

## **The Dynamics of Ambivalence: Evaluative Conflict in Attitudes and Decision-making**

Frenk van Harreveld

Iris K. Schneider

Hannah Nohlen

Joop van der Pligt

University of Amsterdam

Van Harreveld, **Schneider, I.K.**, Nohlen, H.U., & van der Pligt (2011). Ambivalence and conflict in attitudes and decision-making. In B. Gawronski & F. Strack (eds.), *Cognitive Consistency: A Fundamental Principle in Social Cognition*.

Ambivalence is a topic that is receiving an extending amount of attention in research on attitudes and decision-making (see e.g. Armitage & Arden, 2007; Clark, Wegener, & Fabrigar, 2008; van Harreveld, van der Pligt, & de Liver, 2009). This attention arguably is a reflection of the increased prevalence of ambivalence in present day society. We are exposed to increasing amounts of information from numerous sources and as a consequence, our attitudes are continuously challenged by counterarguments. An increase in ambivalence is potentially problematic as it further adds to the complexity of decision-making. In contemporary society people already have to make more decisions (e.g. shared decision making, Charles, Gafni, Whelan, 1997; public consultation, Harrison & Mort, 2003) as well as more complex decisions than ever before (Schwartz, 2004), thus having mixed feelings about them certainly does not make things easier.

In the present chapter we will argue that, despite these likely effects of an increased information flow on ambivalence, there are several psychological processes that can help us to cope with ambivalence. Before we discuss these processes, we will first show that people often experience ambivalence as unpleasant and describe the circumstances under which this is especially the case. Here specific attention will be given to situations where holders of ambivalent attitudes have to make a choice between their opposing evaluations. Subsequently we will describe how people cope with feelings of ambivalence-induced discomfort. We will distinguish between efforts whose prime function is to cope with the negative feelings resulting from ambivalence and efforts that aim to reduce felt ambivalence by changing the ambivalent attitude. Finally we will discuss the circumstances under which each of the coping strategies is likely to be employed, illustrating the adaptive flexibility of the ambivalent attitude holder.

It is not surprising that that ambivalence is receiving an increasing amount of research attention, because it has a host of important cognitive and behavioral consequences. We will integrate the literature on ambivalence with insights from research on decision-making and cognitive dissonance and show that the consequences of ambivalence are ignited by an impending decision. Holders of ambivalent attitudes will be shown to be flexible in their

adaptation to situations that cause their ambivalence to be unpleasant. Ambivalence is an aspect of attitudes that has different appearances and the current chapter examines the dynamics of ambivalence; i.e., how the experience of ambivalence and the ambivalent attitude itself change in different situations.

### *Ambivalence and discomfort*

The potentially unpleasant nature of ambivalence has first been suggested on the basis of studies on ambivalence and information processing. Several of these studies have shown that holders of ambivalent attitudes are more inclined to engage in more elaborate and effortful (systematic) processing (e.g. Jonas, Diehl, & Brömer, 1997; Maio, Bell, & Esses, 1996). Such processing requires the motivation to invest effort and it has been argued that for holders of ambivalent attitudes this motivation stems from ambivalence-induced discomfort (i.e. Maio et al., 1996). More specifically, the argument is that because holders of ambivalent attitudes experience their incongruence as unpleasant, they are motivated to extensively process information about the attitude object in an effort to reduce their ambivalence. We will return to the ways in which this discomfort is coped with later in this chapter.

The theoretical basis underlying the notion that ambivalence is unpleasant is the fact that ambivalence is a state of internal inconsistency. Research on, for example, cognitive dissonance (Festinger, 1964) and balance theory (Heider, 1946) has shown that internal inconsistencies tend to be experienced as unpleasant (e.g. Zanna & Cooper, 1974). Ambivalence has been assumed to be unpleasant for similar reasons (McGregor, Newby-Clark, & Zanna, 1999). This potentially unpleasant nature of ambivalence is also reflected in the different measures of ambivalence. Here a distinction is made between measures of *potential* and *felt* ambivalence. While measures of potential ambivalence (i.e. Kaplan, 1972) aim to assess the simultaneous existence of positive and negative evaluative responses in relation to an attitude object, measures of felt ambivalence (i.e. Jamieson, 1993) measure the extent to which the attitude holder feels “torn” between both sides of the attitude object.

Surprisingly, the direct empirical evidence regarding the assumption that ambivalence is unpleasant is inconclusive. Katz and colleagues (e.g. Katz, 1981; Katz & Hass, 1988) argued that awareness of one's incompatible beliefs generates psychological discomfort, but they did not provide empirical evidence for this assumption. Some indirect evidence is provided by Hass, Katz, Rizzo, Bailey, and Moore (1992), who found (racial) ambivalence to be related to negative mood. Nordgren, van Harreveld and van der Pligt (2006) found that when holders of ambivalent attitudes could attribute their discomfort to a placebo pill, they reported less negative emotions than their counterparts who thought they received a relaxing pill. This suggests that ambivalence-induced arousal is a cause of negative emotions. On the other hand, Maio, Greenland, Bernard, and Esses (2001) found a *negative* relation between intergroup ambivalence and physiological arousal. Given these conflicting findings concerning ambivalence and experienced negative affect, it makes sense to focus on *when* ambivalence is associated with discomfort.

It has been argued that ambivalence is only experienced as uncomfortable when the positive and negative components of an attitude are simultaneously *accessible* because then the ambivalent attitude holder becomes aware of his or her conflicting thoughts or feelings (Newby-Clark, McGregor, & Zanna 2002). De Liver, van der Pligt and Wigboldus (2007) tested this assumption using an adapted IAT. They indeed found that the positive and negative components of an attitude were equally accessible for participants who reported felt ambivalence. In a second study they showed that ambivalent attitudes tend to become more accessible when they were preceded by either a positive or a negative prime. For holders of ambivalent attitudes the positive and the negative prime both relate to one of their evaluative components. The fact that neutral primes had no such facilitative effect indicates that only clearly valenced primes made the ambivalent attitude more accessible. This provides further support for the view that conflicting evaluative responses are at the core of the ambivalent attitude.

Thus it seems that ambivalence is experienced as unpleasant when the positive and negative components are simultaneously accessible. Obviously this is not always the case. Many people have ambivalent attitudes toward matters such as exercise, donating blood, fast food,

drinking alcohol or watching television, but most of these issues do not make us feel conflicted constantly. Whether simultaneous accessibility (and thus discomfort) indeed occurs may depend on contextual factors. Katz, Wackenhut and Hass (1986) for example argue that racial ambivalence will be primarily salient in an intergroup context. Hass et al. (1992) note that in their study negative mood was most pronounced in racially ambivalent participants whose evaluative conflict had been made salient by listening to an audio recording of racial violence.

A primary suspect when it comes to causing the simultaneous accessibility of positive and negative evaluative components surfaces when we take a closer look at the comparison that has been drawn between ambivalence and dissonance (McGregor, Newby-Clark, & Zanna, 1999). Ambivalence and dissonance undoubtedly share characteristics in the sense that both concern evaluative incongruence between cognitions. In fact Festinger's (1964) definition of dissonance applies to all kinds of situations where two cognitions are in conflict with one another, thus including ambivalence. However, most of the empirical work on discomfort associated with dissonance focuses on dissonance resulting from a behavioral commitment that is in conflict with the attitude (e.g. Festinger & Carlsmith, 1959). Ambivalence on the other hand is often non-committal. Many people have mixed feelings about attitudes toward which they never have to take a clear evaluative stance. Topics such as euthanasia and abortion may elicit ambivalent feelings, but it is likely that these mixed evaluations become irreconcilable only when people have to take an unequivocal stance. When the ambivalent attitude can no longer remain non-committal, judgment will turn into choice. Hogarth (1981) illustrated the importance of distinguishing judgment from choice by comparing aiming a gun (judgment) to pulling the trigger (choice). We believe that holders of ambivalent attitudes especially experience psychological discomfort when they are forced to commit and have to pull the trigger.

In accordance with this reasoning, De Liver, van der Pligt and Wigboldus (2009) argue that when a choice presents itself, holders of ambivalent attitudes have an integration goal. They are motivated to integrate their conflicting evaluations in one evaluative response. As long as this is not achieved, the goal will heighten felt ambivalence, and thus experienced discomfort. Indeed

De Liver and colleagues found that participants who were told to make a decision reported more felt ambivalence as compared to those who knew they could remain “on the fence”, suggesting that discomfort is enhanced when a choice has to be made.

The most direct test of the impact of choice on ambivalence-induced discomfort was provided by van Harreveld, Rutjens, Rotteveel, Nordgren and van der Pligt (2009) who forced holders of ambivalent attitudes to commit to one side of the attitude they felt ambivalent about and compared their physiological arousal (GSR) to holders of ambivalent attitudes who could stay uncommitted as well as to the univalent control group that did not have to choose. The results of their second study are depicted in Figure 1 and show an increase in arousal in each of the three experimental conditions starting at baseline, via the introduction of the forthcoming choice to the actual decision-making. The results clearly indicate that *only* when holders of ambivalent attitudes have to commit to one side of their attitude, do they experience more arousal than participants with univalent attitudes. Moreover, the effect of ambivalence on arousal was fully mediated by self-reported feelings of uncertainty about the decision. A subsequent study, which included a univalent choice condition, showed the same pattern using self-reported negative emotions. This further indicates that it is the combination between ambivalence and choice (and not choice itself) that causes discomfort.

This study further examined specific emotions and one of the negative emotions affected by ambivalent choices was *regret*. For various reasons regret is an emotion likely to be associated with ambivalence. First of all, comparisons with the literature on dissonance can again be drawn. Festinger (1964) argued that regret plays a role in the context of post-decisional dissonance. After a decision people tend to focus their attention on unfavorable aspects of the chosen alternatives and favorable aspects of the rejected alternatives and this can lead to feelings of regret. Moreover, in research on regret it has repeatedly been shown that in the context of losses, actions are associated with higher levels of regret than inactions (e.g. Gilovic & Medvec, 1994). One could argue that for the ambivalent attitude holder on the fence, having to make a

discrete choice is an action that involves having to trade off evaluations and consequently to the anticipation of regret.

It thus appears that ambivalence is particularly unpleasant when one has to commit to one side of the attitudinal issue because then one's conflicting thoughts and/or feelings become irreconcilable. The need to commit to one side of the issue leads holders of ambivalent attitudes to experience uncertainty-induced physiological arousal, potentially rooted in the anticipation of regret about the decision.

### *Coping with ambivalence*

We now turn to the question of how holders of ambivalent attitudes resolve their state of conflict. We introduce emotion-focused and problem-focused coping strategies and discuss when each of these strategies is most likely to be employed. In their Model of Ambivalence-Induced Discomfort (MAID), van Harreveld, van der Pligt, and de Liver (2009) focus on holders of ambivalent attitudes who have to make a decision and commit themselves to one side of the attitudinal issue, as ambivalence tends to be especially unpleasant in such commitment situations (van Harreveld, Rutjens, Rotteveel, Nordgren, & van der Pligt, 2009). Similar to Luce and colleagues (Luce, 1998; Luce, Bettman, & Payne, 1997), the MAID model distinguishes two basic forms of dealing with the negative feelings associated with a difficult choice; *emotion-focused coping* and *problem-focused coping*. According to Luce (1998) emotion-focused coping can be either procrastination or downplaying the importance of the situation, whereas problem-focused coping involves increasing one's effort in order to make the best choice. In their MAID model, van Harreveld et al. (2009) apply this distinction to ambivalence-induced discomfort.

#### *Emotion focused coping*

Emotion focused coping involves efforts to feel better about an ambivalent choice, without solving the problem itself (i.e. conflicting evaluations). When a choice is imminent, a very direct way to do this is by postponing the ambivalent decision. Research on procrastination has shown that aversive tasks can lead to avoidant behavior (e.g. Steel, 2007) and in a decision-making context Luce (1998) found that difficult choices lead to negative feelings and avoidant behavior.

Moreover she found that such avoidant behavior is successful in reducing the negative affect that caused the procrastination to begin with. A recent study by Nohlen, van Harreveld, van der Pligt, and Rotteveel (2010) has indeed shown that procrastination is associated with ambivalence.

A second form of emotion focused coping proposed by Luce et al. (1997) is an attempt to redefine the situation. In the realm of ambivalent choices this can be done by denying one's responsibility for the decision. There are two main reasons why we believe this plays a role in the current context. First of all, research on dissonance has indicated that feeling responsible for one's decision is a prerequisite for experiencing dissonance (e.g. Wicklund & Brehm, 1976) and denial of this responsibility could be an effective way to reduce negative affect. The second reason why denial of responsibility for a decision is a likely coping strategy lies in the literature on regret, where it is argued that there has to be a sense of responsibility for one's behavior for regret to occur (e.g. Zeelenberg, van Dijk, & Manstead, 1998). Earlier we argued that feelings of (anticipated) regret might play an important role in causing discomfort for holders of ambivalent attitudes facing a decision and that is why denial of responsibility for the chosen alternative may also play a role when it comes to reducing the agony of ambivalence.

#### *Problem focused coping*

The emotion focused coping strategies discussed above unfortunately cannot always be employed. Some decisions cannot be postponed and sometimes there is nobody else around to pass the ball to when it comes to responsibility for a decision. According to van Harreveld et al. (2009) this leaves holders of ambivalent attitudes with few other options than to invest more effort with the aim to increase confidence about the decision. In other words, when facing a decision, holders of ambivalent attitudes can reduce their uncertainty about the decision by attempting to swing the balance within their attitude to one evaluative side. This is a more problem-focused approach of coping with ambivalence-induced discomfort, because it is aimed at eliminating the problem by changing the attitude and thus reducing ambivalence.

Earlier we have drawn comparisons between ambivalence and dissonance and argued that an important difference between the two is that ambivalence often occurs in situations where a

choice has not (yet) been made, while dissonance generally concerns situations where one has already committed to a choice alternative. While post-behavioral dissonance leads to justification efforts, we believe holders of ambivalent attitudes are still motivated to maximize post-choice satisfaction by investing cognitive resources into making the best possible decision. In fact there is evidence supporting the notion that holders of ambivalent attitudes go through a more effortful process of integrating attributes when forming an attitude (van Harreveld, van der Pligt, De Vries, Wenneker & Verhue, 2004; van Harreveld & van der Pligt, 2006).

Studies have shown that ambivalence is associated with increased systematic processing (Jonas, Diehl, & Brömer, 1997), increased cognitive activity (Monteith, Devine, & Zuwerink, 1993), greater ventrolateral prefrontal cortex activity (vlPFC; Cunningham, Johnson, Gatenby, Gore, & Banaji, 2003) and a larger difference in effectiveness between strong and weak persuasive messages (Maio, Bell, & Esses, 1996). The notion that this relation between ambivalence and more effortful processing is the result of the motivation to reduce ambivalence is indirectly supported by the latter study by Maio and colleagues, who found that the increased receptiveness of holders of ambivalent attitudes to a strong persuasive message indeed helped to reduce subsequent feelings of ambivalence.

The studies described above suggest that in the context of ambivalence, problem focused coping involves investing more time and cognitive effort into making the best possible decision. Sometimes this can be achieved by thorough processing and careful weighing of all alternatives, i.e. unbiased systematic processing. However, we believe this is not always the best way to deal with ambivalence. Some issues simply *have* both pros and cons and are inherently ambivalent. Moreover, if the ultimate goal is to reduce ambivalence, *biased* systematic processing and the use of specific heuristics provide effective ways to combat ambivalence. Biased systematic processing could for example take the shape of selectively focusing on one side of the attitudinal issue and thus swinging the balance within the attitude to one side. This may be an especially fruitful route because biased processing is cognitively less effortful than unbiased processing.

This suggested relation between ambivalence and biased systematic processing is somewhat controversial. Conner and Sparks (2002) argue that due to their uncertainty, holders of ambivalent attitudes are likely to engage in unbiased processing of information relevant to their attitude. In the context of dissonance, Festinger has maintained that biased pre-decision processing does not occur (Festinger & Walster, 1964). Recent studies have however indicated that ambivalence can be associated with biased processing of information. Clark, Wegener, and Fabrigar (2008) for example found holders of ambivalent attitudes to focus on pro-attitudinal information and avoid counter-attitudinal information. In other words, holders of ambivalent attitudes process information in accordance with the slight evaluative inclination they may have.

Nordgren, van Harreveld and van der Pligt (2006) directly related information processing to the ambivalence-induced discomfort that supposedly is the cause of biased or unbiased attempts to reduce ambivalence. They manipulated ambivalence about genetically modified food, measured ambivalence and then gave participants a placebo pill. Dependent on experimental condition this pill ostensibly caused either relaxation or arousal. Subsequently participants self-reported affect was measured as well as their attitude related thoughts, the latter using a thought-listing paradigm (used as an indication of biased or unbiased information processing). At the end of the experiment ambivalence was measured once again. The results illustrate that participants reported fewer negative emotions in the condition in which they believed the pill was a cause of arousal compared to the condition in which they expected to feel relaxed. In other words, when participants were able to attribute their discomfort to an external source, they did not feel any ambivalence-induced discomfort. When such an external attribution is not possible, ambivalence *is* associated with psychological discomfort.

Interestingly, the data also revealed an effect of the placebo pill manipulation on information processing. We coded the number and valence of thoughts reported on the thought listing and participants who could not attribute their discomfort to an external source not only reported more negative emotions, they were also more biased in their thoughts about the attitude object. As in the study by Clark et al. (2008) mentioned earlier, the direction of this bias is

predicted by the attitude. So participants who are ambivalent but lean slightly toward one side of the evaluative continuum also tend to selectively focus on that particular side. This is plausible because it comprises the fastest route toward a univalent attitude. Interestingly, in this study biased processing was also effective in reducing ambivalence, as assessed by comparing the two measures of ambivalence. The results of this study thus indicate that biased systematic processing is indeed a way for holders of ambivalent attitudes to reduce their discomfort.

Besides biased systematic processing, heuristic processing (Chaiken, 1980) is a cognitively efficient way to reduce ambivalence as well. Holders of ambivalent attitudes have indeed been known to process heuristically. For example, their motivation to reduce conflict leads them to become less likely to check the reliability of information about the attitude object before being persuaded (Zembarain & Johar, 2007). Hodson, Maio, and Esses (2001) found that holders of ambivalent attitudes are more persuaded by consensus information than those who are not ambivalent.

#### *Adaptive flexibility*

It appears that there are several strategies that can be employed when ambivalence becomes unpleasant and holders of ambivalent attitudes are likely to be flexible in dealing with their discomfort. In other words, when each of the coping strategies is most likely to be employed depends on the specific possibilities and constraints in a given situation. We believe an important role in determining coping preferences is played by an effort-accuracy tradeoff (Payne, Bettman, & Johnson, 1993) made by the ambivalent decision-maker. Payne and colleagues believe that decision makers have to trade off two goals: minimizing cognitive effort and maximizing accuracy.

These opposing goals move the ambivalent attitude holder toward different coping strategies. The goal to minimize effort causes procrastination to be the first coping strategy that holders of ambivalent attitudes are likely to turn to when facing a decision, because it is the least demanding strategy (cf. Luce et al., 1997). When the decision however cannot be avoided, problem focused coping comes into play. Several kinds of problem-focused coping have been

distinguished earlier. Again effort versus accuracy motivations determine the preferences for these as well as for the employed strategy. Problem-focused coping strategies can be distinguished in the extent to which they require cognitive effort. Which coping strategy comes into play depends on situational and individual factors, which determine our motivation and ability to apply more or less effortful coping strategies.

The desire to maximize accuracy is argued to be the result of regret that is anticipated about potentially making the wrong decision and should lead to unbiased systematic processing. When regret about the decision is *not* anticipated, for example because perceived responsibility for the quality of the decision is limited, less effortful coping strategies are likely to be employed. Biased systematic processing is an example of such a strategy, because this can be a more efficient way to reduce ambivalence than unbiased systematic processing. As argued earlier biased systematic processing is more directly aimed at tipping the balance within the attitude (van Harreveld et al., 2009).

In short, when regret about making a bad decision is anticipated, holders of ambivalent attitudes will be guided by accuracy motivations and therefore invest the necessary time and effort into making the best possible decision by carefully weighing the pros and cons. When however cognitive resources are scarce or fear about making the wrong decision is limited, the motivation to minimize cognitive effort will prevail. Then holders of ambivalent attitudes will resort to biased systematic processing or the arguably even less effortful heuristic processing.

Van Harreveld et al. (2009) argue that coping strategies can be employed simultaneously and there is empirical evidence to support this view. Ferrari and Dovidio (2000) for example have shown that procrastinators search more elaborately for attitude relevant information and Hanze (2001) found that ambivalence leads to both systematic processing as well as avoidance. This suggests that procrastination may be employed strategically to generate cognitive resources to engage in more effortful coping.

A final point about the prevalence of these coping strategies is that because choice situations are an important and straightforward cause of ambivalence-induced discomfort, we

have discussed coping strategies in that context as well. However, the problem-focused coping strategies discussed here are also applicable to attitude holders who feel uncomfortable because their opposing evaluations have become accessible for a different reason.

### *Model of Ambivalence-Induced Discomfort (MAID)*

In this chapter we have first argued that ambivalence is particularly unpleasant in the face of a decision, because then what were smoldering inconsistencies within one's attitude become irreconcilable and ambivalence turns into a fire that needs to be extinguished. We have proceeded by discussing several coping strategies that holders of ambivalent attitudes can use when facing a decision; emotion focused coping strategies (procrastination) and problem focused coping strategies (biased or unbiased systematic processing). In the Model of Ambivalence-Induced Discomfort (MAID), van Harreveld et al. (2009) present a framework that integrates these viewpoints on when ambivalence is unpleasant with the predictions of when each of the coping strategies is most likely to be employed. We will now discuss the model, depicted in Figure 2, in more detail.

The model is a flow chart where the different steps are based on questions that relate to the ambivalent attitude. The first question is whether the ambivalent attitude holder has to make a dichotomous choice. When this is not the case, there is less simultaneous activation of evaluatively incongruent components and ambivalence is likely to remain in a *potential* state that does not evoke a negative affective response (e.g. Armitage & Arden, 2007; De Liver et al., 2009). When a decision has to be made however, simultaneous accessibility of evaluative components causes a state of *felt ambivalence*.

When ambivalence reaches this 'felt' state, an appraisal of the imminent decision follows and if the consequences of the decision are difficult to foresee, this can lead to feelings of uncertainty. The studies presented earlier by van Harreveld, Rutjens, Rotteveel, Nordgren, and van der Pligt (2009) have indicated that such feelings of uncertainty are a necessary precondition for arousal to occur. Without uncertainty about the decision holders of ambivalent attitudes still

hold conflicting thoughts and/or feelings, but they are not struggling on the fence like their uncertain counterparts and therefore they will not experience a similar necessity to cope.

A first coping strategy that is turned to by holders of ambivalent attitudes when they do face a choice with uncertain outcomes is trying to postpone the decision (cf. Luce et al., 1997). If procrastination is possible, the problem is (temporarily) solved and ambivalence returns to its 'potential' state. If procrastination is not possible, problem-focused coping strategies will have to be employed. These strategies are aimed at the problem itself, i.e. the ambivalent attitude. Tipping the balance within the attitude is thus the aim of these strategies, but how this is achieved depends on whether feedback about the quality of the decision (and thus regret) is anticipated (Janis & Mann, 1977). When one does not expect feedback about the decision and less regret is thus anticipated, a low-effort route will be followed, consisting of biased or heuristic processing. When regret *is* anticipated, denying the responsibility for the decision (for example by emphasizing the impact of external forces) can be a means to reduce anticipated regret but when there is nobody else to blame a higher effort route will have to be taken.

Holders of ambivalent attitudes anticipating regret about their decision will be motivated to invest time and cognitive effort into making the best possible decision. Whether they will indeed follow the high effort route and process information in a thorough and balanced way depends on the availability of cognitive resources. When these are sufficiently available, unbiased systematic processing will be used as a means to reduce ambivalence. When cognitive resources are constrained the holders of ambivalent attitudes necessarily will have to rely on less effortful processing. This reflects the adaptive flexibility holders of ambivalent attitudes have in coping with their discomfort. The MAID model shows ambivalence to be a dynamic process, with holders of ambivalent attitudes often going through different behavioral and psychological stages that can either make ambivalence more bearable or lead them to acquire evaluative congruence.

### *Conclusions*

In this chapter we have provided an overview of research on when and why ambivalence is experienced as unpleasant and what the psychological and behavioral consequences of this

unpleasantness are. We have shown that ambivalence is unpleasant when both evaluative components of the attitude are simultaneously accessible, often caused by having to take a clear evaluative stance vis-à-vis the attitude object. As described in the Model of Ambivalence-Induced Discomfort (MAID) there are various ways through which the experience of ambivalence-induced discomfort is dealt with. The emotion focused coping strategies we have distinguished involve efforts to change the contextual factors that caused the simultaneous accessibility of evaluative components and the discomfort that resulted from that. This can be done by avoiding the decision or by redefining the choice situation, for example by convincing oneself that personal responsibility for the decision is limited. Problem focused strategies are more directly aimed at the root of the problem and involve efforts to change the ambivalent attitude altogether, either through an effortful process of carefully weighing the pros and cons or through less effortful biased or even heuristic processing. Which of these strategies is employed is determined by the respective strength of the opposing motivations to reduce expended cognitive effort and maximize confidence in the quality of one's decision. This effort-accuracy tradeoff is influenced by factors such as anticipated regret if the decision would turn out suboptimal and the availability of cognitive resources in that particular situation. The MAID model thus emphasizes the adaptive flexibility of ambivalent decision-makers coping with their discomfort.

Research by Newby-Clark, McGregor and Zanna, (2002) has suggested that ambivalence is particularly unpleasant for those who are high in preference in consistency, but it remains to be seen how individual differences play a role in how one subsequently copes with one's ambivalence. Research on coping, for example, distinguishes between people seeking or avoiding information and those who seek or avoid distraction in the face of threat (Miller, 1987). Such preferences could of course also impact coping preferences in the context of ambivalence.

The current chapter has implications for programs aiming toward attitude change. Persuasive communications differ in the extent to which they require extensive processing. While earlier studies have indicated that holders of ambivalent attitudes are motivated to invest

cognitive resources into thoroughly processing information (e.g. Maio, Bell, & Esses, 1996), the MAID model aims to predict *under which circumstances* this is the case. When the ambivalent attitude holder has plenty of time and cognitive resources and considers the decision important, it seems advisable to rely on strong persuasive arguments. Those decisions usually do not have to be taken overnight, such as choices about careers or romantic partners. Other decisions, for example those that are somewhat less important or the ones that have to be taken more quickly, lead holders of ambivalent attitudes toward less effortful processing that is primarily aimed at making a decision, not so much at making the best possible decision. Under these circumstances persuasive communication using source characteristics, for instance, is likely to be more effective.

Future research should determine what heuristics and biases holders of ambivalent attitudes are especially susceptible to. One that seems particularly relevant in the context of decision-making in an increasingly complex world is the expertise heuristic (e.g. Chaiken, 1980). Many societal issues such as stem cell research (Nisbet, 2005), genetically modified food (Moon & Balasubramanian, 2004) and underground CO<sub>2</sub> storage (Tokushige, Akimoto, & Tomoda, 2007) are inherently complex and difficult to solve with a simple cost-benefit analyses and hence likely to be associated with ambivalence. One could argue that when making complex decisions, putting one's trust in an expert is a potentially attractive solution for holders of ambivalent attitudes. However, trust in experts seems to be eroding throughout society (e.g. Cook, 2001). From science to politics, from financial services to medicine; people's trust in authorities is decreasing, posing yet another problem for holders of ambivalent attitudes as it deprives them from a means to combat their internal conflict.

As argued in the MAID model, ambivalence has different appearances. Potential ambivalence is a state evoking relatively little affect, while felt ambivalence is more of a hot state. The current chapter has shown that this distinction is important as especially this latter form of ambivalence has a host of psychological and behavioral consequences, suggesting that in research on ambivalence it is important to carefully choose measurement tools. Unfortunately

there is only limited agreement on how ambivalence should be assessed. Different measures emphasize felt ambivalence (Jamieson, 1993), subjective ambivalence (Priester & Petty, 1996) or potential ambivalence (Kaplan, 1972). Some measures (Kaplan, 1972) are also quite demanding in terms of the presumed quality of people's introspective qualities. In our view it is essential to disentangle potential versus felt ambivalence and assess the reactivity of some of these measures. Our own recent studies have for example suggested that the introspective nature of ambivalence measures can enhance negative emotions (Schneider, van Harreveld, Rotteveel, & van der Pligt, 2010).

On the basis of the evidence presented in this chapter, we suggest that it is time to change the way ambivalence is traditionally viewed in research on attitudes. Ambivalence is generally seen as a dimension of attitude strength (i.e. Thompson, Zanna, & Griffin, 1995), an assumption that is supported by its relation to other indices of strength such as stability, pliability, prediction of behavior (Armitage & Conner, 2000) and accessibility (Bargh, Chaiken, Govender, & Pratto, 1992). The current chapter sheds new light on these results, in the sense that we believe each of them can also be explained in terms of ambivalence-induced discomfort rather than in terms of strength. For example, the lower response times for holders of ambivalent attitudes when confronted with the attitude object may reflect an aversive response rather than a non-accessible attitude. Similarly, ambivalent attitudes may be more pliable and less stable because the holders of ambivalent attitudes *want* to change their attitude and reduce discomfort. Also, ambivalent attitudes thus *are* predictive of behavior. Not the kind of behavior that is evaluatively congruent with the attitude, but behavior that is specifically targeted against the discomfort associated with their attitude. Ambivalence is in a way even a characteristic of a *strong* attitude, in the sense that holders of ambivalent attitudes are motivated to engage in more effortful processing of information about the attitude object. As a consequence we believe that labeling an attitude as weak is more applicable to indifference than to ambivalence as it does not do justice to the dynamics underlying the ambivalent attitude.

To conclude, in our view, most critical to the advancement of knowledge about ambivalence is a continued focus on what we view as the *dynamics of ambivalence*. At the start of this chapter we argued that given the increase in two-sided information people are confronted with, our attitudes are continuously challenged. Therefore ambivalence is worthy of its increased research attention because of its considerable consequences for cognition and behavior in an increasingly complex world.

## References

- Armitage, C. J. & Arden, M. A. (2007). Felt and potential ambivalence across the stages of change. *Journal of Health Psychology, 12*, 149-158.
- Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin, 26*, 1421-1432.
- Bargh, J.A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology, 62*, 893-912.
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology, 39*, 752-766.
- Charles, C., Gafni, A., & Whelan, T. (1997). Shared decision-making in the medical encounter: What does it mean? (or it takes at least two to tango). *Social Science and Medicine, 44*, 681-692.
- Clark, J. K., Wegener, D. T., & Fabrigar, L. R. (2008). Attitudinal ambivalence and message-based persuasion: Motivated processing of proattitudinal information and avoidance of counterattitudinal information. *Personality and Social Psychology Bulletin, 34*, 565-577.
- Conner, M., & Sparks, P. (2002). Ambivalence and attitudes. In W. Stroebe, & M. Hewstone (Eds.), *European Review of Social Psychology* (Vol. 12, pp. 37-70). Chichester: Wiley.
- Cook, K. S. (2001). *Trust in society*. Russell Sage.
- Cunningham, W. A., Johnson, M. K., Gatenby, J. C. G., Gore, J. C., & Banaji, M. R. (2003). Neural components of social evaluation. *Journal of Personality and Social Psychology, 85*, 639-649.
- Ferrari, J. R., & Dovidio, J. F. (2000). Examining behavioral processes in indecision: decisional procrastination and decision-making style. *Journal of Research in Personality, 34*, 127-137.

- Festinger, L. (1964). *Conflict, decision, and dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L. & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58*, 203-210.
- Festinger, L., & Walster, E. (1964). Post-decision regret and decision reversal. In L. Festinger (Ed.). *Conflict, decision, and dissonance*. Stanford, CA: Stanford University Press.
- Gilovich, T. & Medvec, V.H. (1994). The temporal pattern to the experience of regret. *Journal of Personality and Social Psychology, 67*, 357-365.
- Hanze, M. (2001). Ambivalence, conflict, and decision making: Attitudes and feelings in Germany towards NATO's military intervention in the Kosovo war. *European Journal of Social Psychology, 31*, 693-706.
- Harrison, S., & Mort, M. (2003). Which champions, which people? Public and user involvement in health care as a technology of legitimization. *Social Policy and Administration, 32*, 60-70.
- Hass, R. G., Katz, I., Rizzo, N., Bailey, J., & Moore, L. (1992). When racial ambivalence evokes negative affect, using a disguised measure of mood. *Personality and Social Psychology Bulletin, 18*, 786-797.
- Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology, 21*, 107-112.
- Hodson, G., Maio, G. R., & Esses, V. M. (2001). The role of attitudinal ambivalence in susceptibility to consensus information. *Basic and Applied Social Psychology, 23*, 197-205.
- Hogarth, R. M. (1981). Beyond discrete biases: Functional and dysfunctional aspects of judgmental heuristics. *Psychological Bulletin, 90*, 197-217.
- Jamieson, D. W. (1993, August). *The attitude ambivalence construct: Validity, utility, and*

- measurement*. Paper presented at the annual meeting of the American Psychological Association, Toronto.
- Janis, I. L. & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice and commitment*. New York, NJ: Free Press.
- Jonas, K., Diehl, M., & Brömer, P. (1997). Effects of attitudinal ambivalence on information processing and attitude-intention consistency. *Journal of Experimental Social Psychology, 33*, 190-210.
- Kaplan, K. J. (1972). On the ambivalence–indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin, 77*, 361–372.
- Katz, I. (1981). *Stigma: A social psychological analysis*. Hillsdale, NJ: Lawrence Erlbaum.
- Katz, I., & Hass, R. G. (1988). Racial ambivalence and American value conflict: Correlational and priming studies of dual cognitive structures. *Journal of Personality and Social Psychology, 55*, 893-905.
- Katz, I., Wackenhut, J., & Hass, R. G. (1986). Racial ambivalence, value duality, and behavior . In J. F. Dovidio & S. L. Gaertner (Eds.), *Prejudice, discrimination, and racism* (pp. 35-59). New York: Academic Press.
- Liver, Y. de, van der Pligt, J., & Wigboldus, D. H. J. (2007). Positive and negative associations underlying ambivalent attitudes. *Journal of Experimental Social Psychology, 43*, 319-326.
- Liver, Y. de, van der Pligt, J., & Wigboldus, D. H. J. (2009). Ambivalence under pressure. *Manuscript submitted for publication*.
- Luce, M. F. (1998). Choosing to avoid: Coping with negatively emotion-laden consumer decisions. *Journal of Consumer Research, 24*, 409-433.
- Luce, M. F., Bettman, J. R., & Payne, J. W. (1997). Choice processing in emotionally difficult decisions. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 23*, 384-405.

- Maio, G. R., Bell, D. W., & Esses, V. M. (1996). Ambivalence and persuasion: the processing of messages about immigrant groups. *Journal of Experimental Social Psychology, 32*, 513-536.
- Maio, G. R., Greenland, K., Bernard, M., & Esses, V. M. (2001). Effects of intergroup ambivalence on information processing: The role of physiological arousal. *Group Processes and Intergroup Relations, 4*, 355-372.
- McGregor, I., Newby-Clark, I. R., & Zanna, M. P. (1999). "Remembering" dissonance: Simultaneous accessibility of inconsistent cognitive elements moderates epistemic discomfort. In E. Harmon-Jones & J. Mills (Eds.), *Cognitive Dissonance: Progress on a Pivotal Theory in Social Psychology*, (pp. 325 – 352). Washington DC: American Psychological Association.
- Miller, S. M. (1987). Monitoring and blunting: Validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology, 52*, 345-353.
- Monteith, M. J., Devine, P. G., & Zuwerink, J. R. (1993). Self-directed versus other-directed affect as a consequence of prejudice-related discrepancies. *Journal of Personality and Social Psychology, 64*, 198-210.
- Moon, W., & Balasubramanian, S. K. (2004). Public attitudes toward agrobiotechnology: The mediating role of risk perceptions on the impact of trust, awareness and outrage. *Review of Agricultural Economics, 26*, 186-208.
- Newby-Clark, I. R., McGregor, I., & Zanna, M. P. (2002). Thinking and caring about cognitive inconsistency: When and for whom does attitudinal ambivalence feel uncomfortable? *Journal of Personality and Social Psychology, 82*, 157-166.
- Nisbett, M. C. (2005). The completion for worldviews: Values, information and public support for stem cell research. *International Journal of Public Opinion Research, 17*, 90-112.
- Nohlen, H., Van Harreveld, F., Van der Pligt, J., & Rotteveel, M. (2010). Procrastination

- as a means of coping with ambivalence-induced discomfort. *Manuscript in preparation.*
- Nordgren, L. F., Van Harreveld, F., & Van der Pligt, J. (2006). Ambivalence, discomfort, and motivated information processing. *Journal of Experimental Social Psychology, 42*, 252-258.
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The adaptive decision maker*. Cambridge, England: Cambridge University Press.
- Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitude to subjective ambivalence. *Journal of Personality and Social Psychology, 71*, 431-449.
- Schneider, I. K., Van Harreveld, F., Rotteveel, M., & Van der Pligt, J. (2010). Conflict awareness as a cause of ambivalence induced negative feelings. *Manuscript submitted for publication.*
- Schwartz, B. (2004). *The paradox of choice: Why more is less*. New York: Ecco.
- Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*, 65-94.
- Tokushige, K., Akimoto, K., & Tomoda, T. (2007). Public perceptions on the acceptanten of geological storage of carbon dioxide and information influencing the acceptance. *International Journal of Greenhouse Gas Control, 1*, 101-112.
- Thompson, M. M., Zanna, M. P., Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. In: R. E. Petty, and J. A. Krosnick (Eds.), *Attitude strength: Antecedents and consequences*, (pp. 361-386). Hillsdale, NJ.
- Van Harreveld, F., Rutjens, B. T., Rotteveel, M., Nordgren, L. F., & Van der Pligt, (2009). Ambivalence and decisional conflict as a cause of psychological discomfort: Feeling tense when jumping off the fence. *Journal of Experimental Social Psychology, 45*, 167-173.
- Van Harreveld, F., & van der Pligt, J. (2004). Attitudes as stable and transparent

- constructions. *Journal of Experimental Social Psychology*, 40, 666-674.
- Van Harreveld, Van der Pligt, J., & De Liver (2009). The agony of ambivalence and ways to resolve it: Introducing the MAID model. *Personality and Social Psychology Review*, 13, 45-61.
- Van Harreveld, F, Van der Pligt, J., De Vries, N. K., Wenneker, C., & Verhue, D. (2004). Ambivalence and information integration in attitudinal judgment. *British Journal of Social Psychology*, 43, 431-447.
- Wicklund, R. A., & Brehm, J. W. (1976). *Perspectives on cognitive dissonance*. Hillsdale, NJ: Erlbaum.
- Zanna, M. P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology*, 29, 703-709.
- Zeelenberg, M., van Dijk, W. W. , & Manstead, A. S. R. (1998). Reconsidering the relation between regret and responsibility. *Organizational Behavior and Human Decision Processes*. 74, 254-272.
- Zemboirain, M. R. & Venkataramani Johar, G. (2007). Attitudinal ambivalence and openness to persuasion : A framework for interpersonal influence. *Journal of Consumer Research*, 33, 506-514.

*Figure Captions*

Figure 1: Relative SCL increase (%) for the ambivalent choice, ambivalent no-choice and univalent no-choice conditions, compared to baseline.

Figure 2. Model of Ambivalence-Induced Discomfort (MAID).



