannot recover it. Therefore, this sunk cost should not be of any importance to your decision to continue to wait or take the subway, because it cannot be changed. Arkes (1996) proposed that this type of illogical decision-making comes from the importance individuals find in not seeming wasteful. Individuals are motivated by the irrationality of recovering unrecoverable costs so that it will not appear that they have been wasteful of time,

money, effort or any other resource. Evidence for the sunk cost effect during escalation of commitment has been well demonstrated in the literature in a variety of contexts. For example, Arkes and Blumer (1985) found support for this effect across a number of different studies including such varied situations as theater ticket prices, and product development. Additionally, Staw and Hoang (1995) demonstrated this effect using an NBA sample. These authors found that when NBA teams invested a large amount of resources on a player, the player had more time in court, tended to remain with the team longer, and stayed in the league longer than players with similar performance but in whom less financial investment had been made. A more recent examination, specifically aimed at investigating the sunk cost effect, found results that support the importance of these costs. Karlsson, Garling and Bonini (2005) found that individuals consider sunk costs and escalate their commitment even if the outcome is transparent to the decision-maker. These authors argue that even when the rate of return is provided to participants prior to the decision point, they continue to escalate their commitment to the previous course of action. Although these works demonstrate that sunk costs are a cause for the seemingly irrational escalation of commitment paradigm, the literature has demonstrated that this is not the only mechanism contributing to this effect, but that escalation is explained by more than just looking back at sunk costs.

Moon (2001a), for example, considers the idea that individuals both look forward and back when making decisions. This seemingly conflicting rationale explains that decision makers examine both the sunk costs (looking back) and the completion rate of the task (looking forward). Results from this study found an interaction between these two aspects of a decision in predicting escalation of commitment. Similarly, Garland (1990) found that individuals were more likely to escalate their commitment if a larger proportion of the budget had already been

spent. Therefore, their work provides an example where sunk costs interact with level of project completion. Additionally, these authors found that the relationship between sunk costs and escalation was curvilinear rather than linear in nature, as would be proposed by a marginal utility model in prospect theory. This finding indicates that eventually previous sunk costs become less important in the decision to escalate commitment as time passes and the project is closer to completion. Evidence for the decreased psychological impact of sunk cost is also evidenced in the well-known Shoreham Nuclear Power Plant example in which factors such as politics and organizational determinants made it difficult to withdraw from the investment into the plant (Ross & Staw, 1993). In this example not only was the sunk cost considered by decision makers but also factors such as politics, the organization's future, project completion level, and the changing economic environment affected the decision to escalate to the point of spending \$5 billion. Further, Heath (1995) found that individuals tend to keep a mental budget when making subsequent decisions. In this study, individuals create a mental budget by which they compare the costs and benefits of a decision. Heath (1995) also found that escalation occurs even if the sunk costs are incompatible (i.e., involve time and money, rather than one or the other). In other words, time investment is made when the previous sunk cost is monetary in nature and vice versa. The results and implications for an interaction between sunk costs and project completion indicate that escalation of commitment is a complicated phenomenon that is likely explained by these as well as other mechanisms. For example, there is ample support in the literature for another potential predictor of escalation; self-justification.

Self-justification. Another well investigated psychological explanation of escalation of commitment is the self-justification mechanism (Staw, 1981). Stemming from research in social psychology, self-justification is the idea that individuals attempt to resolve the cognitive

dissonance that arises from receiving negative feedback from a decision they have made by making continued investments (Staw, 1997). Individuals therefore attempt to eliminate the psychological consequences of receiving negative feedback regarding a prior decision by investing additional resources (time, money, etc.). Although this seems counterintuitive, investing additional resources allows for the individual to continue to find the project worthy and to maintain their self-image as an efficacious decision maker. Most of the evidence in the literature supporting this phenomenon is derived from findings regarding personal responsibility (see Brockner, 1992 and Staw 1997 for a review). Studies manipulating personal responsibility make it salient to the decision-maker that they are in charge of that decision, thus triggering a need to justify these decisions by allocating further resources (Staw, 1997).

Several studies have examined the role of personal responsibility for a decision and its effect on the escalation of commitment. Overall, results from these studies have supported the self-justification hypothesis by demonstrating that when individuals are told they were responsible for a previous decision, which had negative outcomes, they escalate their commitment more than when someone else is responsible for the prior decision (e.g., Bazerman, Beekun, & Schoorman, 1982; Bazerman, Guiliano, & Appelman, 1984; Conlon & Parks, 1987; Staw 1976, Staw, Barsade, & Koput, 1997; Whyte, 1991). The continued replication of the responsibility effect as evidence of self-justification provides support for the theory that individuals try to justify previous investments by making additional investments, despite receiving continuous negative feedback. The importance of self-justification has also been identified in field settings. For example, in loan banking decisions (Staw, Barsade, & Koput, 1997), introducing a new decision maker allowed for better decisions regarding loan write offs. However, there has been some contradictory evidence to the introduction of another decision

maker (McNamara, Moon, & Bromiley, 2002) and its ability to mitigate escalation of commitment, indicating that this is not always beneficial. Another organizational example of the responsibility phenomenon is during performance appraisals (Bazerman, Beekun, & Schoorman, 1982; Schoorman, 1988). Managers rate individuals whom they were responsible for hiring more positively overall. Having invested resources in hiring someone makes a manager more likely to give positive performance ratings. The escalation effect is also always positive and does not work backward (Slaughter & Greguras, 2008). Being responsible for hiring someone leads to better performance ratings, but not being responsible for hiring an individual does not lead to negative performance evaluation (termed negative escalation by these authors).

Even when an individual is not asked to publicly provide justification for a decision, responsibility contributes uniquely to escalation of commitment (Bobocel & Meyer, 1994). Gunia, Sivanathan, and Galinsky (2009) found that the need for self-justification occurs even when one is asked to take the perspective of the prior decision maker. The strength of the motivation one has to justify their decisions is demonstrated even when individuals are asked to take the perspective of the previous decision maker prior to making a subsequent decision.

This phenomenon has also been documented during group decision-making (Bazerman, Giuliano, & Appelman, 1984). These authors found that in addition to individuals, groups also tended to increase their escalation in personally responsible conditions. Although the effect is still present, the strength of escalation in the group setting is not the same as during individual decision-making (Whyte, 1991). Individuals escalate less in groups, but when in groups, individuals still escalate more than when they are not responsible at all. The persistence of this phenomenon into group research only bolsters its strength as an explanation for escalation, as

group literature would generally indicate that diffusion of responsibility should mitigate this effect.

The responsibility effect is also present in how individuals choose information. In a highly cited and often replicated study, Conlon and Parks (1987) demonstrated that, when given a choice, individuals in responsible conditions requested more retrospective information than those in a non-responsible condition. This demonstrates that individuals tend to look back at sunk costs and retrospective information in order to justify prior decisions. This study served as the impetus for a slew of investigations on the potential retrospective effects of personal responsibility. Recently however, one study indicated that a possible confound in the Conlon and Parks' (1987) study was partially responsible for this effect (Schultze, Pfeiffer, & Schulz-Hardt, 2011). These authors found no evidence of a self-justification information search propensity but rather they found no difference between responsible and non-responsible participants in regards to information search. However, these authors did find that responsibility for a prior decision biased the evaluation of information and that this evaluation mediates the relationship between personal responsibility and escalation. Overall, the personal responsibility effect has been one of the most robust findings in explaining escalation of commitment (Staw, 1997). Although these findings are ubiquitous and among the most researched in the escalation literature, there are yet other psychological determinants for this type of decision-making, for example, prospect theory.

Prospect Theory. Originally proposed by Kahneman and Tversky (1989), this theory describes the relationship between the framing of a decision-making problem and risk taking behaviors in individuals. These authors propose that when outcomes are expressed as losses (such as in escalation of commitment) individuals tend to be more risk seeking. Conversely, when outcomes are expressed as gains, individuals tend to be more risk averse. This

phenomenon occurs because individuals wish to maintain their positive gains but wish to avoid possible losses (Bazerman, 1984; Staw, 1997). Given this rationale, individuals will then allocate more resources in order to turn around previous losing ventures in the hopes of obtaining gains (Staw, 1997). The process therefore becomes a choice between losses (Whyte 1993). Whyte (1993) found evidence for the framing proposed by prospect theory in both individual and group levels. Wong (2005) suggest a more complicated effect of risk taking on escalation. This author demonstrated that outcome expectancy (judgments regarding controllability of outcomes) mediates the relationship between risk perception and the decision to escalate. Overall, the literature appears to support three main psychological explanations for escalation of commitment: sunk costs/waste, self-justification as exemplified by the ubiquitous personal responsibility findings, and prospect theory. In addition to these psychological mechanisms, recent research has proposed other possible explanations for the escalation of commitment.

Non-psychological explanations of escalation of commitment. The impact of certain individual differences has been a more recent area of focus in the literature. Moon (2001b) for example found that the achievement striving dimension of conscientiousness is positively related to escalation, whereas the duty dimension of this trait is related to less escalation. Therefore, measuring these factors together as one combined measure of conscientiousness leads to a suppression effect. The authors assert that this suppression helps to explain previous equivocal results for this trait in the escalation literature. Although the overall effect size of the Moon (2001b) study indicates their results should be viewed with caution, this work is still an important step in investigating individual differences that contribute to escalation, as it is one of the few studies to directly test the impact of individual differences. The two facets of neuroticism, anxiety and depression, also have opposing suppression effects on escalation

(Moon, Hollenbeck, Humphrey, & Maue, 2003). Anxiety was found to lead to less escalation and depression to an increase in escalation. Differences on one's trait rational thinking style, an individual difference defined as the extent to which one uses rationality and prefers making rational decisions, indicate that the higher an individual is on this trait (i.e., the more rational thinking they report using), the higher their escalation (Wong, Kwong, & Ng, 2008). This seemingly counterintuitive finding supports previous contentions that individuals have a difficult time ignoring sunk costs. Although more rational individuals should understand the irrationality of recovering sunk costs through further investments, these authors found that this is not the case. Overall, the findings on individual differences indicate that certain aspects of personality have the potential to differentially impact escalation of commitment.

Goals and project completion have also been investigated for their effects on escalation. Specifically, the larger the distance between one's current state and ultimate project completion, the less likely they are to commit additional resources (Lant & Hurley, 1999). The effects of goal distance explain escalation even when controlling for sunk costs (Ting, 2011). Therefore, these results indicate that changes in the value of certain goals, in addition to sunk costs, are another powerful way of predicting escalation (Conlon & Garland, 1993; Garland & Conlon, 1998). This relationship however may not be as linear and clear cut as this research would suggest. There is evidence that the goal distance and escalation relationship could be curvilinear in nature (He & Mittal, 2007). These authors indicate that decision-makers place more value on projects when they are 10% and 90% completed, than when the project is 50% complete. Further, these authors argue that the salience of the project completion goal is clearer in the larger and smaller distance conditions, rather than the middle condition. These authors also describe that the effect of project completion and reaching project goals interact with the riskiness of a project, indicating that

riskier decisions are made when there is a large and small goal distance (i.e., when completion of a project is most salient). Research in goal distance suggests that making completion goals salient (by directly manipulating them and providing specific values) and goal distance are important predictors of escalation of commitment.

The previous review of the escalation literature reveals that several factors such as self-justification (Staw, 1997), goal direction (Conlon & Garland, 1993) and individual differences such as neuroticism and conscientiousness (Moon 2001b; Moon, Hollenbeck, Humphrey, & Maue, 2003) are the main focuses of an explanation of escalation of commitment. However, there have been authors who suggest that a full understanding of managerial decision-making should consider the emotional or affective aspects of such decisions (Barsade & Gibson, 2007; Bazerman, Tenbrunsel, & Wade-Benzoni, 1998). The following sections discuss the distinctions between moods and emotions and expand upon a specific mood theory that can be used for the exploration of the emotional aspect of escalation of commitment.

Mood and Affect in Organizational Behavior

Recently there has been a call for research on the influence of emotions on specific aspects of organizational behavior (Ashkanasy, Hartel, & Daus, 2002). There is some work in the escalation literature, which has explored negative affectivity, although the construct was measured using emotional stability (Wong, Yik, & Kwong, 2006). Further, the effects of discrete emotions such as regret/guilt (Ku, 2008 a; O'Neill, 2009; Wong & Kwong, 2007), anger (O'Neill, 2009; Tsai & Young, 2010) and fear (Tsai & Young, 2010) have been investigated in the literature, yielding promising results for the prediction of escalation. Overall, these studies indicate that negative discrete emotions like anger and fear can lead to less escalation. Although the findings on discrete emotions are important, there is a paucity of research on the direct

impact of general mood states on escalation of commitment. Specifically, as these works exemplify, there is little work directly comparing the effects of positive and negative mood and much focus has been placed on negative discrete emotions.

Distinguishing mood, emotion and affect. Before focusing on the specific theories of affect relevant to the current study, a distinction between the terms affect, mood and emotion is necessary. Most researchers agree that affect can be divided into two aspects: trait and state (Barsade & Gibson, 2007). Further, the word affect is identified as an umbrella term that subsumes mood, discrete emotions, and trait affectivity (Barsade & Gibson, 2007; Weiss, 2002). Trait affect is defined as an individual difference that is relatively stable within a person (Barsade & Gibson, 2007; Watson, 2000; Watson & Clark, 1994). State affect on the other hand, refers to how an individual feels at a specific moment and can be divided into moods and emotions. It is generally accepted that moods are longer, are less intense, and more diffuse than emotions (Barsade & Gibson, 2007; Clore et al., 2001; Watson, 2000; Watson & Clark, 1994). Another distinct feature of moods is that they have no specific target (i.e., their cause is not known by the individual). Further, Clore Schwarz, and Conway (1994) explain that mood “refers to the feeling state which need not be about anything” (p. 326). Therefore, moods differ from emotions in that their cause is not clear. These authors further explain that emotions differ from moods in that they have a more specific target and explain, “what the feeling is about” (p.326). Further, discrete emotions are generally accompanied by physiological responses from the individual, and in some cases even changes in facial expression (Watson, 2000). The current research into the emotional aspect of escalation of commitment has pertained to what one would define as discrete emotions (Clore et al., 1994). The current work aims to investigate the effect of mood on escalation and utilizes the definition provided by Clore, Schwarz, and Conway (1994).

Affect as information¹. Schwarz and Clore (1983) originally proposed the idea that one's affect acts as a guide for subsequent actions. This is known as the affect as information model (AAI). Specifically, this theory postulates that mood guides information processing as individuals attempt to understand their current mood (Forgas, 2001; Schwarz, 2001; Schwarz & Bless, 1991). Being in a negative mood acts as a signal that something in the environment is amiss and possibly threatening (Forgas, 2001). Therefore, those who are in a negative mood search for information to identify the cause of that mood, in order to “fix” it (Schwarz & Bless, 1991). This search for information relevant to “fixing” the negative mood leads to more deliberate information processing (Clore, Schwarz, & Conway, 1994; Forgas, 1995; Schwarz & Clore, 1983), because the negative mood acts as a trigger to resolve a potentially problematic situation (Clore et al., 2001; Forgas, 2001). Further, the fixing a problematic situation requires a “careful assessment of the features of the current situation, and analysis of their causal links, and exploration of possible mechanisms of change and their potential outcomes” (Schwarz & Bless, 1991, p.60). In order to complete these assessments and resolve the negative mood, individuals engage in bottom-up processing styles (Clore et al., 2001; Schwarz, 2000). The converse is true, however, for those who are in a positive mood. Being in a positive mood does not lead to the same motivation to “fix” one's mood. Positive mood instead reflects an “all is ok” signal or a “go” signal for using existing knowledge structures and information that is easily accessible at a given time (Clore et al., 2001; Isen, Means, Patrick, & Nowicki, 1981). Being in a bad mood signals one is in a threatening situation, whereas being in a positive mood signals one is in a non-threatening and benign situation (Schwarz, 2001). Therefore, being in a positive mood motivates individuals to utilize more heuristic and schematic information processing (Clore, Schwarz, & Conway, 1994; Isen, Means, Patrick, & Nowicki, 1981). Individuals in a positive mood will

utilize more top-down processing and rely on these heuristics when processing information (Schwarz, 2000, 2001; Schwarz & Bless, 1991). Mood can therefore either lead us to resolve our current threatening situation utilizing a bottom-up approach or continue to utilize our heuristics and simpler problem solving via top-down processing.

Mood as it is used for information, influences the evaluation of a target and how one feels about it (Schwarz, 2000). This “how do I feel about this” idea, explains that individuals in positive moods tend to evaluate a target more positively than when in a negative mood. Empirical findings suggest that when the specific cause of the negative mood is identified individuals become better at not associating their own feelings toward the target (Schwarz, 2000). These findings persist even when individuals are instructed to think in a manner different from what their mood would dictate. De Vries, Holland, and Witteman (2008) specifically requested participants in a negative mood to make intuitive decisions and those in a positive mood to make deliberate decisions when choosing between two thermoses. The incongruence between intuitive judgments and negative mood and deliberate judgments and positive mood led these participants to estimate a lower value for their selection. Therefore this indicates the strength of the influence of mood on information processing. Further, mood has been demonstrated to affect information processing in persuasive situations (e.g., Bohner, Crow, Erb, & Schwarz, 1992). The usual effect is that individuals in positive moods tend to be more convinced by weak arguments than individuals in a negative mood.

As described by the affect as information ideas espoused by Schwarz and Clore (1983), mood has critical effects of how we evaluate our current situation and subsequently process information. Given the importance of processing information regarding sunk costs (Arkes & Blumer, 1985), and negative feedback in the occurrence of escalation of commitment, it seems

logical to extend this line of thinking to this type of decision-making. The discussion that follows explains the current work on affective components and escalation of commitment.

Affect and escalation of commitment

More recently, the escalation of commitment literature has turned to increasingly more affective rather than cognitive explanations for this phenomenon. Specifically, the impact of discrete emotions, such as anger, fear, and regret has become the subject of research. Anger has been found to lead to a higher degree of escalation of commitment, whereas fear has the opposite effect on the degree of escalation (Tsai & Young, 2010). Further, anger results in a lower perception of risk than fear. The expressions of regret and anger in the context under which decisions are made (e.g., organizations) also impact the tendency to escalate. An environment under which regret is promoted (i.e., individuals admit their mistake) leads to less escalation, whereas the frequent expressions of anger lead to greater escalation, for fear of being wrong (O'Neill, 2009). The effects of regret have been investigated in a series of studies. The possibility of post decision regret is related to more escalation (Wong & Kwong, 2007). The possibility of regret from withdrawing is a strong affective motivator that leads to greater escalation. Individual predictions of regret after escalation have also been found to be much less than actual regret for that decision (Ku, 2008a). Additionally, this author found that not only was the affective forecasting of regret incorrect but overall, individuals under predict their future escalation. Therefore, although most individuals believe that they are able to ignore sunk costs and that if they do not ignore these costs they will suffer from post decision regret the opposite is true. However, changing one's frame of reference and picturing post decision regret actually leads to de-escalation (Ku, 2008b). In addition to prediction of future emotions, there is evidence

that anticipatory emotions toward a future decision mediate the relationship between the uncertainty of a situation and increased escalation of commitment (Harvey & Victoravich, 2009).

To date, the only study to specifically investigate the impact of affect, rather than discrete emotions, on escalation of commitment is the one by Wong, Yik, and Kwong (2006). These authors utilized the basic Arkes and Blumer (1985) task in order to investigate how negative affectivity would impact escalation. Using a coping perspective, these authors hypothesized that negative affectivity makes individuals less able to cope with negative feedback and more sensitive to this information. Their findings indicate that when the individuals were responsible for the decision, and had a general negative affect (as measured through neuroticism) they were less likely to escalate. Although the efforts of these authors are significant in the development of an affective perspective in escalation of commitment, more work needs to be done. The current work wishes to close this gap in the literature and heed the call for more affective perspectives in managerial decision-making (Barsade & Gibson, 2007; Bazerman, Tenbrunsel, & Wade-Benzoni, 1998) by examining the direct effects of mood on escalation of commitment.

Hypotheses

Given the effect mood has on the information processing strategy used by individuals, more specifically that positive mood leads to more heuristic and shallow processing and negative mood leads to more deliberate processing, the following hypotheses are proposed.

Hypothesis 1a: Individuals induced to be in a positive mood will demonstrate greater escalation of commitment than those in a negative and neutral condition.

Hypothesis 1b: Individuals induced to be in a negative mood will demonstrate less escalation of commitment than those in the positive and neutral condition

Hypothesis 1c: Individuals in the neutral condition will exhibit less escalation of commitment than positive mood participants but greater escalation than negative mood participants.

In regards to the manipulation of escalation price conditions, the current study will utilize two different price conditions. Prices for car repairs will be shown as increasing from low to high cost or decreasing from high to low cost. Svyantek, De Shon, and Siler (1991), found that the trend of decision points makes a difference in how individuals respond. Consistent with catastrophe theory, Svyantek et al. (1991) proposed that individuals use initial decision contexts as referents for subsequent decisions. Based on past research showing escalation differences (e.g., Svyantek et al., 1991), the manipulation of price conditions will further explore the effects of decision order on escalation. Therefore, the following research question is proposed regarding the manipulation of the task conditions:

Research Question: Will task condition (high to low prices versus low to high prices) have a main effect on escalation of commitment? Further, will there be an interaction between the task condition and the mood condition on escalation of commitment?

Method

Pilot Study

A pilot study consisting of 237 participants was conducted to test the viability of using a car task in capturing escalation of commitment. Participants were undergraduate students in the business department whom completed the task as part of a class activity. In the pilot test, the price of the vehicle as well as the order of repair prices was manipulated. There were three price conditions: \$8,000, \$10,000, and \$15,000. Additionally, there were five escalation price order conditions: high to low including engine replacement, high to low not including engine replacement, low to high including engine replacement, low to high not including engine replacement, random including engine replacement, and random not including engine replacement. Therefore there were a total of 18 conditions. Participants were given paper and pencil packets containing the same repairs as those in the final task and an open-ended item that asked participants how they would improve the task. Participants were instructed not to look ahead at decisions and were informed that there were not “correct” decisions. Further, participants were told that their most honest decisions were important for the development of the task. The packets were given to business students as a class exercise in pilot testing. Participants were given one week to complete and return the packets, and were asked not to share their answers to the class exercise with their classmates.

The number of conditions did not yield large cell numbers and may have contributed to the non-significant overall results of the pilot study. Therefore, the range in escalation instead was inspected for each condition. The condition, which demonstrated participant escalation across the range of repair scenarios, was the low to high with engine condition. Therefore the

engine replacement was retained as part of the task. Further, although there was no differences emerged between price conditions, the \$10,000 and \$15,000 conditions yielded the largest mean escalation. Therefore, for the final task, the price of the vehicle purchased was between these two price values. In addition to decisions regarding the car price and pricing conditions, the pilot study prompted participants to comment on how to improve the task. The open-ended item yielded some common themes, which were addressed in the final task. These included: some participants did not know what the car parts were and how critical they were to the vehicle, participants wanted to know if a potential to sell the car existed, and more explanation on whether public transportation is an option. The final task addressed these concerns by including definitions of each car part, the option to sell the vehicle, and the availability of public transportation.

Participants

Participants were undergraduate psychology and business students at a large Southeastern university. Data was collected online via the Qualtrics survey hosting site, and participants received 1.5 hours of course credit for completing the study. Due to the nature of the pictures utilized in the mood induction technique, state laws regarding consent, and the online format of the study, participants were required to be at least 19 years of age to participate. The final sample consisted of 435 participants. The majority of participants were 19 years old, female (55.7%), and Caucasian (87.7%).

Procedure

Participant recruitment was completed via the University's SONA system. This system allows students enrolled in classes offering extra credit for research to self-select into studies of their choice. On the SONA system they were able to click on a link to the study entitled

“Understanding Decision Making”. The SONA study description, which is available to all who are in the system, details that this is a decision making study and that a possible 1.5 points of extra credit could be earned. Additionally, participants were informed in the study description that the total time commitment for the study is an hour and a half.

Once participants signed up for a SONA timeslot, they were automatically routed to a screen containing the survey link. Upon clicking on this link, participants were asked to report whether they were at least 19 years of age. If they were of age, the next screen displayed instructions, which informed participants that they are going to participate in two studies. Further, these instructions detailed to the participants that Dr. Svyantek was conducting the first study. Participants were told that the first study was entitled “An Evaluation of Various Images” and that its purpose was to pilot test the images shown and investigate how the participants feel about them. The study entitled “An Evaluation of Various Images” was in fact not a separate study, but rather the mood induction technique. Once participants consented to participate in this “separate” first study, participants were randomly assigned to one of three mood conditions (positive, negative, or neutral) by the Qualtrics system. Instructions were given, which detailed to participants that they would be viewing a slideshow and that no action was necessary from them while watching the slideshow. Further, they were instructed to pay close attention to the pictures. Participants then viewed the series of pictures designed to induce the mood condition to which they were randomly assigned. The Qualtrics system will be set up to show each of the 20 pictures in the mood induction slideshow for 6 seconds. Additionally, the system was programmed to not allow participants to click to the next photo and automatically advance to the next picture after 6 seconds without any action required from the participant. Upon completion of the slideshow, participants were directed by the system to the Positive and Negative Affect

Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and were asked to report on their current feelings. This scale served as a manipulation check for the mood induction technique.

Once participants finished this “separate” study, they were directed to the escalation of commitment task, the “second” study. Prior to beginning the decision-making task, participants were informed that they had completed the first study and would begin the second study. Participants were given consent information for the second study, and once they consented were directed to instructions for the task. The instructions and the task itself are found in the Appendix. The system was programmed to randomly assign participants to two tasks conditions (high to low or low to high, more details in the next section). The task required participants to make several decisions regarding repairs (i.e., additional investments) to a car they had purchased. Each investment problem allowed participants the option to withdraw their commitment and make no further investments, or continue to invest in the car. After participants had either chosen to withdraw their commitment to the task or had completed all 10 of the escalation scenarios for their task condition (i.e., escalated all the way), they were directed to the demographics survey.

Rationale for deception of participants. The mood induction and decision task was shown as two separate studies to prevent participants from guessing the study hypotheses. Showing participants the slideshow of the pictures and asking them to make decisions soon after would make the link between these two aspects of the study obvious, thus possibly inducing socially desirable responding. Lastly, the deception technique was necessary in order to hide the target of the mood from the participants. Previous results have demonstrated that once an individual knows the target of their mood, the effects of that mood become negligible (e.g., Schwarz & Clore, 1983).

Measures

Mood Induction Technique. Participants were randomly assigned to view one of three picture sets (positive, negative or neutral) derived from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 2008). The pictures chosen from the IAPS were equated on their level of arousal in order to ensure that the pictures induced only the positive or negative mood for which they were intended, rather than activated mood states. Additionally, pictures were chosen so that the valence of the positive condition was the highest on average (Mean=7.199), followed by the neutral condition (Mean=4.953), and was lowest for the negative condition (Mean=3.166). Each of the 20 pictures were shown for six seconds on the screen.

Mood Manipulation Check. As previously discussed in the procedure, after viewing the pictures participants were asked to complete the PANAS (Watson, Clark, & Tellegen, 1988) as the mood manipulation check. This measure consists of 20 adjectives, 10 of which measure positive affectivity (PA) and 10 of which measure negative affectivity (NA). Participants were asked to respond to a list of adjectives according to their current mood, or how they feel right now, on a 5-point likert-type format (1= “Not at all”, 5= “Very much”). Watson et al. (1988), in a study conducted over an 8-week period, report test-retest reliabilities of .68 for the PA subscale and .71 for the NA scale. Additionally, they report internal consistency coefficient alphas of .88 for the PA subscale and .87 for the NA scale. In the current study coefficient alpha for the PA subscale was .88, and .91 for the NA subscale.

The Escalation of Commitment Scenario: “Car Task”.

Task description. The initial task context shown to participants indicated that they had purchased a \$12,000 car with 75,000 miles, which had been inspected and found to be in good condition. They are also told that they chose not to purchase a warranty. Additionally,

participants are told that if they chose not to repair the part in question in the vehicle, they would have access to public transportation while attempting to sell the car. Each repair was then presented, followed by a price. A definition of the part was given and the participant was shown the option to either repair/replace the part or to not complete the repair. All participants received the same decision context and car parts for repair. Further, choosing not to complete a repair meant that the task ended and the participant would no longer make any decisions regarding the vehicle. As explained in the next section, the only manipulation was that of the order of repairs. The complete task is found in the Appendix, further Table 1 shows each repair used in the task and their respective prices.

Task development. The use of investment scenarios in escalation of commitment research is ubiquitous (e.g., Arkes, & Blumer, 1985; Karlsson, Garling, & Bonini, 2005; Staw, 1976). The “Car Task” used in the current study was developed based on the definition of escalation of commitment proposed by Staw (1976; 1997). Following a recommendation made by Staw (1997) for research beyond “one-shot” decision-making in escalation of commitment and tasks that more realistically simulate decision processes in organizations, the current work used what is referred to as a dynamic paradigm (Wolff & Moser, 2008). The dynamic paradigm requires multiple decision points, each providing the option to increase investments or withdraw. The dynamic task developed therefore contains four major components: (1) multiple decision points rather than a “one-shot” decision, (2) a loss of money to the participant (sunk costs), (3) the option to either persist with the investment or withdraw, and (4) uncertain consequences for deciding to persist or withdraw at each decision point (Staw, 1997).

Due to the fact that differential effects have been found for internal justification (justification to oneself, privately) versus external justification (justification to an outside party)

for decisions during escalation of commitment scenarios (Bobocel & Meyer, 1994; Wolff and Moser, 2008), the current task assumed an internal justification process. The task did not in any way manipulate whether individuals must be held accountable to an outside party and does not ask participants to provide justification to others regarding their decisions. The decision to maintain internal justification is largely due to the fact that mood is an internal process, and manipulating external justification processes would not add to the hypotheses being tested in the current study.

Task content. The car parts utilized in the task were obtained through an interview with a Subject Matter Expert (SME). The SME is a certified Master Technician by the Automotive Service Excellence with 33 years of experience in car repair. He has owned repair shops both in Texas and Florida. An interview was conducted on November 2011. During this interview the SME helped to compile a list of the most commonly repaired car parts and their respective estimated prices for repair. The author asked the SME to only include repairs that are critical to a vehicle's functioning. For example, repairs such as air conditioning system (which are common) were not included because these are not critical to the functionality of the vehicle and safety of the driver, but rather a repair made to maintain the comfort of the driver. The parts and prices compiled through this interview were then used to develop the task (see Appendix).

Two prices conditions were then developed for the car task: a high to low repair price condition and a low to high price condition. In the high to low repair condition, the prices for each car repair decreased after each decision point reached by the participants. In the low to high condition, the prices increased at each decision point. A random condition was not developed as previous research indicates that random conditions do not improve or change the decision making process, but rather tend to fall in the middle (Svyantek, Deshon, & Stiler, 1991). Both

conditions utilized the same parts and repair prices. The only difference was the order in which each repair was presented. Complete escalation by a participant in either condition means a total sunk cost of \$14,610, or \$2,610 more than the original price of the car.

In addition to the prices for repair, participants were provided with definitions of each car part mentioned at each decision point. Pilot tests revealed that some participants were not aware of the criticality of some vehicle repairs for the proper functioning of a vehicle. Therefore, each decision scenario was followed by a definition of the car part mentioned. The definitions of each car part were compiled using mechanical, engineering, and automotive references (Davis, 1987; Goodsell, 1989; Jennings, 1970; SAE, 1988).

Results

Manipulation Check

In order to check if the picture slideshow manipulation successfully induced mood, two separate ANOVAs were conducted to compare the mean levels of negative affectivity (NA) and positive affectivity (PA) among each mood condition. A mean score was calculated for the adjectives reflecting positive affectivity for all participants (PA). A separate mean score was calculated for the negative affectivity adjectives (NA). The two One-Way ANOVAs compared the levels of NA and PA between each of the three mood conditions. The overall ANOVA for positive affectivity was also significant ($F_{(2,431)}=73.15, p<.001$). Results for PA are shown in Table 2. Post hoc Tukey HSD comparisons revealed significant mean differences in positive affectivity between the positive condition and the negative condition (Mean difference=.84, SE=.08, $p<.001$) as well as between the positive condition and the neutral condition (Mean difference=.80, SE=.08, $p<.001$). There were no significant mean differences between the neutral and negative conditions on their mean level of positive affectivity. Results from the NA ANOVA are shown in Table 3. These results demonstrate that there was a significant overall difference in the level of negative affectivity between participants in the mood conditions ($F_{(2,430)}=123.19, p<.001$). Further, post hoc Tukey HSD comparisons demonstrated a significant mean difference in NA between the negative condition and the positive condition (Mean difference=1.07, SE=.08, $p<.001$), and between the negative condition and the neutral condition (Mean difference=1.11, SE=.08, $p<.001$). There were no significant mean differences between the neutral and positive conditions in their level of negative affectivity. Means and standard deviations PA and NA for each condition are shown in Table 4. Overall, these results indicate that the manipulation of mood worked for the targeted valence.

Hypothesis Testing

Means and standard errors for the escalation levels, reflected as dollar amounts for each condition are found on Table 5. The level of escalation was calculated as the total amount invested into the vehicle. Each level of escalation was recoded into a dollar amount. For every participant, each occurrence of escalation (i.e., each choice to repair the vehicle) was added up to yield a total dollar amount. For example, someone in the low to high condition who escalated three times invested a total of \$210 into the vehicle (in addition to the initial \$12,000 investment). Therefore, the dependent variable reflects the total number of dollars invested in repairs of the used car by each participant.

In order to test the hypotheses proposed regarding the effects of mood, and the research question regarding price condition, a two-way ANOVA was conducted. The two escalation conditions (high to low and low to high) and three mood conditions (negative, positive, and neutral) were entered as the independent variables, and total dollar amount invested into the used car as the dependent variable (see full results in Table 6). In order to check for support of Hypotheses 1a, 1b, and 1c the main effect for mood condition was inspected. Hypotheses 1a, 1b, and 1c stated that positive mood would exhibit more escalation (1a), negative mood would exhibit less escalation (1b), and neutral mood would fall in the middle of the positive and negative conditions (1c). There was not a significant main effect for mood condition ($F_{(2,434)}=1.03, p=.358$). Therefore Hypotheses 1a, 1b, and 1c were not supported. In support of the first part of the research question, which pertained to a main effect of escalation condition, the main effect for escalation condition was found ($F_{(1,434)}=43.353, p<.001$). Therefore this main effect confirms that there was a significant impact of escalation condition on the total dollar amount invested into the used vehicle. Lastly, there was a significant interaction between

escalation and mood conditions on the amount of money invested into the vehicle ($F_{(2,434)}=3.69$, $p<.05$). This significant interaction effect addresses the second part of the research question (see figure 1). Further, it provides support for the impact of an interaction between mood condition and escalation condition. Estimates of effect size were also obtained for each main effect and the overall interaction effect. The escalation condition to which a participant was assigned accounted for 9% of the variance in the amount of money invested into the vehicle. The mood condition accounted for .5% of the variance in the amount of money invested. Lastly, the interaction accounted for 1.7% of the variance in the dependent variable.

Post hoc tests comparing the mean dollar amount invested into the vehicle in each escalation condition demonstrated a significant difference between the high to low and the low to high conditions (mean difference=3,450, SE=523.2, $p<.001$). Therefore, on average participants in the high to low condition invested \$3,450 more into the vehicle than those in the low to high condition. This mean difference in amount of money invested into the vehicle answers the research question proposed. Due to the fact that the main effect for mood condition was not significant, no post hoc tests were necessary.

Discussion

The current study sought to fill a gap in the escalation of commitment literature by exploring the effects of mood on this decision-making phenomenon. Currently, the escalation literature provides several tested and well-known explanations for why this faulty decision-making occurs. Although explanations such as personal responsibility, sunk costs, and prospect theory have been evidenced throughout the literature (See Staw, 1981; 1997 for reviews), there is still a need to expand beyond these psychological mechanisms. Specifically, there has been a recent call for additional work contributing to the understanding of organizational behaviors through the examination of affective components (Ashkanasy, Hartel, & Daus, 2002). The escalation literature has explored discrete emotions (e.g., regret and anger; O'Neill, 2009; Tsai & Young, 2010) as well as negative affectivity (Wong, Yik, and Kwong, 2006) but a direct comparison of positive and negative moods and their effect on escalation has never been done in this literature. Therefore, the current study explored the effects of positive and negative mood on escalation of commitment, and included a neutral control condition. More specifically, given the affect as information model (AAI; Schwarz and Clore, 1983) and its tenets regarding information processing, hypotheses were proposed regarding the relationship between mood and escalation of commitment. Additionally, given the findings of Svyantek, DeShon, and Siler (1991), and consistent with catastrophe theory, the current study proposed a research question regarding the potential effect of the manipulation of escalation decision points.

In respect to the hypotheses and research question proposed, some interesting results emerged. Hypothesis 1a predicted that individuals induced to be in a positive mood would demonstrate greater escalation of commitment. Hypothesis 1b predicted that individuals in a negative mood would demonstrate less escalation. Hypothesis 1c hypothesized that neutral mood

participants would exhibit less escalation than the positive mood but more than the negative mood. In the high to low condition, Hypotheses 1a and 1b were not supported. As illustrated in Figure 1, in the high to low price condition, the negative mood condition demonstrated the highest level of escalation, followed by the neutral condition, and the least escalation in the positive mood condition, though these differences were not statistically significant (see Table 6). Hypothesis 1c was not supported due to the fact that participants in the neutral condition demonstrated less escalation than the negative condition and more escalation than the positive condition.

There are some possible explanations for the reversal of trends in the high to low condition. Specifically, the fact that the positive mood condition demonstrated less escalation than the negative condition may imply some other aspects of positive mood. For example, Isen, Means, Patrick, & Nowicki (1982) explain that individuals in a positive mood utilize heuristics when making decisions. These authors describe that these heuristics can be beneficial when faced with complicated decision tasks. Perhaps those in the high to low condition were inadvertently faced with a more complicated and difficult initial decision than those in the low to high condition, thus leading to a heuristic simplification of the task and less escalation (Johnson, 2009). Another possible explanation is that those in the high to low condition may have found the initial decision of replacing the engine very risky, and prior research demonstrates that individuals in a positive mood are more risk averse in highly risky situations in order to maintain their positive mood (Isen, Nygren, & Ashby, 1999; Nygren, 1998).

In the low to high condition, findings were in the hypothesized direction. Specifically, in this condition, those in a negative mood escalated less than those in a positive mood. Although the mean differences between positive and negative moods in this task condition are not

statistically significant (see Table 6), this trend follows what one would expect from the Affect as Information model (Schwarz & Clore, 1983). In accordance with this theory, those in a positive mood should escalate more than those in a negative mood. The theory postulates that individuals in a positive mood use more heuristic information processing, which was hypothesized to lead to more escalation of commitment (Schwarz, 2000, 2001; Schwarz & Bless, 1991). Further, the more methodical and careful processing of those in a negative mood (Clore et al., 2001; Schwarz, 2000) was hypothesized to lead to less escalation of commitment. The directionality of the findings in the low to high condition, therefore are as hypothesized and as would be expected by AAI.

The results of the low to high condition agree with those from the only study of negative affect on escalation. Wong, Yik, and Kwong (2006), found that negative affect predicted less escalation of commitment. In the low to high condition, negative mood led to the lowest mean levels of escalation. However, caution should be used when interpreting these results as the mean differences between positive and negative mood are not significant and the effect size for the non-significant main effect of mood is also small. Perhaps an explanation for the non-significant mean differences between mood conditions is the small sample within each cell. As shown in Table 5, there were only 75 participants in the negative condition, 66 in the neutral condition, and 76 in the positive mood condition. Greater power could potentially lead to stronger results in the same direction as seen in this condition.

In regards to the research question, the results revealed some interesting aspects of the data. Specifically, escalation condition and mood condition generated an interaction effect in the opposite direction of that which was hypothesized for this condition. This interaction effect and subsequent reversal of trends for the mood conditions occurred only in the high to low condition.

Due to this reversal of trends, the significant differences between the price conditions were inspected in the data in order to understand the effect of the interaction between conditions. In the high to low condition, individuals first saw the decision point indicating that the engine needed to be replaced. This repair was estimated to cost \$7,000. Therefore the repair would cost 58.3% of the total cost of the car. Due to the high sunk cost associated with choosing to complete this repair, two interesting patterns of behavior occurred. Either individuals chose not to repair, and thus were done investing in the car, or they chose to invest all the way to the end of the task. In fact, of those in the high to low condition, 50% chose not to invest at all in the car, compared with no participants in the low to high condition making this choice. Further, 24% of participants in the high to low condition escalated all the way to the end (spending \$14,610 in addition to the initial \$12,000), in comparison to only 8% in the low to high condition.

The high cost of the initial decision point in this condition and the subsequent choice by half of these participants to not escalate at all and 24% to escalate all the way, illustrates that personal responsibility may interact in differential ways with mood. It is possible that individuals in the low to high condition whom chose to complete the first repair felt a much greater need for self-justification. The self-justification findings explain that do not wish to seem wasteful when they are responsible for a decision (Bazerman, Beekun, & Schoorman, 1982; Bazerman, Giuliana, & Appelman, 1984; Staw 1997). Therefore, the high cost of the first decision in this task condition is likely to have activated a much higher level of sunk cost and thus a greater need to justify the prior decision with complete escalation. Essentially, individuals in this condition who chose to complete the first repair could have established a much more high stakes commitment to their original decision and continued escalating. There are also likely to be individual difference correlates that can explain why the trend in this condition was bimodal in

nature. It is possible that there are differences in the levels of conscientiousness of participants, which were exacerbated by the riskiness of the task. Particularly, differences in achievement striving, which have been linked to greater escalation (Moon, 2001b), could have contributed to the higher instances of escalation to the end in the riskier high to low condition. Additionally, it is possible that aspects of personality such as emotional stability could have led to the interaction between mood and escalation condition.

Limitations and future directions

The current study revealed some interesting results and adds to the current literature on escalation of commitment. It is of interest to the researchers of organizational decision-making that the manner in which decisions are presented as well as the mood of decision-makers can have an effect on the quality of decisions. Although the current study task and procedures were designed to accurately capture the effects of mood on escalation of commitment, there are some limitations that need to be addressed.

The first limitation is that one cannot rule out that the task could have served as a mood-inducing event. Due to the fact that a measure of mood was not collected after the completion of the escalation of commitment task there is no way to know whether participants experienced any change in mood upon completing the task. It is possible, therefore that the aversive nature of losing money, particularly in the high to low task could have induced the mood of participants. Future research on the effects of mood on escalation of commitment should investigate whether losing money is an affective event. Further, future research should include measures of mood after several instances of negative feedback, as is the case in escalation of commitment.

Another limitation of the current study is the exclusion of a random condition in the task. Although Svyantek et al. (1991) would suggest that random decision points should not have an

effect on decisions, the exclusion of such a condition in the current study cannot rule out the possibility of its effect on the level of escalation. It is possible that a random condition could have contributed to teasing apart the effects of condition and subsequent interaction with mood. Future work on escalation of commitment should include random decision points in order to tap into the possible effects of such a condition.

A third limitation of the current study is the nature of the task itself. The car task was chosen because it is more relatable for the current sample. The literature on escalation of commitment usually includes budgets for research and development, and multi-million dollar decisions (Staw, 1997), which is not relatable to undergraduates. Most students at a university do not understand or relate to project managers or CEOs making multi-million dollar decisions. Although the car task is much more relatable, it is also less generalizable to organizational decision-makers. Future research should focus on escalation of commitment tasks that mimic organizational decision-making or use organizational samples.

Lastly, the interaction between mood and escalation condition produced some interesting results and the reversal of trends in the effects of mood. Future research should further explore and disentangle this interaction effect. Further, additional research should be used to determine what possible personality variables, or aspects of affectivity created the bimodal trend in the high to low condition.

References

- Arkes, H.R., Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, 35, 124-140.
- Arkes, H.R. (1996). The psychology of waste. *Behavioral Decision Making*, 9, 213-224.
- Ashkanasy, N.M., Härtel, C.E.J., & Daus, C.S. (2002). Diversity and emotion: The new frontiers in organizational behavior research. *Journal of Management*, 28, 307-338.
- Barsade, S. G., & Gibson, D. E. (2007). Why Does Affect Matter in Organizations?. *Academy of Management Perspectives*, 21, 36-59.
- Bazerman, M.H. (1984). The relevance of Kahneman and Tversky's concept of framing to organizational behavior. *Journal of Management*, 10, 333-343.
- Bazerman, M. H., Beekun, R. I., & Schoorman, F. (1982). Performance evaluation in a dynamic context: A laboratory study of the impact of a prior commitment to the ratee. *Journal Of Applied Psychology*, 67, 873-876.
- Bazerman, M.H., Giuliano, T., & Appelman, A. (1984). Escalation of commitment in individual and group decision making. *Organizational Behavior and Human Performance*, 33, 141-152.
- Bazerman, M. H., Tenbrunsel, A. E., & Wade-Benzoni, K. (1998). Negotiating with yourself and losing: Making decisions with competing internal preferences. *Academy Of Management Review*, 23, 225-241.
- Bobocel, D., & Meyer, J. P. (1994). Escalating commitment to a failing course of action: Separating the roles of choice and justification. *Journal Of Applied Psychology*, 79, 360-363.

- Bohner, G., Crow, K., Erb, H., & Schwarz, N. (1992). Affect and persuasion: Mood effects on the processing of message content and context clues and on subsequent behaviour. *European Journal of Social Psychology*, 22, 511-530.
- Brockner, J., & Rubin, J.Z. (1985). *Entrapment in escalating conflicts: A social psychological analysis*. New York, NY: Springer-Verlag.
- Chow, C.W., Harrison, P., Lindquist, T., & Wu, A. (1997). Escalating commitment to unprofitable projects: Replication and cross-cultural extension. *Management Accounting Research*, 8, 347-361.
- Clore, G.L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R.S. Wyer & T.K. Srull (Eds.), *Handbook of Social Cognition, Vol 1 Basic Processes* (pp. 323-417). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Clore, G.L., Wyer, R.S., Dienes, B., Gasper, K., Gohm, C., & Isbell, L. (2001). Affective feelings as feedback: Some cognitive consequences. In L.L. Martin & Clore, G.L. (Eds.), *Theories of Mood and Cognition: A user's guidebook* (pp. 27-62). Mahwah, NJ: Lawrence Erlbaum Associates.
- Conlon, D.E., & Garland, H. (1993). The role of project completion information in resource allocation decisions. *Academy of Management Journal*, 36, 402-413.
- Conlon, E.J., & Parks, J.M. (1987). Information requests in the context of escalation. *Journal of Applied Psychology*, 72, 344-350.
- Davis, G.J. (1987). *Automotive Reference: A New Approach to the World of Auto/Related Information*. Boise, ID: Whitehorse.

- Detweiler-Bedell, B., Detweiler-Bedell, J.B., & Salovey, P. (2006). Mood-congruent perceptions of success depend on self-other framing. *Cognition and Emotions, 20*, 196-216.
- De Vries, M., Holland, R.W., & Witteman, C.L.M. (2008). Fitting decisions: Mood and intuitive versus deliberative decision strategies. *Cognition and Emotion, 22*, 931-943.
- Forgas, J.P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39-66.
- Forgas, J.P. (2001). The affect infusion model (AIM): An integrative theory of mood effects on cognition and judgments. In L.L. Martin & Clore, G.L. (Eds.), *Theories of Mood and Cognition: A user's guidebook* (pp. 99-134). Mahwah, NJ: Lawrence Erlbaum Associates.
- Garland, H. (1990). Throwing good money after bad: The effect of sunk costs on the decision to escalate commitment to an ongoing project. *Journal Of Applied Psychology, 75*, 728-731.
- Garland, H., & Conlon, D.E. (1998). Too close to quit: The role of project completion in maintaining commitment. *Journal of Applied Social Psychology, 28*, 2025-2048.
- Goodsell, D. (1989). *Dictionary of Automotive Terms*. Tiptree, Essex, UK: Courier International Ltd.
- Greer, C.R., & Stephens, G.K. (2001). Escalation of commitment: A comparison of differences between Mexican and U.S. decision-makers. *Journal of Management, 27*, 51-78.
- Gunia, B.C., Sivanathan, N., & Galinsky, A.D. (2009). Vicarious entrapment: Your sunk costs, my escalation of commitment. *Journal of Experimental Social Psychology, 45*, 1238-1244.

- Harvey, P., & Victoravich, L. M. (2009). The Influence of Forward-Looking Antecedents, Uncertainty, and Anticipatory Emotions on Project Escalation. *Decision Sciences, 40*, 759-782.
- Haslam, S.A., Ryan, M.K., Postmes, T., Spears, R., Jetten, J., & Webley, P. (2006). Sticking to our guns: Social identity as a basis for maintenance of commitment to faltering organizational projects. *Journal of Organizational Behavior, 27*, 607-628.
- He, X., & Mittal, V. (2007). The effect of decision risk and project stage on escalation of commitment. *Organizational Behavior and Human Decision Processes, 103*, 225-237.
- Heath, C. (1995). Escalation and de-escalation of commitment in response to sunk costs: The role of budgeting in mental accounting. *Organizational Behavior and Human Decision Processes, 62*, 38-54.
- Hills, A. M., Hill, S., Mamone, N., & Dickerson, M. (2001). Induced mood and persistence at gaming. *Addiction, 96*, 1629-1638.
- Isen, A.M., Means, B., Patrick, R., Nowicki, G. (1981). In M.S. Clark & S.T. Fiske (Eds.), *Affect and Cognition, The seventeenth annual Carnegie symposium on cognition* (243-261). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Isen, A. M., Nygren, T. E., & Ashby, F. (1988). Influence of positive affect on the subjective utility of gains and losses: It is just not worth the risk. *Journal Of Personality And Social Psychology, 55*, 710-717.
- Jennings, R.C. (Ed.). (1969). *The Automotive Dictionary*. New York, NY: William Dogan Annual Publication Associates.
- Johnson, S.K. (2009). Do you feel what I feel? Mood contagion and leadership outcomes. *Leadership Quarterly, 20*, 814-827.

- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decisions under risk. *Econometrica*, 47, 263-291.
- Karlsson, N., Gärling, T., & Bonini, N. (2005). Escalation of Commitment with Transparent Future Outcomes. *Experimental Psychology*, 52, 67-73.
- Karlsson, N., Juliusson, Á., & Gärling, T. (2005). A conceptualisation of task dimensions affecting escalation of commitment. *European Journal Of Cognitive Psychology*, 17, 835-858.
- Keil, M., Tan, B. Y., Wei, K., Saarinen, T., Tuunainen, V., & Wassenaar, A. (2000). A cross-cultural study on escalation of commitment behavior in software projects. *MIS Quarterly*, 24, 299-325.
- Ku, G. (2008 a). Learning to de-escalate: The effects of regret in escalation of commitment. *Organizational Behavior and Human Decision Processes*, 105, 221-232.
- Ku, G. (2008 b). Before escalation: Behavioral and affective forecasting in escalation of commitment. *Personality and Social Psychology Bulletin*, 34, 1477-1491.
- Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (2008). *International affective picture system (IAPS): Affective ratings of pictures and instruction manual*. Technical Report A-8. University of Florida, Gainesville, FL.
- Lant, T.K., Hurley, A.E. (1999). A contingency model of response to performance feedback. *Group and Organization Management*, 24, 421-437.
- Magnan, R.E., & Hinsz, V.B. (2005). Mood, gender, and situational influences on risk-taking advice for others. *Social Behavior and Personality: An International Journal*, 33, 1-10.

- McNamara, G., Moon, H., & Bromiley, P. (2002). Banking on commitment: Intended and unintended consequences of an organization's attempt to attenuate escalation of commitment. *Academy Of Management Journal*, *45*, 443-452.
- Moon, H. (2001a). Looking forward and looking back: Integrating completion and sunk-cost effects within an escalation-of-commitment progress decision. *Journal Of Applied Psychology*, *86*, 104-113.
- Moon, H. (2001b). The two faces of conscientiousness: Duty and achievement striving in escalation of commitment dilemmas. *Journal Of Applied Psychology*, *86*, 533-540.
- Moon, H., Hollenbeck, J. R., Humphrey, S. E., & Maue, B. (2003). The Tripartite Model of Neuroticism and the Suppression of Depression and Anxiety Within an Escalation of Commitment Dilemma. *Journal Of Personality*, *71*, 347-368.
- Nygren, T.E. (1998). Reacting to perceived high- and low-risk win-lose opportunities in a risky decision-making task: Is it framing or affect or both?
- O'Neill, O.A. (2009). Workplace expression of emotions and escalation of commitment. *Journal of Applied Social Psychology*, *39*, 2396-2424.
- Ross, J., & Staw, B.M. (1993). Organizational escalation and exit: Lessons from the Shoreham Nuclear Power Plant. *The Academy of Management Journal*, *36*, 701-732.
- Schoorman, F. (1988). Escalation bias in performance appraisals: An unintended consequence of supervisor participation in hiring decisions. *Journal Of Applied Psychology*, *73*, 58-62.

- Schultze, T., Pfeiffer, F., & Schulz-Hardt, S. (2011). Biased information processing in the escalation of commitment paradigm: Information search and information evaluation as potential mediators of escalating commitment. *Journal of Applied Psychology*, doi: 10.1037/a0024739.
- Schwarz, N. (2001). Feelings as information: Implications for affective influences on information processing. In L.L. Martin & Clore, G.L. (Eds.), *Theories of Mood and Cognition: A user's guidebook* (pp. 159-176). Mahwah, NJ: Lawrence Erlbaum Associates.
- Schwarz, N. (2000). Emotion, cognition, and decision making. *Cognition and Emotion*, 14, 433-440.
- Schwarz, N., & Bless, H. (1991). Happy and mindless, but sad and smart? The impact of affective states on analytic reasoning. In Forgas, J.P. (Ed.), *Emotion and Social Judgments* (55-70). Elmsford, NY: Pergamon Press.
- Schwarz, N., & Clore, G. L. (1983). Mood, misattribution and judgments of well-being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology*, 45, 513-523.
- Slaughter, J.E., & Greguras, G.J. (2008). Bias in performance ratings: Clarifying the role of positive versus negative escalation. *Human Performance*, 21, 414-426.
- Society of Automotive Engineers. (1988). *Glossary of Automotive Terms*. Warrendale, PA: Society of Automotive Engineers, Inc.
- Staw, B.M. (1976). Knee-deep in the big muddy: A study of escalating commitment to a chosen course of action. *Organizational Behavior and Human Performance*, 16, 27-44.

- Staw, B.M. (1981). The escalation of commitment to a course of action. *Academy of Management Review*, 6, 577-587.
- Staw, B.M. (1997). The escalation of commitment: An update and appraisal. In Shapira, Z. (Ed.), *Organizational Decision Making* (pp. 192-215). Cambridge: Cambridge University Press.
- Staw, B. M., Barsade, S. G., & Koput, K. W. (1997). Escalation at the credit window: A longitudinal study of bank executives' recognition and write-off of problem loans. *Journal Of Applied Psychology*, 82, 130-142.
- Staw, B. M., & Hoang, H. (1995). Sunk Costs in the NBA: Why Draft Order Affects Playing Time and Survival in Professional Basketball. *Administrative Science Quarterly*, 40, 474-494.
- Svyantek, D.J., Deshon, R.P., & Siler, M.T. (1991). The illusion of certainty: A catastrophe model of decision framing. *Current Psychology: Research and Reviews*, 10, 199-209.
- Ting, H. (2011). The effects of goal distance and value in escalation of commitment. *Current Psychology*, 30, 93-104.
- Tsai, M.H., & Young, M.J. (2010). Anger, fear, and escalation of commitment. *Cognition and Emotion*, 24, 962-973.
- Watson, D. (2000). *Mood and Temperament*. New York, NY: Guilford.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96, 465-490.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal Of Personality And Social Psychology*, 54, 1063-1070.

- Weiss, H.M. (2002). Conceptual and empirical foundations for the study of affect at work. In R.G. Lord, R.J. Klimoski, & R. Kanfer (Eds.), *Emotions in the workplace: Understanding the structure and role of emotions in organizational behavior* (20-63). San Francisco, CA: Jossey-Bass.
- Whyte, G. (1991). Diffusion of responsibility: Effects on the escalation tendency. *Journal Of Applied Psychology, 76*, 408-415.
- Wolff, H., Moser, K. (2008). Choice, accountability, and effortful processing in escalation situations. *Journal of Psychology, 216*, 235-243.
- Wong, K.F.E. (2005). The Role of Risk in Making Decisions under Escalation Situations. *Applied Psychology: An International Review, 54*, 584-607.
- Wong, K., & Kwong, J. Y. (2007). The role of anticipated regret in escalation of commitment. *Journal Of Applied Psychology, 92*, 545-554.
- Wong, K., Kwong, J., & Ng, C. K. (2008). When Thinking Rationally Increases Biases: The Role of Rational Thinking Style in Escalation of Commitment. *Applied Psychology: An International Review, 57*, 246-271.
- Wong, K., Yik, M., & Kwong, J. Y. (2006). Understanding the emotional aspects of escalation of commitment: The role of negative affect. *Journal Of Applied Psychology, 91*, 282-297.

Footnotes

¹There are two other sets of findings, which can be pertinent to escalation of commitment. First, individuals want to maintain their positive moods, and are less likely to engage in risky behavior (Isen, Nygren, & Ashby, 1988; Nygren, 1998). People in positive moods tend to be more risk-averse in gambling situations than those who are in negative moods, when the risks are high (Nygren, 1998). A recent review also (Magnan & Hinsz, 2005) indicated that maintaining a positive mood is a motivator for making riskier decisions when there is a high probability for success but not when potential loss is great (Isen, 1987, as cited in Magnan & Hinsz, 2005).

Second, the findings that mood can guide individuals' judgments of future success and their opinion on the likelihood of positive outcomes. Those in a positive mood tend to be more optimistic regarding their future success than those in a negative mood, when the estimate was self-focused (Detweiler-Bedell, Detweiler-Bedell, & Salovey, 2006).

These theories are noted but not included because the escalation task is not clearly a risky decision making task, such as in gambling or stock market studies. Also, asking individuals to predict future emotions before the task would reveal the purpose of the study as linking mood and escalation and confound the results.

Table 1
Car Repairs and Costs (in Dollars)

Part for Repair	Cost (in Dollars)
Coolant	65
Taillights	70
Brake Fluids	75
Spark Plugs	380
Alternator	500
Ignition Coils	750
Radiator	900
Brakes	1,270
Transmission	3,600
Engine	7,000

Table 2
Summary of ANOVA Positive Affectivity

	Sum of Squares	df	Mean Square	F
Between Groups	64.78	2	32.92	73.15**
Within Groups	190.87	431	.44	
Total	255.65	433		

** $p < .001$

Table 3
Summary of ANOVA Negative Affectivity

	Sum of Squares	df	Mean Square	F
Between Groups	110.06	2	55.03	123.19**
Within Groups	192.08	430	.447	
Total	302.14	432		

** $p < .001$

Table 4

Means and Standard Deviations for Positive Affectivity (PA) and Negative Affectivity (NA) for Mood Conditions

Mood Condition	PA	NA
Negative	2.48 (.55)	3.00 (.76)
Neutral	2.51 (.74)	1.89 (.62)
Positive	3.32 (.69)	1.98 (.61)
Means (SD)		

Table 5
Means and Standard Deviations for Escalation Levels by Condition

Condition	N	Mean	SE
Positive/Low to high	76	2889.34	621.02
Neutral/Low to high	66	3431.14	669.63
Negative/Low to high	75	2037.47	628.17
Positive/High to low	67	5068.96	664.61
Neutral/High to low	79	6172.34	612.06
Negative/High to low	71	7467.25	645.62

Note: Positive=Positive mood, Neutral= Neutral mood, Negative=Negative mood; Low to high= low to high price condition, High to low= high to low price condition; Mean= average dollar amount invested into vehicle

Table 6
Summary of Two-Way ANOVA

Source	Sum of Squares	df	Mean Square	F	Partial Eta Squared
EscCon	1.29E9	1	1.29E9	43.45**	.092
MoodCon	60942833.67	2	30471416.83	1.03	.005
EscCon*ModCon	2.19E8	2	1.09E8	3.69*	.017
Error	1.27E10	428	29594348.09		
Total	2.31E10	434			

Note: *= $p < .05$; **= $p < .001$

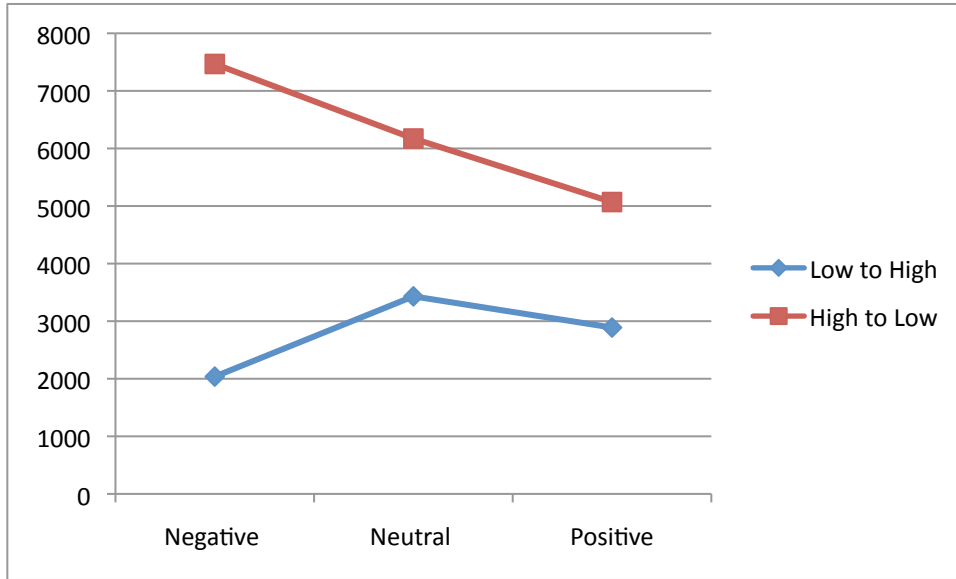


Figure 1. Interaction between mood and escalation condition

Appendix

Escalation of Commitment task: “Car Task”

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There are 75,000 miles on the car.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has been running well, but now the car has a problem and needs a repair.

The coolant needs to be replaced. The lowest estimated cost is \$65.

Definition: The coolant is a liquid used in the cooling system of an engine that requires cooling in operation

Please circle one of the following:

- A) You decide to replace the coolant.
- B) You decide not to replace the coolant.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The headlights and taillights need to be replaced. The lowest estimated cost is \$70.

Definition: The headlights are located in the front of the vehicle and provide illumination ahead of the vehicle. Taillights indicate to other motorists the presence of the vehicle. Both are legally required for vehicle operation.

Please circle one of the following:

- A) You decide to replace the headlights and taillights.
- B) You decide not to replace the headlights and taillights.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The brake fluids need to be replaced. The lowest estimated cost is \$75.

Definition: The brake fluid is the hydraulic fluid that allows break systems to operate. The brakes slow the motion of a vehicle or prevent inadvertent motion when the vehicle is parked.

Please circle one of the following:

- A) You decide to replace the fluids.
- B) You decide not to replace the fluids.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The spark plugs need to be replaced. The lowest estimated cost is \$380.

Definition: The spark plugs are insulated plugs which aid in initiating ignition.

Please circle one of the following:

- A) You decide to replace the spark plugs.
- B) You decide not to replace the spark plugs.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The alternator needs to be replaced. The lowest estimated cost is \$500.

Definition: The alternator produces alternating current which is converted to direct current; it functions much like a generator within a car.

Please circle one of the following:

- A) You decide to replace the alternator.
- B) You decide not to replace the alternator.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The ignition coils need to be replaced. The lowest estimated cost is \$750.

Definition: The ignition coil provides the high tension voltage for the spark in the ignition process of spark ignition engines.

Please circle one of the following:

- A) You decide to replace the ignition coils.
- B) You decide not to replace the ignition coils.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The radiator needs to be replaced. The lowest estimated cost is \$900.

Definition: The radiator is an integral part of the engine cooling system. It transfers heat from the engine to the atmosphere by circulating coolant through fine tubes.

Please circle one of the following:

- A) You decide to replace the radiator.
- B) You decide not to replace the radiator.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The brakes need to be repaired. The lowest estimated cost is \$1,270.

Definition: The brakes slow the motion of a vehicle or prevent inadvertent motion when the vehicle is parked.

Please circle one of the following:

- A) You decide to repair the brakes.
- B) You decide not to repair the brakes.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The transmission needs to be repaired. The lowest estimated cost is \$3,600.

Definition: The transmission refers to the collective term for the components which transmit power from the engine to the driven wheels (including the clutch, gearbox, drive shaft).

Please circle one of the following:

- A) You decide to repair the transmission.
- B) You decide to not repair the transmission.

Scenario:

You bought a used mid-size sedan car costing \$12,000. The car has been inspected and found to be in good condition, so you decide not to purchase a warranty. There were 75,000 miles on the car at the time of purchase.

Please note that if you decide not to proceed with the repair, you have access to public transportation while you can attempt to sell the vehicle

The car has another problem and needs another repair.

The engine needs to be repaired. The lowest estimated cost is \$7,000.

Definition: The engine is the main power unit in the vehicle converting the energy of the fuel into mechanical energy for motion.

Please circle one of the following:

- A) You decide to repair the engine.
- B) You decide not to repair the engine.