



## Affect, emotion, and decision making

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### ABSTRACT

This article reviews research on affect, emotion, and decision making published in *Organizational Behavior and Human Decision Processes* from the 1990s onward. The review is organized around four topical areas: the influence of incidental mood states and discrete emotions on decision making, the influence of integral affect on decision making, affect and emotion as a consequence of decision making, and the role of regret in decision making. Some potential limitations of extant work on affect, emotion, and decision making are discussed. Lastly, particularly promising directions for future research are elaborated including intuition and decision making, ethical decision making, and affect and emotion over time and decision making.

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### 1. Introduction

Research on affect, emotion, and decision making has burgeoned in the last several decades and *Organizational Behavior and Human Decision Processes* has been at the forefront of publishing key studies in this exciting area. Thus, it is only fitting that a paper in this special anniversary issue focuses on this important topic. By now, it is taken for granted that affect, emotion, and decision making are highly interdependent but clearly that was not always the case. Exploring and understanding the nature of these interdependencies cannot only enhance our understanding of choice processes but also contribute to our appreciation of the functioning of the human mind.

In writing this article, we strove to provide a representative review of research published in *OBHDP* on this topic over the years, discuss some potential limitations with this research, and provide future research directions. We did not review articles on other topical areas that also could be seen as focusing on affect and decision making (given the broadness of this domain) for two reasons, (a) some of these topical areas are the subject of other articles in the anniversary issue, and (b) doing so helped us manage the scope of our review. Hence, we do not review articles on bargaining and negotiation, fairness and justice, creativity and innovation, group

dynamics and affect, regulatory focus and motivation, emotion expression, and trait affect. In terms of the these latter two topics, emotion expression can differ from experienced emotions due to the influence of display rules and other factors and it is experienced emotion that is relevant for actual decision making. In terms of trait affect, while trait affect can influence state affect, state affect is more directly relevant to ongoing decision making and behavior (George, 1991, 1992; Nesselroade, 1988).

Research on affect, emotion, and decision making regularly started appearing in *OBHDP* in the 1990s and thus we review articles appearing in the journal from the 1990s onward. Our review is organized from a topical perspective. Due to space limitations, our review is not exhaustive but is rather representative of the body of work published. Additionally, our topical organization is deliberately broad and is derived directly from the actual body of published work in the journal on this subject.

More specifically, we focus on four key topical areas: the influence of incidental mood states and discrete emotions on decision making, the influence of integral affect on decision making, affect and emotion as a consequence of decision making, and the role of regret in decision making. By incidental moods and discrete emotions we mean affective states that are not directly linked or related to the task or decision at hand (e.g., mood at the time of decision making and a discrete emotion triggered by something unrelated to the task/decision); integral affect refers to affect that arises from the task or decision at hand (Lerner, Li, Valdesolo, &

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Kassam, 2015). While regret can be and has been viewed as a consequence of decision making, and in particular, when an alternative not chosen results in better outcomes than the alternative chosen, we treat regret as a separate subtopic for several reasons. That is, in addition to being viewed as a consequence of decision making, regret can also be viewed as an antecedent to decision making in the form of anticipated regret (Simonson, 1992; Tsiros & Mittal, 2000; Zeelenberg & Pieters, 2007) and thus, operate as integral affect. Studies on anticipated regret have implications for regret as a consequence and vice versa. More generally, regret is a complex, counterfactual emotion (Zeelenberg & Pieters, 2007; Zeelenberg, van Dijk, & Manstead, 1998). Regret is the emotion that has garnered the most research attention from decision making researchers and it can be both an antecedent and a consequence of decision making (Connolly & Zeelenberg, 2002). For these reasons, readers likely will gain the best grasp of the body of work on regret and decision making published in *OBHDP* by grouping the articles published on this subtopic together in our review.

Following our review of the literature, we discuss some potential limitations of the extant research in this domain and directions for future research. In particular, we identify intuition and decision making, ethical decision making, and affect and emotion over time and decision making as particularly promising areas for future research.

## 2. Incidental moods and discrete emotions and decision making

In reviewing the research on incidental affect and decision making, we first focus on articles pertaining to mood followed by consideration of the increasing body of work focusing on discrete emotions. Some research on incidental affect and decision making focuses on how affect influences decision making under risk. Wright and Bower (1992) found that happy participants thought that positive events were more likely and negative events were less likely (compared to a control condition) while sad participants thought that negative events were more likely and positive events less likely (compared to a control condition). Similarly, Nygren, Isen, Taylor, and Dulin (1996) found that participants in positive affective states were optimistic in that they tended to overestimate probabilities for winning relative to probabilities for losing while this was not the case for participants in a control condition. However, when gambling, positive affect participants exhibited caution in that they were less likely to gamble when losses were possible than were controls. They also found that positive affect participants bet less than controls when losses had the potential to be high (and loss probability was low) and bet more than controls when potential losses were low (and loss probability was average or high). Nygren et al. (1996) reason that positive affect may result in people focusing on outcomes (and especially losses) rather than probabilities.

Rather than using the positive affect and negative affect dimensions of the affective circumplex, Mano (1994) explored the effects of pleasantness/unpleasantness and arousal on risk taking. He found that high levels of arousal resulted in participants paying less for insurance against potential losses and exhibiting high risk-seeking in terms of high willingness to pay for lotteries and low willingness to pay for insurance. He also found that the combination of high unpleasantness and high arousal led to increased willingness to pay for insurance for substantial losses and the combination of high pleasantness and low arousal resulted in increased willingness to pay for lotteries. Thus, arousal leads to risk-seeking, unpleasantness to willingness to protect from harm, and pleasantness to seeking gain.

Mittal and Ross (1998) explored the role of positive and negative affect in strategic decision making. They found that

participants in a positive mood were more inclined to view an ambiguous strategic issue as an opportunity and took lower risks than participants in a negative mood. When an issue was framed as a threat or an opportunity, issue framing had a stronger effect on issue interpretation and risk taking of participants in a negative mood than on participants in a positive mood. From a study of forty-four physician internists arriving at a diagnosis for a medical case, Estrada, Isen, and Young (1997) concluded that positive affect resulted in the internists integrating information sooner and being less prone to anchoring compared to a control condition although both groups arrived at a diagnosis at a similar time point.

Adopting an information processing approach, Forgas and George (2001) discuss how mood-congruity effects and affective priming are by no means universal phenomena and more generally, how the influence of incidental moods on decision making are context-dependent. In particular, Forgas' (1995) Affect Infusion Model proposes that the extent to which moods infuse decision making (and mood congruity effects) depend upon which information processing mode a decision maker is in. Direct access processing and motivated processing result in low levels of mood infusion and congruity effects whereas heuristic, and in particular substantive, processing result in high levels of affect infusion and congruity effects. Choice of information processing mode, in turn, depends upon individual variables, characteristics of the decision making task, and situational factors.

What effects might mood have on foreign exchange trading? Au, Chan, Wang, and Vertinsky (2003) reason that whether people in a good mood will be overconfident, more optimistic, and take more risks due to biased probability estimates or take fewer risks due to mood maintenance concerns is context-dependent. If the situation is well-defined and probabilities are given, mood maintenance should dominate and good moods should result in less risk taking. When the situation is equivocal and probabilities are not known, a good mood might lead to higher perceptions of control and optimistic assessments and more risk taking. Consistent with this reasoning, Au et al. (2003) found that participants in a good mood were less accurate in their decision making, lost money, and took unnecessary risks compared to those in a control condition and those in a bad mood. Monga and Rao (2006) found that prior unrelated outcomes lead to positive expectations for the future when the outcomes were positive rather than negative and that this effect was greater when prior outcomes occurred in the domain of losses than when they occurred in the arena of gains.

Blay, Kadous, and Sawers (2012) explored the role of risk and mood on information search efficiency which refers to the amount of information relevant to a decision that is gathered compared to the total amount of information available. When risk is higher, decision makers might gather greater quantities of information because of relatively high uncertainty resulting in lower search efficiency. However, Blay et al. (2012) reason that the relation between risk and information search efficiency depends upon the decision maker's mood. Decision makers in a negative mood (compared to those in a neutral state) will benefit from more focused attention when risk is high resulting in more efficient search. When risk is low, positive affect (as compared to a neutral control condition) impairs information search efficiency as decision makers in positive moods are more likely to use top down approaches and be less focused in their search. Results from two experiments support these posited asymmetrical effects of positive and negative mood on the relation between risk and information search efficiency.

We now turn to a consideration of discrete incidental emotions and decision making. Raghunathan and Pham (1999) reasoned that distinct affective states of the same valence might have differential effects on decision making. That is, distinct affective states provide people with nuanced information which may impact their implicit

goals for an unrelated decision to be made. For example, sadness implies loss or a sense of something missing which should prompt people to seek rewards or replacements while anxiety signals uncertainty and a lack of control which should prompt people to reduce uncertainty and be risk-averse (Raghunathan & Pham, 1999). In three experiments involving gambling or job choice decisions, participants who were sad sought high risk/high reward alternatives while those who were anxious sought low risk/low reward options.

Adopting an evolutionary perspective, Fessler, Pillsworth, and Flamson (2004) reasoned and found that anger led to greater risk taking in men (as compared to women) while disgust led to less risk taking in women (as compared to men). Also focusing on anger, Wiltermuth and Tiedens (2011) theorized and found that people who experienced incidental anger were more attracted to evaluating the ideas of others than those in a neutral affective state or those experiencing sadness and that those who were angry were more likely to believe that evaluating the ideas of others would put them in a good mood than those who were in a neutral affective state or those who were sad. They also posited and found that anger was likely to increase the attractiveness of evaluating others when evaluations were expected to be low and not when they were thought to be high. These findings suggest that incidental emotions have the potential to influence both why and when managers decide to evaluate ideas offered by organizational members.

Andrade and Ariely (2009) explored whether incidental emotions could have enduring effects over time on decision making beyond the experience of the incidental emotion itself. That is, incidental emotions can have effects on decision making, the emotions can quickly fade away, yet people may tend to make decisions consistent with the decision that was influenced by the initial incidental emotion due to people wanting their behavior to be consistent over time. In an experiment with four presumably unrelated tasks, participants first either received an angry or a happy incidental emotion manipulation. They then participated in an ultimatum game in which they received an unfair offer and the authors predicted and found that angry participants were more likely to reject the unfair offer than happy participants. Following a neutral filler task to enable the emotion manipulation to dissipate, participants played a second ultimatum game in which they were proposers. Theorizing that participants would want to behave in a manner consistent with their behavior in the first ultimatum game, the authors hypothesized and found that participants in the initial angry condition made fairer offer proposals than participants in the initial happy condition. The final task involved participants being the proposers in a dictator game and again the authors hypothesized and found that participants in the initial angry condition made fairer proposals than participants in the initial happy condition although these results were significant at the  $p < 0.10$  level. Andrade and Ariely (2009, p. 6) conclude that “mild incidental emotions can not only influence economic decisions in the short term, but also *live longer than the emotional experience itself*. . . people tend to behave consistently with past actions and cognitions, earlier choices – unconsciously based on a fleeting incidental emotion – can become the basis for future decisions and hence outlive the original cause for the behavior (i.e., the emotion itself).”

Reasoning from an affect as information perspective (Schwarz & Clore, 1983, 1988), Kramer, Yucel-Aybat, and Lau-Gesk (2011, p. 140) reasoned and found that *schadenfreude*, “feelings of malicious joy about the misfortunes of others,” would result in participants making safer and more conventional choices than happiness or sadness as long as participants do not realize why they are feeling the way they do. Supporting an affect as information account for these findings, the authors also found that *schadenfreude* resulted in participants thinking that undesirable outcomes were more likely to result from their decisions.

Based on an appraisal approach to emotions, Agrawal, Han, and Dubachek (2013) hypothesized and found that self-other agency appraisals linked to emotions affect how people respond to preference inconsistent information. In general, people tend to resist or discount information that is inconsistent with their prior preferences. However, emotions that differ in agency appraisals have the potential to influence how people respond to preference-inconsistent information. Anger – a negative emotion that connotes that another party is at fault for a bad outcome – should result in people being confident that their initial preferences are accurate and that subsequent inconsistent information from other sources is inaccurate whereas shame – a negative emotion wherein the self is to blame for a bad outcome – should result in people being less confident in their initial preferences and more confident in subsequent information provided by others. For similar reasons, pride (self-agency, positive emotion) should lead to resistance to preference inconsistent information whereas gratitude (other-agency, positive emotion) should lead to more acceptance of and confidence in initial preference inconsistent information. Results from two experiments support these predictions and also find that there are no differences in the influence of information that is consistent with prior preferences across the two negative emotion conditions and across the two positive emotion conditions.

All in all, it is clear that incidental moods and discrete emotions play a multitude of nuanced roles in decision making. And different incidental discrete emotions of the same valence have differential effects on decision making.

### 3. The influence of integral affect on decision making

We now turn to consider the influence of integral affect on decision making. In a multiattribute choice experiment, Stone and Kadous (1997) hypothesized and found that task-related negative affect increased reliance on scanning strategies which resulted in more accurate selections for easy choices and less accurate selections for difficult choices. However, as the authors note, they cannot determine if the means by which they induced task-related negative affect influenced or is responsible for their results, independent of any task-related negative affect arising from these means. In particular, Stone and Kadous (1997) manipulated negative affect in the following manner. For the low negative affect condition, students participated in the study in a quiet room. In the high negative affect condition, subjective time pressure was increased in multiple ways (e.g., participants were told they had a set amount of time to make each choice and the time remaining was called out in 15 s intervals) and the experimenters paced around the room and monitored the participants’ behavior and performance. Thus, time pressure and monitoring could potentially be partially or fully responsible for some of the results obtained and not just negative task affect per se. More generally, this study highlights some of the difficulties or challenges in studying the effects of integral affect on decision making. That is, given that affect is integral to the decision making task itself, there is the potential that the decision making task itself differs for different levels or types of integral affect.

Luce, Payne, and Bettman (2000) reasoned that certain aspects of decision making scenarios might lead to negative affect which in turn might stimulate emotion-focused coping. Specifically, they posited that choosing between a lower price alternative and a higher quality alternative when both alternatives are low in quality (compared to being high in quality) results in negative affect and prompts emotion-focused coping. In order to cope with the negative affect, they reasoned and found that participants ended up choosing the higher quality option under these conditions.

[Shiv and Fedorikhin \(2002\)](#) focus on task-based positive affect and the conditions under which it drives choice behavior. In a guilty-pleasures paradigm (i.e., a choice that is highly desirable on an affective dimension but much less desirable on a cognitive dimension compared to another choice, for example, chocolate cake vs. fruit salad), they hypothesized and found that when time allowed for a decision is low, basic/relatively automatic affective processes are more likely to drive choice behavior when cognitive load is high rather than low and the affectively desirable outcome will be selected (e.g., chocolate cake). When time allowed is high and exposure to choices is high, higher level affective processes are more likely to drive choices under conditions of low vs. high cognitive load and the affectively desirable outcome will again be selected. In contrast, when time allowed is high and exposure to choices is low, when cognitive load is low, higher level affective processes are less likely to be influential and higher level cognitive processes are more likely to operate leading to selection of the cognitively desirable outcome (e.g., fruit salad). Hence, the role that task-related affect plays in decision making is highly context-dependent.

[Creyer and Kozup \(2003\)](#) focus on a number of factors related to decision making. Concerning integral affect, they found that participants reported higher levels of joy in a decision making task when the decision choices had positive commonalities with each other and lower levels of joy when the decision choices had negative commonalities. Levels of joy, in turn, were positively associated with satisfaction with the decision making process.

[Ku, Malhorta, and Murnighan \(2005\)](#) report the results of two studies which imply that the common phenomenon of overbidding or bidding more than the value of an item in an auction can be the result of increased arousal emanating from competition, limited time, wanting to be first, and social facilitation as well as from sunk costs.

[Wang et al. \(2011\)](#) explored the extent to which anger emanating from experiencing or witnessing unfair treatment in a prior experience would influence subsequent costly punitive behavior in a subsequent experience. When experiencing unfair treatment, people tended to be less likely to engage in costly punishment if there was a time delay which helped to mitigate their negative feelings. What participants thought and did during the time delay were also found to play a pivotal role. Punishment after a delay was less likely when participants performed a task intended to distract them, punishment after a delay was more likely when participants ruminated, and levels of punishment were unaffected by a delay when participants partook of cognitive reappraisal. Thus, affective rumination during a delay resulted in more punishment than did distraction or cognitive reappraisal.

With respect to decision making regarding humanitarian aid, [Huber, Van Bowen, McGraw, and Johnson-Graham \(2011\)](#) reasoned and found that whatever humanitarian crisis produced the most immediate emotion received a higher allocation of available resources (an immediacy bias). When allocations were made in a post hoc manner after learning about all the crises, the last crisis received a disproportionate allocation of resources whereas when allocations were made in a sequential manner, each crisis in the sequence received a disproportionate share of the remaining resources. When learning about two crises from which to choose one to engage in a costly action, participants chose the second action (as it produced the more immediate emotions).

[Summers and Duxbury \(2012\)](#) provide theoretical and empirical backing for the claim that integral emotions account for a well-documented pattern in finance called the disposition effect (the tendency to sell winning shares prematurely and wait too long to sell losing shares; [Shefrin & Statman, 1985](#)). While prospect theory has been typically used as the explanatory mechanism for the disposition effect, [Summers and Duxbury \(2012\)](#) show that it is

insufficient and the role of specific emotions in the disposition effect need to be taken into account. They distinguish between emotions related to outcomes that one has responsibility for (regret and rejoicing) and emotions related to outcomes that are good or bad but one does not have personal responsibility for (disappointment and elation). They found that regret (which entails responsibility) is key to holding onto losing shares while selling winners is linked to elation (which does not entail responsibility). [Summers and Duxbury \(2012\)](#) suggest that emotional arithmetic/consequences drive selling winners and keeping losers.

As indicated by the growing body of literature on this topic, integral affect has the potential to influence decision making in a multitude of ways. In trying to understand these effects, it is important to take into account the context.

#### 4. Affect and emotion as a consequence of decision making

Affect and emotion as a consequence of decision making has received limited attention in *OBHDP* over the years. Based on [Bell's \(1985\)](#) disappointment theory and other theorizing and research, [Van Dijk and Van Der Plight \(1997\)](#) reasoned that disappointment resulting from receiving an outcome that is lower than expected and elation resulting from receiving an outcome that is better than expected result from expectations and probabilities. While the five experiments they conducted were based on reactions to a lotteries paradigm, their results nonetheless have implications for decision making given that the outcomes of decision making are often uncertain and can have expected values and probabilities attached to them. For example, a manager might decide to sell a business segment and decide on a selling price with associated expectations about what the actual negotiated sales price might be and the probability attached to it. When an unexpectedly high sales price that the manager thought was improbable is obtained, the manager would be expected to be elated. When the sales price turns out to be lower than expected and the manager has to lower the price much more so than he/she thought likely in order to sell within a certain time period, the manager would be expected to be disappointed according to this approach.

Based on five lottery experiments, [Van Dijk and Van Der Plight \(1997\)](#) conclude that disappointment over not receiving an attractive alternative is higher if the probability of obtaining this alternative was greater. However, probabilities do not seem to matter that much in terms of emotional reactions to receiving attractive alternatives. In this case, it is the magnitude of the alternative that has a major impact on the degree of elation. Based on an emotion as information perspective ([Frijda, 1988](#); [Schwarz, 1990](#); [Schwarz & Clore, 1988](#)), [Van Dijk and Van Der Plight \(1997\)](#) reason that positive emotions like elation signal that everything is fine and no further action or information processing is required. On the other hand, negative emotions like disappointment signal a problematic state of affairs and the need for careful information processing (e.g., taking into account probabilities).

[Wells and Iyengar \(2005\)](#) reasoned that decision makers' thoughts about their decision making over time influence their affect as well as outcomes of decision making based on the long standing premise that people like to see themselves as being internally consistent and deciding and behaving in a coherent manner based on stable predilections (even though their decision making may be characterized by variation). They found that job seekers who thought they were more consistent in their decision making than they were in reality had lower levels of negative affect, were more optimistic about their decisions, and actually had more positive outcomes. Job seekers who tended to make more consistent decisions had fewer job offers than those who thought they were



more consistent than they actually were. Wells and Iyengar (2005) speculate that job seekers with consistent preferences and decisions may find fewer job options that meet their preferences and thus may have a more difficult time convincing employers of their suitability for open positions.

Ratner and Herbst (2005) focus on the case when a good decision ends up having a bad outcome. They reasoned and found that people tend to switch from a good decision to one that is inferior due to negative emotions surrounding the bad outcome of the good decision. The decisions were made in response to investment scenarios and these effects were especially likely to hold when participants focused on how they felt in the wake of a bad outcome.

## 5. The role of regret in decision making

As mentioned earlier, regret is the emotion that has received the most attention from decision making researchers (Connolly & Zeelenberg, 2002). Thus, it is not surprising that the role of regret in decision making has received considerable attention in *OBHDP* throughout the years. Ritov and Baron (1995) focused on the relations between knowledge about the outcomes of decisions, the omission bias, and regret in experiments in which participants made or evaluated hypothetical decisions in response to scenarios. The omission bias refers to the fact that when the outcome of a decision is negative, people believe that the decision was more inferior when it is a consequence of an action rather than an inaction (or omission). They suggest that people might feel more regret over actions versus inactions that lead to negative consequences because acts might be viewed as being more causal than omissions. Anticipated regret has the potential to influence decision making if decision makers avoid decisions that they think might end up producing regret (e.g., those decisions in which the outcomes of both the chosen and foregone alternative will be known and those decisions in which the outcomes of action and inaction will become known).

Based on their studies, Ritov and Baron (1995, p. 126) suggest “that people anticipate regret when they expect to be able to compare a bad outcome to a better outcome that would have resulted from a foregone option. They evaluate decisions as worse when such a situation exists, and they are reluctant to choose options that might lead to such a situation, especially when these options involve action rather than inaction.” The role of anticipated regret in decision making is lessened when knowledge about the outcomes of actions and inactions is not expected to be forthcoming. From a normative perspective, while regret (and anticipated regret) can be functional and adaptive, it is not clear why regret should vary as a function of action vs. inaction and also why regret should vary as a function of knowledge about subsequent outcomes.

Foreman and Murnighan (1996) focused on the winner's curse in auctions and acquisitions – winners of auctions or acquisitions eventually may come to regret their winning bid as it is typically higher than the actual value of whatever is being auctioned or acquired. Consistent with prior research, they found that the winner's curse was impervious to learning. Providing participants with feedback and experience were not successful in eliminating the winner's curse. Foreman and Murnighan (1996) suggest that emotions surrounding winning may be involved in the winner's curse though prior research questions the role of a value of winning in acquisition situations (e.g., Holt & Sherman, 1994).

Tsiros (1998) noted that post-choice evaluation is a function of satisfaction with the outcomes of the selected alternative based on one's prior expectations and regret based on the outcomes of the alternative not selected. He found that satisfaction was higher (lower) when outcomes of the chosen alternative were better

(worse) than expected. Regret was higher when the outcomes of the alternative not selected were better than the outcomes of the alternative selected with post-choice evaluation being highest (lowest) when the selected option had better (worse) outcomes than both what the decision maker expected the outcomes to be and the outcomes of the option not chosen.

Zeelenberg, van Dijk, van der Pligt (1998) link regret and disappointment to counterfactual thinking. Results from three experiments suggest that counter-factuals related to the decision maker's own behavior and actions are associated with regret while counter-factuals related to the situation are associated with disappointment. Zeelenberg, van Dijk, van der Pligt et al. (1998, p. 135) conclude that “counterfactual thoughts in which decisions, choices, or reasoned actions are mutated. . . result in the experience of regret. . . counterfactual thoughts in which aspects of the situation, or things that are beyond the actor's control are mutated. . . results in the experience of disappointment.”

Relatedly, in a series of four published articles/comments, two multi-author teams tackled the thorny question about whether a person needs to feel control over, and responsibility for, a decision and self-blame in order to experience regret over a negative outcome or control and responsibility in order to exult over a positive outcome. The first article in the series (Connolly, Ordóñez, & Coughlan, 1997) reports the results of five scenario based experiments from which the authors conclude that where a person starts out is influential in terms of subsequent reactions to good and bad outcomes rather than the extent to which they have responsibility or control over outcomes. As Connolly et al. (1997, p. 83) indicate, “within the confines of our procedure, it seems difficult to argue for any large role of regret in the sense of self-blame for a poor decision or for rejoicing as self-congratulation for a good one. Identical effects were found whether the participant was driver or passenger.”

Zeelenberg, van Dijk, and Manstead (1998) took issue with Connolly et al.'s (1997) findings and conclusions, observing that Connolly et al. measured regret by a measure of happiness. Zeelenberg, van Dijk, and Manstead (1998) replicated Connolly et al.'s results in that whether a person had control over an outcome had no effect on happiness ratings. However, self-agency was linked to regret when regret was directly assessed and a lack of decision agency was linked to disappointment, as expected.

In a comment and brief report on two subsequent experiments, Ordóñez and Connolly (2000) arrive at the following conclusions. First, having responsibility for a decision or choice does seem to increase the experience of regret. Second, regret is not captured by feelings of overall happiness with an outcome. Third, responsibility for a decision increases regret but is not necessarily a required condition for regret to be experienced. Fourth, some of the data and results reported across these studies appear to be at odds with regret and disappointment theories (Bell, 1982, 1985; Loomes & Sugden, 1982, 1986).

In a rejoinder, Zeelenberg, van Dijk, and Manstead (2000) discuss Ordóñez and Connolly's (2000) subsequent experiments and conclusions. These authors agree with Ordóñez and Connolly's first conclusion above. With regards to the second conclusion, Zeelenberg et al. agree that regret is not always captured by assessments of overall outcomes such as happiness but they point out that assessments of outcomes can be impacted by regret. With regards to the third conclusion, Zeelenberg et al. indicate that it would be the exception rather than the norm to experience regret with no responsibility for a decision. Zeelenberg et al. agree with the fourth conclusion with some qualifications.

In two scenario-based studies of US and Chinese Hong Kong college students, Fong and Wyer (2003) explored, among other things, the extent to which decision making is influenced by the emotions people anticipate experiencing when different outcomes of these

decisions come into fruition. They conclude that decisions are partially determined by the emotions people anticipate experiencing when different outcomes arise from alternatives and that in some cases, anticipated emotions partially mediate the effects of other factors on choice.

While most studies of affect and decision making, and in particular regret and decision making, involve college students making hypothetical decisions involving scenarios presented to them in laboratory settings, Zeelenberg and Pieters (2004) sought to explore the role of regret in decision making in lottery participation decisions. Regret theory (Bell, 1982; Loomes & Sugden, 1982) suggests that when decision makers realize that they will find out the outcomes of a decision alternative that they do not choose, they anticipate experiencing regret and anticipated regret influences their decision making. Zeelenberg and Pieters (2004) explored participant reactions to two different kinds of lotteries in the Netherlands – the National State Lottery and the Postcode Lottery. The National State Lottery is a traditional lottery in which a random number is printed on one's ticket while in the Postcode Lottery, prizes can be won based on selection of one's postcode (a postcode typically includes up to 25 addresses on the same street). Zeelenberg and Pieters (2004) expected and found anticipated regret to be larger in the Postcode Lottery than in the National State Lottery because in the former one will know if one's postcode was selected and thus, whether one would have won a prize(s) if one had purchased a lottery ticket and anticipated regret influenced decision making, consistent with regret theory.

In order for regret to be experienced, a comparison between an outcome and an outcome foregone needs to be made. Van Dijk and Zellenberg (2005) reasoned and found that regret was reduced when there was uncertainty regarding foregone outcomes and when outcomes obtained and foregone were not comparable. Pieters and Zeelenberg (2005) found that not only can people regret bad outcomes but they can also regret using an inferior decision making process. Hoelzl and Loewenstein (2005) suggest that both anticipated regret and social takeover (i.e., in sequential decision making, knowing that someone else might step in and assume an investment that one has decided to quit) can influence decision making with regards to keeping an investment.

Ku (2008) reports the results of two studies which suggest that regret over a prior escalation of commitment decision or regret that is primed by thinking about an escalation of commitment scenario has the potential to attenuate subsequent escalation of commitment. Another potential positive consequence of regret was focused on by Reb (2008). In particular, Reb (2008) suggests that making regret salient (and thus potentially increasing regret aversion) has the potential to cause decision makers to adopt a more careful decision making process.

Clearly, regret in its many guises has the potential to play multiple roles in the decision making process.

## 6. Potential limitations of extant research

Clearly, work published in *OBHDP* on affect, emotion, and decision making has greatly enhanced our understanding of how affect pervades the decision making process. Nonetheless, we would be remiss if we did not discuss some of the potential limitations of this nonetheless noteworthy work. For example, with few exceptions (e.g., Wells & Iyengar, 2005; Zeelenberg & Pieters, 2004), much of the work published on affect and decision making in *OBHDP* has involved laboratory experiments with college students responding to hypothetical scenarios, lotteries, and the like. These fine grained experimental studies can isolate specific factors but at the same time are lacking in realism and do not come close to approximating the complexity involved in making decisions in

organizational contexts. By its very nature, decision making in organizations is a messy, complicated process involving ambiguity, equivocality, sense making, politics, history, and time. Moreover, the consequences of such decision making can be substantial and far reaching. Decisions made in organizations carry the potential to influence an organization's performance or reputation or the safety and welfare of organizational members and other stakeholders. Brief, one shot laboratory studies can help us understand how, for example, regret comes into play but are lacking in terms of realism and the organizational context. Concerning the latter, the effects of affect on thought processes and behavior are context-dependent (e.g., Au et al., 2003; Forgas & George, 2001) so the missing organizational context in studies of affect and decision making is potentially troubling. Nonetheless, we would like to point out that *OBHDP* is a premier outlet for decision making research and decision making research per se does not necessarily need to take into account the organizational context.

Another potential limitation of extant work is a somewhat piecemeal approach. That is, different author teams seem to tackle very specific questions about the link between affect and decision making. While this tailored approach to investigation is fine in and of itself, it is nevertheless unfortunate that overarching frameworks or models which can incorporate and make sense of multiple and diverse findings across studies are somewhat lacking. For example, researchers have not explored the combined effects of incidental moods and discrete emotions on the one hand, and integral affect on the other, on decision making in the same studies.

To be sure, we recognize the challenges confronting the study of affect, emotion, and decision making in organizational contexts. And yet, we also perceive that confronting these challenges head-on in both qualitative and quantitative studies has the potential to have big payoffs in terms of both increasing our understanding of affect, emotion, and decision making in organizations as well as stimulating future theorizing and research on this topic both in the field and the lab.

## 7. Directions for future research

Theorizing and research can and should further develop in each of the subtopic areas which organized our review. For example, researchers could explore a wider range of discrete emotions and their role in decision making. Moreover, it appears that the time is ripe to explore the implications of both incidental affect and integral affect for decision making in the same studies as clearly both can and do take place. Nonetheless, in considering affect, emotion, and decision making, we have identified three additional areas which we believe are especially promising in terms of enhancing our understanding of phenomena of fundamental importance in this domain: intuition and decision making, ethical decision making, and affect, emotion, and decision making over time. Each of these topical areas is highly relevant to decision making in organizational contexts.

### 7.1. Intuition and decision making

Connections between affect and decision making are especially striking in the case of intuition (or "gut feelings") – an emerging topic of interest in organizational behavior (Akinci & Sadler-Smith, 2012). By their nature, intuitions are tightly coupled with affect: that is, they constitute "affectively-charged judgments that arise through rapid, nonconscious, and holistic associations" (Dane & Pratt, 2007: 40). As suggested by this definition, the affectively-charged judgments underlying intuition are byproducts of associative processes occurring outside of conscious awareness. Thus, intuitions are not conceived deliberately but rather emerge rapidly

and, at times, unexpectedly as one encounters events or conditions that activate associations (Epstein, 1994; Simon, 1987).

In furthering research on affect-laden intuitions and decision making, scholars should consider that although many intuitions involve positive feelings, not all intuitions are hedonically pleasing. For example, research on firefighter decision making (Klein, 1998) indicates that, in fighting certain fires, fireground commanders have experienced feelings that something is “wrong” – an uncomfortable, affectively negative feeling – that spurred them to action (e.g., ordering the firefighters under their command to exit the building immediately). In our view, there is considerable room for further research examining the range of feelings and emotions with which intuitions are experienced. Likewise, researchers could examine whether intuitions characterized by certain feelings (e.g., positive versus negative affect) are more trustworthy than others.

Researchers might also devote thought to the prescriptive implications of research on intuition and related concepts. The cautionary stance researchers have long maintained toward intuitions, feelings, and emotions is steadily shifting to a more nuanced perspective. Just as intuitive decision making may be effective under certain conditions, so too can the feelings and emotions people experience prove invaluable to the choices they make and the behaviors they enact – particularly when these feelings and emotions provide insight into the choices or behaviors at hand. Consider, for example, a series of experiments demonstrating that in making predictions about which political candidate will receive a party’s nomination, how the stock market will behave, and what the weather will be two days in the future (among other types of predictions), people who trust their feelings (due either to experimental interventions or dispositional tendencies) and have sufficient domain knowledge make better predictions than others (Pham, Lee, & Stephen, 2012). Labeling this phenomenon the “emotional oracle effect,” the researchers suggested that feelings “provide a privileged window into all we tacitly know about the environment around us” (Pham et al., 2012: 473). The emotional oracle effect complements the observation that people can intuit patterns and generate accurate predictions well before their conscious mind identifies the decision strategy at hand (Bechara, Damasio, Tranel, & Damasio, 1997). While such findings provide noteworthy counterpoints to the “don’t trust your gut” theme permeating behavioral decision making research, more research is needed to clearly and convincingly demonstrate when affect-laden intuitive decision making is – and is not – effective across a range of work-related tasks and contexts.

### 7.2. Ethical decision making

Scholars have increasingly taken an interest in the emotional and intuitive aspects of decision making in the moral domain. Whereas ethical decision making was once theorized as arising from a conscious, systematic process governed by one’s level of moral development (e.g., Kohlberg, 1981), more recent research suggests that the operations underlying ethical judgments and decisions are, in many cases, emotion-based, automatic, and intuitive. In advancing an “intuitionist” account of moral judgment, Haidt (2001) argued that people tend to form moral judgments rapidly and effortlessly and, in turn, generate rationales that support their affect-laden judgments. Along related lines, Sonenshein (2007) theorized ethical decision making as a sense making process in which people seek to explain or justify the moral intuitions that arise as they engage with events and issues in their work settings. According to these accounts, conscious thinking is not the source of ethical decision making but rather is leveraged post hoc to rationalize one’s affect-laden intuitions. In contrast, other scholars maintain, in line with more classic perspectives, that in making decisions in the moral domain people are not beholden

to their emotions and intuitions but rather can – and perhaps should – engage in reflection and deliberation (e.g., Narvaez, 2010; Schwartz, 2011). Still others suggest that the mode of processing associated with ethical decision making depends on the type of moral problem one is facing (e.g., a moral judgment task versus a moral dilemma calling for imaginative thinking) (Monin, Pizarro, & Beer, 2007).

As evidenced by numerous and ongoing corporate scandals, the decisions people make in organizations are not always ethical and are often even shocking. While scholars have examined a host of factors accounting for unethical decision making in organizations – ranging from “bad apples” (Gino, Ayal, & Ariely, 2009) to corrupt cultures (Ashforth & Anand, 2003) to cognitive biases (Bazerman & Tenbrunsel, 2011) – research suggests that the process by which ethical decision making unfolds (e.g., consciously and systematically versus automatically) can influence whether people make moral decisions. Thus, business ethics scholars have posed and investigated a question associated with decision making research more generally: when should people put stock in their feelings? Here, evidence is mixed. While some research suggests that, compared to conscious deliberation, affect-laden intuitive approaches promote ethical decision making and guard against moral transgressions (Zhong, 2011), other research suggests the opposite (Gunia, Wang, Huang, Wang, & Murnighan, 2012). Consequently, researchers have set their sights on reconciling these divergent findings (e.g., Moore & Tenbrunsel, 2014).

Thus, the time is ripe for exploring the role of incidental moods and discrete emotions and integral affect on ethical decision making. Moreover, by investigating when and how feelings and emotions influence ethical decision making, researchers stand to enrich our understanding of “moral emotions,” a topic commanding much interest in the psychological sciences (see Tangney, Stuewig, & Mashek, 2007).

### 7.3. Affect, emotion, and decision making over time

As evidenced in our review, research on affect, emotion, and decision making has focused predominantly on affect and emotions as experienced within specific and defined points in time (or anticipated at a future point in time). In other words, most research in this area has focused on how relatively short lived (and isolated) feelings and emotions (or anticipated feelings and emotions) can influence decision making. However, in organizational contexts, people often experience a range of mood states and emotions over time. Similarly, decision making in organizations, particularly for decisions that are complex with potentially far reaching ramifications, often extends over time. Important decisions are typically not made in a one shot, all or nothing manner. Rather decision makers may revisit the decision on multiple occasions to ensure the best choice. Just as home buyers often revisit their top choices multiple times, so too do business school administrators revisit decisions to develop new programs and managers revisit decisions to expand to new geographical areas over time and on more than one occasion. Moreover, important decisions are often made by teams and thus understanding how affect experienced by team members influences their decision making over time is an important topic for future research.

The dual tuning model (George, 2011; George & Zhou, 2007) suggests that in order to understand how affect and emotion influence decision making, researchers need to consider the range of moods and emotions that are experienced over the time period that decisions are being made. For example, take the case of a manager deciding whether or not to launch a new product based on the information gathered to date. Typically, an important decision like this one will be made over time. The dual tuning model suggests that the range of feelings experienced in the course of making this



decision over time has the potential to influence the outcomes of the decision. At a very basic level, if a manager is sometimes in a good mood and sometimes in a bad mood when making this decision, outcomes are likely to be different than if the manager is always predominantly in a good or bad mood when making the decision (George, 2011).

Moreover, the feelings and emotions people experience may exhibit systematic patterns over time. Research, suggests, for example that people tend to be happier both earlier and later in life than in middle age (Blanchflower & Oswald, 2008). At the same time, research suggests that emotional stability – a key aspect of emotional experience (Hills & Argyle, 2001) – tends to increase over time, even into old age (Williams et al., 2006).

Of course, people are also likely to exhibit idiosyncratic patterns of emotional experience. That is, almost inevitably (though not always predictably), people experience various periods of their lives characterized by certain emotions (those they experience frequently and readily during these stretches). Just as one's spirits may be low during a lengthy period of unemployment, in the wake of a devastating breakup, or after the passing of a loved one, so too can people experience extended periods of well-being, gratitude, or joy. It stands to reason, then, that how one is currently experiencing life or work as a whole should influence one's judgments and decisions. In exploring this possibility, researchers would do well to bear in mind that the “workers” central to organizational research are, in fact, whole people whose emotional lives are often influenced as much (if not more) by what happens beyond the organization as within it (George & Dane, 2011). As such, it is perhaps just as valid and informative to generate explanations and predictions of decision making behavior in terms of how one is currently experiencing life or work as a whole as it is to adopt a more molecular lens and focus on the specific feelings and emotions associated with a snapshot in time.

## 8. Concluding observations

In reviewing research on affect, emotion, and decision making, and spotlighting areas for future research on this topic, we are struck by the degree of complexity associated with research findings in this area. Not only can state affect influence decision making in myriad ways but memories of past emotional experiences and glimmers of future feelings and emotions surround many of the decisions people make in work settings and beyond. Moreover, research indicates that the effects of different types of affect (positive versus negative) and emotions (happiness versus sadness) on decision making effectiveness can vary substantially from one type of decision making task to another. This merits consideration, as it runs somewhat counter to a foundational observation concerning affect and emotions. As notables ranging from Thomas Jefferson to John Stuart Mill to the Dalai Lama have observed, humans are hardwired to pursue happiness. It is perhaps no wonder, then, that research on happiness has received much attention across multiple lines of psychology and organizational scholarship and throughout the popular press (e.g., Gilbert, 2006; Haidt, 2006; Rubin, 2009). While our inclination to pursue and maintain positive affective states is understandable, the glorification of happiness in today's world runs the risk of masking the fact that, from a decision making standpoint, the feelings and emotions we value are not always those most amenable to engaging with the decisions we face. In fact, negative feelings and emotions, though by their very nature unpleasant or uncomfortable, can facilitate decision effectiveness under certain conditions (George, 2011). Quite possibly, then, a well-guided pursuit of happiness – one marked by effective decision making across one's life and work – is more polyphonic in its affective tones than one might be inclined to believe.

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