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**Affect, attitudes and decisions:
Let's be more specific**

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Abstract

This chapter focuses on the role of affect in attitudes and decision-making. First we will briefly discuss the role of affect in attitude-formation and -change processes. Two issues have played an important role in this research area. First, the distinction between affect-based and cognition-based attitudes. Second, the effects of mood on persuasion. Generally these traditions rely on a crude dichotomy between positive and negative affect and rather general, holistic measures of affect. Moreover, these traditions tend to emphasize automatic information processing. We focus on controlled information processing and continue with a discussion of the role of affect in expectancy-value models of behaviour such as Ajzen's theory of planned behaviour. Affect received only limited attention in these models. It will be argued that people anticipate post-behavioural affective consequences of their actions, and take these into account when deciding about their behavioural preferences. We will argue that the inclusion of anticipated post-behavioural affective outcomes could improve the predictive validity of expectancy-value models. Next, we will contrast research on affect and attitudes with research on behavioural decision-making. The latter area tends to focus on more specific affective determinants of behaviour. One of these is anticipated regret . Antecedents of anticipated regret will be discussed and the predictive validity of anticipated regret will be tested in the context of Ajzen's theory of planned behaviour. Finally we will show that it is relatively easy to increase the salience of post-behavioural affective reactions such as regret and worry and that this increased salience has an impact on both behavioural intentions and self-reported behaviour. Implications for the study of affect in expectancy-value models of behaviour will be briefly discussed.

Introduction

Preferences are a central issue in social psychology and are examined in research on attitudes, impression formation, interpersonal relationships, decision-making, and many other fields. For the past few decades the prevailing paradigms in these fields of research treated preferences as the outcome of a cognitive process focusing on utilities and values. Moreover, decomposing these utilities and values into more elementary components was a general solution to improve our understanding of these processes. The one factor often missing in these approaches was affect. This emphasis on cognition was corrected in the 1980s, resulting in a marked increase in research on the role of affect in social judgment, attitude-formation and -change processes, and decision-making.

In this chapter we will discuss research on the role of affect in attitudinal processes. First we will briefly summarize research on affective information processing and the effects of mood on attitudes. Next we turn to the main issue of this chapter, the role of affect in expectancy-value models of attitudes. We will focus on the conscious processing of affect and contrast research on the role of affect in expectancy-value models of attitudes with research on behavioural decision-making. We will show that affect can play an independent role in attitudes and behavioural decisions. It will be argued that incorporating affective factors in expectancy-value models such as Ajzen's theory of planned behaviour requires less holistic measures of affect, should focus on specific emotional reactions, and should also take account of anticipated, post-behavioural affective reactions.

The renewed interest in the role of affect can be traced to Zajonc's (1980) influential paper on affective versus cognitive information processing. Zajonc, on the basis of his mere exposure studies, argued for separate systems and

suggested that affective and cognitive processes may proceed independently from one another and that affective reactions could even precede and influence cognition. Basically, he argued that the affective quality of a stimulus can be processed outside of conscious awareness. Researchers of the affect-cognition interface often used subliminal presentation of affective primes to demonstrate evaluative reactions to stimuli that cannot be traced to some conscious computation of liking. For instance, Edwards (1990) and Murphy and Zajonc (1993) used subliminal presentation of faces showing a positive or negative emotion to prime affective reactions to a subsequent (ambiguous) stimulus. Generally, this research relies on a "crude" dichotomy of affect by valence (good or bad), and it can be placed in the context of a larger tradition in social psychology concerning the role of awareness and control on a person's judgments, and research on automatic phenomena in social judgment (see Bargh, 1994). More recent findings (Bargh, Chaiken, Raymond & Hymes, 1996) in this line of research confirm the so-called automatic evaluation effect and show that attitudes can be activated without conscious processing and facilitate or interfere with the conscious and intended evaluation of a target stimulus.

Based on Zajonc's (1980) distinction between feeling and thinking, Abelson, Kinder, Peters, and Fiske (1982) explored comparisons between conventional semantic judgments focusing on a cognitive appraisal of attitude objects, and affective responses to these objects. In two large scale surveys respondents were asked to ascribe personality traits to prominent national politicians as well as to report the feelings that these politicians elicited. Affect elicited by the politicians was highly predictive of political preference, and this effect was independent of, and more powerful than the effect of trait judgments. On the basis of these findings Abelson et al. (1982) concluded that affective responses add to the predictive validity of attitude measures beyond that available from standard

semantic judgments. Moreover, both Zajonc (1980) and Abelson et al. (1982) proposed that individual preferences can be based on affect per se.

Other researchers did not deal directly with this question but obtained results suggesting that affect does influence attitudes. A variety of research findings including behaviours such as energy conservation (Seligman et al., 1979), health behaviour (Ajzen & Timko, 1986), responses to victimization (Tyler & Rasinsky, 1984), and contraceptive behaviour (Fisher, 1984) suggest that affect can have a strong and independent impact on attitudes. Zanna and Rempel (1988) also propose to distinguish affective and cognitive aspects of attitudes. They regard an attitude as the categorization of a stimulus object along an evaluative dimension, and argue that this evaluation can be based upon three different sources of information: (a) cognitive information, (b) affective/emotional information, and (c) information concerning behaviour in the past. Their view goes back to Rosenberg and Hovland's (1960) "three-component" view of attitudes. Zanna and Rempel build upon this early work, and argue that it is possible for an attitudinal judgment to be dependent strictly on cognitive beliefs, but also on affect or on past behaviour vis à vis the attitude object. These beliefs, feelings and behaviours are not mutually exclusive and constitute different ways in which the attitude is formed and experienced. Moreover, the three components need not be consistent and can have different valences. It needs to be added that Zanna and Rempel's approach seems to have the same shortcoming as Rosenberg and Hovland's view; i.e. it is not specified when and under what conditions attitudes will be based on one source of information rather than another. Most important for our discussion is that Zanna and Rempel's conceptualization implies that evaluation and affect are different components of attitudes. Further support for this view is provided by Breckler (1984) and Breckler and Wiggins (1989).

Breckler and Wiggins (1989) proposed to use the term evaluation (as opposed to cognition) to refer to attitudes based on judgments about the attitude object because cognition can include the appraisal of emotions and emotion-related functioning (see also Lazarus, 1981, 1982, 1984). They reserved the term affect for emotional responses and feelings engendered by an attitude object. In their study they collected multiple measures of evaluation and affect in six attitude domains (blood donation, legalized abortion, computers, nuclear weapons, standardized admission tests, and college comprehensive examinations). Although they relied on self-report measures, correlations between affective and evaluative responses showed considerable variation. Results of a second study on attitudes towards blood donation indicated a modest correlation between affect and evaluation and a stronger relationship between affect and (self-reported) behaviour than between evaluation and behaviour.

Other research focused on affect in the context of attitude change processes and persuasion. For instance, Edwards (1990) distinguished between affect- and cognition-based attitudes, and investigated the effectiveness of affective and cognitive means of persuasion. Her findings showed that affect-based attitudes (created by a subliminal or supraliminal affective prime) exhibit more change under affective means of persuasion than under cognitive means of persuasion. Cognition-based attitudes (created by the provision of information about the attitude object) exhibited equal change under both forms of persuasion. It needs to be added, however, that research on this topic has yielded conflicting findings. Millar & Millar (1990) found that cognition-based attitudes were more easily changed by affective means than cognitive means and vice versa. Contrary to Edwards (1990) who used Chinese ideographs as attitude objects, they relied on attitude objects people were already familiarized with.

Mood (as a general affective state without a specific focus) has also been related to attitudinal change processes, especially in the context of Petty and Cacioppo's Elaboration Likelihood Model (e.g. Bless, Bohner, Schwarz & Strack, 1990; Petty, Schuman, Richman & Strathman, 1994). Generally, individuals in an elated mood are less likely to engage in systematic message elaboration than individuals in a neutral or depressed mood. According to the Elaboration Likelihood Model (Petty & Cacioppo, 1986), affective (peripheral) cues are particularly potent determinants of attitude change when the ability or motivation to process issue-relevant information is low.

Both the literature on mood and persuasion and the literature on affect versus cognition-based attitudes focus on the role of a universal and ubiquitous characteristic of affect: valence. This seems partly a consequence of the tendency to contrast affect with cognition (especially in research on the primacy of affect and research on cognition versus affect-based attitudes). One unfortunate consequence of this contrast is that much attention has been paid to this (sometimes rather artificial) dichotomy at the expense of adequate and differentiated measures of cognitive and affective determinants of attitudes and behaviour.¹

Some of the studies described earlier (e.g. Breckler & Wiggins, 1989) relied on scales that present generally applicable evaluative word pairs and instruct respondents to indicate how (e.g. good or bad) the attitude object makes them feel (to assess affect) or how good or bad the attitude object is (to assess evaluation). Using the same scales to assess the affective and cognitive component of attitudes has some advantages. For instance, Eagly, Mladinic and

¹ There is one notable exception: Research on the effects of fear arousing messages on (preventive) behaviour. This older tradition (Janis, 1967; Leventhal, 1970; Rogers, 1975) differs from the research described in the previous paragraphs because it focuses on one specific emotion (fear) as opposed to general affect, and it also tends to pay more attention to behavioural consequences.

Otto (1994) argue that the use of different sets of items to assess affective and cognitive components of attitudes might result in one set being more saturated with evaluative meaning than the other set. The disadvantage of using the same set of items is, however, that one has to rely heavily on general evaluative terms that can be used meaningfully when accompanied by questions referring to feelings triggered by the attitude object as well as when accompanied by questions referring to characteristics of the attitude object. As argued before, one inevitable consequence of such an approach is that the measurement of affect is limited to a crude positive-negative classification. Another disadvantage is that because of the rather general and widely applicable items one could miss (cognitive or affective) attributes that are extremely relevant for judging a specific attitude object. Moreover, if the under-representation of relevant attributes is not evenly distributed over the affective and cognitive components of attitudes this could have serious consequences for the assessment of their relative impact on attitudes.

Crites, Fabrigar and Petty (1994) argued that the assessment of affective and cognitive properties of attitudes is plagued by a number of problems. They mention a lack of consistency in procedures across studies, the possible impact of structural characteristics of the measures of affect and cognition on responses, and the limited attention paid to the reliability and validity of scales to assess these properties of attitudes. Crites et al (1994) developed scales for assessing the affective and cognitive properties of attitudes and examined their reliability and validity. Their aim was to develop more general scales that could be applied to a variety of attitude objects. Their affective scale was based on eight affective word pairs, their cognitive scale focused on more utilitarian dimensions and consisted of seven "cognitive" pairs. Their analyses showed that the measures were applicable to multiple attitude objects and had good and stable psychometric properties. Contrary to most of the literature discussed earlier in

this chapter, Crites et al. (1994) stress that affect is not an undifferentiated component of attitudes but consists of discrete, qualitatively different emotions. Although Crites et al. propose a more differentiated approach, they still focus on a more general index score combining the various items into an overall score that primarily reflects the valence of the affective determinants of attitudes.

Most of the research described in this section focused on attitudes without explicitly addressing behaviour. For instance, Abelson et al. (1982) studied attitudes towards political candidates, and Edwards (1990) used Chinese ideographs as attitude objects. In the remainder of this chapter we will focus on attitudes towards behavioural options. This brings us to research on attitude-behaviour models.

Affect in attitude-behaviour models

Fishbein and Ajzen's (1975) theory of reasoned action and Ajzen's (1985, 1991) theory of planned behaviour assume that attitudes are an important determinant of intentions. In their approaches attitudes are based on the summed products of the likelihood of consequences associated with behavioural actions and the evaluation of these consequences. Thus, the more positive consequences are associated with a specific behaviour and the more likely their occurrence, the more attractive the behaviour is. Fishbein and Ajzen (1975) also incorporated perceived social norms in their model, and Ajzen added perceived behavioural control as a third determinant of behavioural intentions. Both theories have been applied to a wide variety of behaviours such as shopping (Madden, Ellen & Ajzen, 1992), food intake (Sparks, Hedderly & Shepherd, 1992), violations of traffic regulations (Parker, Manstead, Stradling, Reason & Baxter, 1992) weight reduction (Schifter & Ajzen, 1985), dental hygiene (McCaul, Sandgren, O'Neill

& Hinsz, 1993) and contraceptive use (Middlestadt & Fishbein, 1995; Chan & Fishbein, 1993).

Both the theory of reasoned action and the theory of planned behaviour thus assume an informational foundation of human conduct focusing on the expected outcomes of behavioural action. Individuals are expected to respond to the analytic features of stimuli. This approach is also central to normative theories of decision-making to which we will turn later. Initially, Fishbein and Ajzen were rather unspecific about the role of affect, as illustrated by the following quote:

"The terms "affect" and "evaluation" are used synonymously throughout this book. Although it might be argued that there is a difference between a person's judgement that an object makes him feel good and his evaluation that the object is good, there is little evidence to suggest that a reliable empirical distinction between the two variables can be made."

(Fishbein & Ajzen, 1975, p. 11)

This view is different from Zanna's and Rempel's proposal discussed earlier. In the theory of reasoned action affect is represented through evaluations of each of the possible outcomes (outcome evaluations) and through an overall evaluation of the attitude object (attitude). Fishbein and Ajzen (1975) argue that learning (both classical conditioning and other forms of learning) may determine affective reactions towards particular behaviours, objects or specific outcomes. Fishbein and Ajzen thus also rely on a simple positive-negative dichotomy of affect, and more importantly, "evaluation" and "affect" are used synonymously and both are assumed to be determined by outcome related beliefs and their evaluations.

Ajzen's theory of planned behaviour (Ajzen, 1989) also pays limited attention to the role of affective processes. Ajzen admits that the role of affect is not spelled out very clearly in the Ajzen-Fishbein framework. In his view affective reactions may depend at least in part on cognitions and, like cognitions, they may feed into the overall evaluative response to an attitude object. Moreover, "affect may also be associated with the perceived attributes of the attitude object and thus also determine the evaluative direction and intensity of a person's beliefs" (Ajzen, 1989, p. 248).

Manstead and Parker (1995) argue that the evidence showing that evaluative responses based on affective reactions (i.e., specific emotions) are empirically distinguishable from measures of evaluative responses based on beliefs about the attitude object is sufficiently strong to also incorporate this distinction in attitude-behaviour models. Their view is supported by the findings of Breckler and Wiggins (1989) and Edwards (1990) discussed earlier in this chapter. More recently Eagly, Mladinic and Otto (1994) and Pfister and Bohm (1992) provided further support for this distinction. Indirect evidence for this view is provided by research focusing on the relative contribution of direct, holistic measures of attitudes and indirect (belief-based) measures of attitudes. Quite often the two measures do not correspond as well as they should (see e.g. Terry, Gallois, & McCamish, 1993). This could be related to the fact that some relevant beliefs are not included in the set of beliefs presented to the respondents. Another reason for this modest correspondence could be that the direct measure of attitudes is more likely to also tap affective reactions that generally are not included in the indirect belief-based measure. The latter tends to be dominated by (instrumental) outcome beliefs, in which affective or emotional outcomes play only a minor role.

Manstead and Parker (1995) define affective evaluations of behaviour as referring to an individual's positive or negative feelings about performing the behaviour in question. This is in contrast to the behavioural beliefs typically tapped in the context of attitude-behaviour models such as the theory of planned behaviour. As indicated in the previous paragraphs, these beliefs usually focus on the utilitarian aspects of the outcomes of the behaviour (i.e., costs and benefits). This is in accordance with subjective expected utility (SEU) approaches on which Fishbein and Ajzen's theory is based. Later in this chapter we will discuss SEU-theory in more detail.

Ajzen and Driver (1991) were probably the first to directly investigate the usefulness of the distinction between affective evaluations and behavioural beliefs in relation to the theory of planned behaviour. Their study focused on leisure activities. Results provided some support for the discriminatory validity of the measures of these two variables, but treating the two variables as separate factors did not result in a significant improvement in the predictive ability of the model. Manstead and Parker (1995) also report some preliminary findings showing that measures based on affective evaluations (feelings associated with the behaviour) correlate only moderately with measures based on behavioural beliefs (beliefs about the outcomes of a behavioural action). In their research on driving behaviour they report correlations as low as 0.14 and 0.29. These modest correlations between affect-based and cognition-based measures were obtained in one specific domain (driving violations). Manstead and Parker rightly argue that it would be interesting to see whether similar findings are found in other domains. Richard, van der Pligt, and de Vries (1996a) attempted to do this; and it is to that research we turn next.

Research on the impact of affect on attitudes usually relies on a general measure of positive/negative affect associated with the behaviour. Attitude-behaviour

models, however, deal with future behaviour, and belief-based measures of attitudes focus on the possible consequences of behavioural actions. Generally, research in this tradition presents respondents with a set of possible consequences of a behavioural action and asks them to assess their likelihood and their evaluation. Richard et al. (1996a) argued that it would be appropriate to also incorporate anticipated post-behavioural affective reactions as possible consequences of behavioural actions.

In their study, Richard et al. (1996a) assessed the evaluative response (attitude) towards a number of behaviours, affective reactions towards these behaviours, and anticipated post-behavioural affective reactions. These three concepts differ in terms of time perspective, and the affect-evaluation distinction. The aim of their study was to investigate the discriminant validity of the three measures. The inclusion of both general affective reactions and anticipated affective reactions allowed them to investigate the predictive utility of anticipated affective reactions and general affect over and above attitudes and other components of the theory of planned behaviour. Richard et al. selected four behaviours: eating "junkfood", using soft drugs (marihuana, hashish), drinking alcohol, and studying hard. They relied on a direct attitude measure; respondents were asked to evaluate each of the four target behaviours on three semantic differential scales: pleasant-unpleasant, nice-awful, and good-bad. Next, respondents were asked to indicate their general feelings and their anticipated post-behavioural feelings towards each of the target behaviours on the same set of scales. Thus the same scales were used to assess the three evaluative scores (attitudes, general feelings and anticipated post-behavioural feelings). Richard et al. (1996a) did this to prevent that one set of items would be more saturated with evaluative meaning than the other set (see our earlier discussion of the arguments presented by Eagly, Mladinic & Otto, 1994).

As expected, eating junkfood, using soft drugs, and drinking alcohol were associated with negative anticipated affective reactions, and these were more negative than both the evaluations of, and general affective reactions towards the target behaviours. Similarly, anticipated affective reactions after "having studied hard" were more positive than both attitudes and general affective reactions towards this behaviour. Overall, evaluations (attitudes) towards each target behaviour did not differ significantly from the general affective reactions associated with the behaviour. Anticipated affective reactions, however, differed substantially from both evaluations and general affective reactions.

Richard et al. (1996a) compared two models, one with two separate factors (evaluation and anticipated affect) and one which combined these two factors into one overall factor. The two-factor models fitted the data well, whereas all one-factor models were statistically rejected. More importantly, further testing revealed that for all four behaviours the two-factor model (separating anticipated affect and evaluation) fitted the data significantly better than the one-factor model. Overall, these findings supported the discriminant validity of their measure of anticipated affect; anticipated affect proved different from both more cognitive evaluations and general affect associated with the behaviour.

For three of the four investigated behaviours, anticipated, post-behavioural affective reactions predicted a significant proportion of variance in behavioural expectations, over and above the components of the theory of planned behaviour. The only exception concerned the behaviour with relatively positive anticipated post-behavioural affective reactions ("studying hard"). Thus, the results of this study show that the predictive power of the theory of planned behaviour may improve if anticipated, post-behavioural affective reactions are incorporated in the model. Figure 1 illustrates the findings for "using soft drugs". The regression parameters in this Figure should be interpreted as β -weights; zero-order

correlation coefficients are given in brackets. Although the estimated correlation between "anticipated affect" and "attitudes" was 0.76, the two-factor model fitted the data better than the one-factor model combining anticipated affect with attitudes.

Insert Figure 1 about here

Two shortcomings of the research by Richard et al. (1996a) need to be noted. First, they opted for the solution to use the same scales to assess evaluations (attitudes), general affect and anticipated affective reactions. They did not include a belief-based indirect measure of attitudes, but relied on a general, direct measure of attitudes. Obviously, anticipated post-behavioural affective reactions can also be included in the set of possible outcomes that constitutes the indirect attitude measure. Opting for such a solution would have allowed another test of the independent contribution of anticipated affect. Moreover, it would have allowed for the assessment of the subjective probability of the anticipated affective outcomes. People are likely to have different views on the subjective probability of particular affective outcomes just as they tend to vary with regard to the subjective probabilities they attach to other kinds of outcomes.

A second potential shortcoming of the study is that Richard et al., (1996a) as many other studies in this field of research, relied on a simple dichotomy, positive versus negative affect, and assessed (anticipated) affective reactions at a rather general level (e.g. "expecting to feel good vs. expecting to feel bad") without paying attention to more specific affective reactions that could determine attitudes and/or behaviours. Overall, the main contribution of Richard et al's (1996a) paper is that it points at the possible role of anticipated, post-behavioural affective reactions in attitude-behaviour models. However, more research is

needed to assess the independent role of anticipated affect in expectancy-value approaches to attitudes. This research should not only rely on general measures of affect but also include specific anticipated affective reactions in the set of outcome beliefs that constitutes the indirect measure of attitude.

Interestingly, research in the related area of behavioural decision-making emphasizes the role of specific affective reactions and does not rely on the crude positive-negative dichotomy of affect we tend to see in research on attitudes. Several researchers in the area of behavioural decision-making stressed the need to look at more specific emotions and studied the impact of a variety of anticipated emotions on human decision-making. These include guilt, sadness and anger (Baron, 1992), regret and disappointment (e.g. Bell, 1982; Bell, 1985; Loomes & Sugden, 1987b), and envy and gloating (Loewenstein, Thompson & Bazerman, 1989).

Research on emotions has also spent considerable effort to distinguish between the various emotions. There is some dispute as to whether there are such things as "basic emotions" (see for instance Ortony & Turner, 1990), but present day emotion theorists agree that there are important differences between emotions. Research findings show that emotions can be differentiated by their accompanying thoughts and feelings, by their appraisal, physiological activity, expression, action tendencies, and behavioural actions (Frijda, Kuipers & ter Schure, 1989; Roseman, Wiest & Swartz, 1994). This research also indicates that different emotions with the same valence have different implications for behaviour. For example, fear evokes a tendency to flight, whereas anger evokes a tendency to fight. Similarly, the experience of regret tends to make people active and problem-oriented, while disappointment, albeit its strong relation to regret, tends to be related to a more passive reaction focusing our attention away from the problem (Zeelenberg, van Dijk, Manstead & van der Pligt, 1997).

Distinguishing between various affective or emotional states could help our understanding of anticipated, post-behavioural affective reactions and their role in attitudinal and decision processes. As mentioned earlier, researchers in the area of behavioural decision-making have focused on more specific emotions. In the next section we turn to this field of research.

Affect and decision-making

The increased attention for affect since the early 1980s was not restricted to research on emotions and social cognition but is also apparent in research on behavioural decision-making. While the renewed interest in affect in social psychology can be traced to Zajonc's 1980 article on preferences and inferences, the renewed interest in the area of decision-making was mainly caused by the inability of normative models of decision-making to explain and describe preferences. Interestingly, research on decision-making did not rely on the rather holistic approach to affect that dominated social psychological research on attitudes, but focused on more specific emotions. This could well be caused by methodological differences between the two areas. One important difference between the two fields is that behavioural decision-making research almost always uses choice of some sort as a dependent variable whereas attitude research focuses on evaluative judgments and behavioural intentions. The fact that behavioural choice is a prime dependent variable in research on decision-making probably resulted in a preference to study concrete emotions with clear consequences for (choice) behaviour. To illustrate how this came about we will first briefly describe the normative model of decision-making that is central to this field of research.

Edwards' (1954) Subjective Expected Utility (SEU) theory is a normative theory of decision-making and has had a profound impact on research on behavioural decision-making. His expectancy-value approach also inspired Fishbein and Ajzen's (1975) theory of reasoned action and Ajzen's (1991) theory of planned behaviour. Edwards assumed that people generally aim to maximize utility and prefer behavioural options that are associated with the highest expected utility. The overall utility or desirability of a behavioural alternative is assumed to be based on the summed products of the probability and utility of specific outcomes or consequences.

Thus:
$$\underline{SEU}_j = \sum_i \underline{P}_{ij} \cdot \underline{U}_{ij}$$

where \underline{SEU}_j is the SEU of action or behavioural alternative j , \underline{P}_{ij} is the perceived probability of outcome i of action j , \underline{U}_{ij} is the subjective utility or desirability of outcome i of action j . Each action or behavioural alternative may have a different subjective expected utility because of the outcomes associated with that action and/or the probabilities of these outcomes. Quite often, however, people do not behave in accordance with SEU-theory, and this behaviour is frequently called irrational. There is considerable disagreement about the use of the term irrational in this context (see e.g. Cohen, 1981), and it has been argued that discrepancies between normative models such as SEU-theory and actual decision-making does not warrant the use of the term irrational. Some researchers attempted to improve the descriptive validity of SEU-theory and suggested further refinements (e.g. Kahneman & Tversky, 1979). Others proposed to incorporate additional aspects that should be taken into account when investigating decision-making processes.

Kahneman and Snell (1992) argued that most research and theorizing in decision-making rely on a severely impoverished conception of utility. In their view rigid operationalism has led to a situation in which little is left of the original broader sense of utility in the writings of Bentham and Bernoulli who

related utility to the hedonic quality of experience. Kahneman and Snell (1990) propose to distinguish two concepts of utility; first the decision utility of an outcome which is defined as the sign and weight of that outcome in the context of choice. Second, the experienced utility, which is defined by the quality and intensity of the hedonic experience with that outcome. Decision utility focuses on the decision rather than on experience and is linked to the basic assumption of rationality: i.e., rational individuals can be trusted to know what will be good for them and are entitled to their sovereignty (cf. Kahneman & Snell, 1990, p. 296). This basic assumption is also central to expectancy-value models such as those of Fishbein and Ajzen. Kahneman and Snell (1992) investigated people's ability to predict experienced utility over time for stimuli such as ice creams, yoghurt and short musical pieces. This ability turned out to be limited. The major contribution of their approach is that they tried to broaden the concept of utility, partly in order to improve the descriptive validity of decision theory. Other researchers opted for more specific solutions, and to these we turn next.

Regret and decision-making. Bell (1982) and Loomes and Sugden (1982) argued that incorporating one specific emotion (anticipated regret) in SEU theory could help to improve its descriptive validity. Regret theory differs from classical theories of decision-making, such as SEU-theory, which are based on the same premises as attitude-behaviour models such as those of Ajzen and Fishbein. In regret theory the utility of a choice option additionally depends on the feelings evoked by the outcomes of rejected options. Regret theory rests on two basic assumptions (Loomes & Sugden, 1982). The first holds that people compare the actual outcome with what the outcome would have been, had a different choice been made, and that they experience emotions as a consequence. People experience regret when the foregone outcome would have been better, and rejoicing when the foregone outcome would have been worse. The second assumption of regret theory is that the emotional consequences of decisions are

anticipated and taken into account when making decisions. Thus the tendency to avoid negative post-decisional emotions such as regret, disappointment and self-recrimination, and to strive for positive feelings and emotions such as rejoicing, elation and pride, are assumed to be important determinants of individual decision-making.

According to Bell (1982) and Loomes and Sugden (1982) the expected utility of a specific behavioural option x should be modified by incorporating the amount of regret for not choosing y . More formally:

$$\text{Modified } \underline{SEU}_x = \underline{SEU}_x \pm \text{Regret}_{\text{not-}y}$$

Regret is thus defined as the difference between the value of the obtained outcome and that of the alternative(s) not chosen.

Summarizing, research on regret attempts to explain violations of the principles of rationality assumed by SEU-theory by postulating that people sometimes sacrifice utility in order to prevent the experience of regret. This approach thus assumes that the anticipation of future regret affects current choices (Bell, 1981, 1982; Loomes & Sugden, 1982, 1987a), and this assumption has received considerable empirical support (Loomes, 1987; Loomes and Sugden, 1987a; Ritov, 1996; Simonson, 1992; Zeelenberg, Beattie, van der Pligt & de Vries, 1996), although there are some exceptions (Harless, 1992; Starmer & Sugden, 1993).

The first work in social psychology paying attention to post-decisional regret is Festinger's dissonance theory (e.g. Festinger & Walster, 1964). In their work regret is almost always conceptualized as the reversal of the initial decision. Janis and Mann (1977) also pay attention to the role of anticipatory regret in decision-making. They conceive of anticipatory regret as a "hot" cognition and argue that:

"Before undertaking any enterprise 'of great pith and moment', we usually delay action and think about what might happen that could cause regret... Anticipatory regret is a convenient generic term to refer to the main psychological effects of the various worries that beset a decision maker before any losses actually materialize ... Such worries, which include anticipatory guilt and shame, provoke hesitation and doubt, making salient the realization that even the most attractive of the available choices might turn out badly" (Janis and Mann, 1977, p. 222).

Regret is generally regarded as a cognitive-laden or cognitively-determined emotion. Hampshire (1960) argued that the question of whether one regrets a decision induces people to think about the decision and not merely to inspect their feelings. Landman (1993) argues that: "Regret is a more or less painful cognitive and emotional state of feeling sorry for misfortunes, limitations, losses, transgressions, shortcomings, or mistakes. It is an experience of felt-reason or reasoned-emotion." (p. 36). Thus, cognitive evaluations of the outcomes received and the outcomes foregone underly the comparison of different states of the world that can lead to the experience of regret.

Why focus on this specific emotion? Research findings show that regret is a powerful predictor of behaviour and it thus seems a prime candidate to be incorporated in attitude-behaviour models. For instance, Josephs, Larrick, Steele and Nisbett (1992) found that the threat of regret reduced the tendency to take risky decisions. Larrick and Boles (1995) found that the tendency to avoid regret affects negotiation decisions; Beattie, Baron, Hershey and Spranca (1994) found that anticipated regret can make people reluctant to make decisions. Bar-Hillel and Neter (1996) argued that people's reluctance to exchange lottery tickets could well be a function of the perceived possibility of post-behavioural regret.

Regret can also be related to Kahneman and Snell's distinction between decision utility and experienced utility. Regret is unpleasant and thus affects the experienced utility of the decision. Next we address the possible antecedents of anticipated, post-behavioural regret.

Antecedents of regret. Knowledge about the outcomes of both the chosen and the unchosen option(s) is central to regret theory: if you cannot compare "what is" with "what would have been", there should be no reason for regret. In economic approaches to regret it is assumed that regret only arises if the outcomes of the rejected alternatives are revealed. In other words regret will only occur if people receive feedback about chosen and unchosen alternatives. Zeelenberg, Beattie, van der Pligt, and de Vries (1996) studied the role of feedback more closely. In accordance with regret theory they assumed that people are regret-averse and are therefore motivated to make regret-minimizing choices. In three experiments respondents were given a choice between a risky and a safe gamble. Possible feedback on one of the options was manipulated orthogonally to the riskiness of the gambles. Respondents always expected to learn the outcome of the chosen option, sometimes they could also receive feedback on the foregone outcome. Those who expected to receive feedback on the safe option, regardless of their choice, had a preference for this option, thereby protecting themselves from threatening feedback for the foregone outcome. Likewise, respondents who expected to receive feedback on the risky option tended to choose the risky option. When asked to explain their preferences, respondents quite often referred to the anticipation of regret. Thus, findings of Zeelenberg et al. (1996) confirm the role of feedback as one of the determinants of regret.

There is evidence showing that the extent to which people feel regret when confronted with the outcome of a decision does not solely depend upon the comparison of that decision with the possible outcomes of other courses of

action, but also on how the outcome is achieved. Outcomes achieved through action tend to lead to more extreme regret than the same outcomes achieved through inaction (Kahneman & Tversky, 1982a; Gleicher et al., 1990; Landman, 1987b). This can be illustrated with Kahneman & Tversky's (1982a) study in which they presented the following scenario:

"Mr. Paul owns shares in company A. During the past year he considered switching to stock in company B, but he decided against it. He now finds out that he would have been better off by \$1,200 if he had switched to the stock of company B. Mr. George owned shares in company B. During the past year he switched to stock in company A. He now finds out that he would have been better off by \$1,200 if he had kept his stock in company B. Who feels greater regret?" (Kahneman & Tversky, 1982a).

In Kahneman and Tversky's study more than 90 per cent of the respondents thought that Mr. George, whose misfortune stems from an action taken, would experience more regret. Kahneman and Tversky argue that Mr. George seems more likely to be plagued by thoughts of what "might have" or "should have" been, partly because it tends to be easier to imagine oneself abstaining from actions that one has carried out, than carrying out actions that were not performed. Landman (1987) termed this the actor effect. Thus, if feedback is not actually present people are assumed to mentally simulate what could have been different. This process has been termed "counterfactual thinking". Unfortunately none of the studies dealing with this explanation (e.g. Landman, 1987b; Kahneman & Tversky, 1982a; Gleicher et al., 1990) provide direct evidence for these processes. The only direct test of the effects of counterfactual thoughts resulted in mixed findings (N'Gbala & Branscombe, 1997).

The explanation focusing on the role of counterfactuals differs from the economic approach to the study of regret. As argued before, economic theorists generally assume that regret does not arise if the outcomes of the rejected alternatives are not revealed (Bell, 1982, 1983; Kelsey & Schepanski, 1991; Sage & White, 1983). Thus, as argued by Gilovich and Medvec (1995), no allowance is made for the fact that individuals might consider (and even be tormented by) what they imagine to be the outcomes of alternatives not chosen. Psychological research on counterfactual thinking (Kahneman & Tversky, 1982b; Kahneman & Miller, 1986) stresses that events are not evaluated in isolation, but are compared to alternative events that "could have" happened. Research on counterfactual thinking thus focused on two issues (a) the rules by which counterfactual alternatives are generated (i.e., some alternatives are more easily imagined than others); and (b) the consequences of comparing actual events with imagined events that might have happened.

Another possible explanation for the actor-effect focuses on differences in the perceived responsibility for the outcome, and assumes that outcomes for which a person is responsible give rise to more extreme affective reactions. According to this explanation actions imply greater personal responsibility than inaction. This can be related to research on attributions indicating that affective reactions following success and failure are to a large extent determined by attributions (McFarland & Ross, 1982). Weiner (1986) argues that affective reactions to outcomes are different and more extreme when the outcome is attributed to the actor as opposed to situational factors. According to this reasoning, actions will lead to more extreme affective reactions because outcomes following action tend to be attributed to the actor. Outcomes following inaction, however, can be attributed to any external event that preceded the outcome. This line of reasoning is also supported by the fact that actions, compared to inactions, are more salient, more often used to infer one's own attitude, and are perceived to be more

informative (see for instance Fazio, Sherman & Herr, 1982). Further support is provided by research showing that people who cause harm by acting are judged to be more immoral and more personally responsible than people who cause the same harm by not acting (Spranca, Minsk & Baron, 1991; Ritov & Baron, 1990). Zeelenberg, van der Pligt and de Vries (1996) investigated the role of attributions and counterfactuals as determinants of the experience of regret. Their results showed that attributions and affective reactions to outcomes are highly correlated; outcomes after action were associated with both more internal attributions and more extreme affective reactions. Zeelenberg, van Dijk, van der Pligt, Manstead, van Empelen and Reinderman (1997) argued that attributions are likely to mediate the counterfactual-emotion relation.

Research discussed in this section points at a limited number of factors that can influence the experience of regret. Both counterfactual thinking and attributions seem important determinants of the amount of regret experienced after misfortune. In the next section we will focus on the consequences of anticipated regret.

Anticipated regret and the theory of planned behaviour

As discussed earlier in this chapter general anticipated affect assessed with the same scales as evaluations and general affective reactions can improve the predictive power of the theory of planned behaviour. In this section we will focus on the role of anticipated regret in the context of other behavioural determinants incorporated in Ajzen's theory of planned behaviour. We investigated this for behaviour characterized by the possibility of a clear discrepancy between evaluative reactions towards the behavioural act itself and post-behavioural feelings; i.e. unsafe versus safe sex.

Richard, van der Pligt and de Vries (1995) tested the effects of anticipated regret on intentions to engage in (un)safe sex. In their study a total of 822 adolescents participated. Anticipated regret was assessed in accordance with Janis and Mann's (1977) definition of regret. They use the concept "anticipatory regret" as a generic term for the various worries that beset a decision maker before any negative outcomes materialize. Their definition is more general than the one proposed in regret theory. Attitudes towards condom use with new and/or casual partners were assessed with a coherent 12-item scale. Perceived behavioural control was assessed with eight items, and subjective norms were also assessed in accordance with the theory of planned behaviour. Anticipated regret was assessed with three semantic-differential scales (regret - no regret, worried - not worried, tense - relaxed).

Richard et al. (1995) tested their model for two behavioural actions: "refraining from sexual intercourse" and "condom use". For each behaviour respondents were asked to indicate their expectations for three different situations (e.g. "suppose you meet a boy/girl you like and both of you want to make love", "suppose you have a date with a person from your school; after a great evening both of you want to make love") and these scores formed a reliable index score. Figure 2 summarizes the results of their LISREL analysis for the behaviour "condom use". The regression parameters should be interpreted as β -weights; zero-order correlation coefficients are given in brackets. Anticipated regret was assessed with the three scales mentioned earlier and we calculated the difference score between anticipated affect associated with not having used a condom and anticipated affect associated with having used a condom. A higher score indicated that higher levels of anticipated regret were associated with unsafe sex (not using a condom). Results show that anticipated regret has an independent and significant impact on behavioural expectations. For "condom use" the

correlation between anticipated regret and behavioural expectations was .37 and slightly higher than the correlation between attitudes and behavioural expectations (.33). While for "refraining from sexual intercourse" these correlations were .48 and .51 respectively. The four independent factors explained nearly 40 per cent of the variance in expectations to refrain from casual sexual intercourse, and nearly 30 per cent of the variance in expectations to use a condom when having sex with a casual partner.

Insert Figure 2 about here

Richard et al. (1995) also compared the fit of the models in which anticipatory regret and attitudes were reflected by a single latent construct (with five indicators) with the model shown in Figure 2. If anticipated regret and attitudes are essentially equivalent, the overall fit of the proposed alternative model should not differ significantly from the overall fit of the two-factor model. This was not so; the possibility that anticipated regret was similar to attitudes was statistically rejected for both refraining from sexual intercourse and condom use.

The same model was also tested in a slightly older group of respondents (van der Pligt, de Vries & Richard, 1997). A total of 451 students from the University of Amsterdam participated in this study. In this study the model combining attitudes, subjective norms, perceived behavioural control and anticipated regret explained 65% of the variance in behavioural expectations (in this case condom use when having sex with a new and/or casual partner). The correlation between expectation and self-reported behaviour was 0.58, thus expectations explained 35% of the variance in contraceptive behaviour of the respondents who had (casual) sex in the four weeks following the first session of the study. The number of respondents who had engaged in casual sex in this period was

considerably lower than the total number of respondents, hence self-reported behaviour could not be included in the LISREL analysis summarized in Figure 3.

Insert Figure 3 about here

Thus, results of this study show that anticipated regret (in Janis and Mann's broader sense) can add to the prediction of behavioural expectations and (self-reported) behaviour, at least in the context of sexual risk-taking behaviour. Parker, Manstead and Stradling (1995) also tested the role of anticipated regret in the context of the theory of planned behaviour. Their study focused on intentions to commit each of three driving violations (cutting across traffic to leave a motorway; weaving in and out of two lanes of slow moving traffic; and overtaking on the inside). Results of their study showed substantially improved predictive ability of the model when anticipated regret was included. In their approach anticipated regret was conceptualized as part of a moral norm which was measured by items such as "it would be quite wrong for me to ..." (followed by the violation in question), and "having committed a violation would make me feel really sorry for doing it". On average their model explained approximately 50% of the variance in intentions to commit driving violations.

To provide further evidence for the causal role of anticipated affective reactions such as regret and worry Richard et al. (1996b) carried out two studies in which they attempted to induce anticipatory, post-behavioural negative affect and test its impact on behavioural expectations and actual behaviour. To this we turn next.

Increasing the salience of anticipatory post-behavioural affect

Wilson and Hodges (1992) argued that people often have contradictory beliefs about a topic, and that their attitude towards a topic (which could be an object, a person or a specific action) depends on the subset of beliefs to which they attend. This also applies to affective reactions associated with certain behaviours. Quite often people have mixed emotions about behaviours. For example, one could have positive feelings about drinking alcohol and smoking cigarettes, but also negative feelings. The latter most likely stem from the possible more long term effects of these behavioural practices. Often, as in this case, there is a temporal pattern to these different feelings. The feelings associated with performing the behaviour are positive, but the feelings towards the possible consequences are negative. This can be related to research on intertemporal choice showing that people tend to discount more remote future outcomes, and that their decisions are mostly based on more proximate outcomes (see for instance Loewenstein, 1992, Roelofsma, 1996). Consequently, we expect that feelings about performing a behaviour will generally receive more weight than the anticipated, post-behavioural feelings when deciding whether to perform the behaviour or not. As argued by Wilson and Hodges the beliefs (and feelings) people attend to are likely to be influenced by both contextual factors and thought processes, and present evidence that attitudes and behaviour are easily changed if people are led to attend to a particular subset of beliefs. Thus, when people think about their feelings about a specific behavioural action, different beliefs may be salient than when they think about the feelings they would experience after carrying out the action. The earlier presented evidence that anticipated regret adds to the predictive power of attitude-behaviour models indicates that people differ in the extent to which they consider post-behavioural affective outcomes. The distinction between people's feelings about an action and their anticipated feelings after an action seems most relevant for domains in which there is a clear

evaluative and/or affective discrepancy between the behavioural action itself and the (possible) post-behavioural outcomes.

Richard, van der Pligt and de Vries (1996b) investigated whether students' unsafe sexual practices (i.e., not using condoms with casual partners) would be reduced by stimulating them to extend their time perspective and think about their post-behavioural feelings. Condom use is often associated with reduced sexual pleasure, and for this reason people's feelings about not using a condom may be relatively positive. However, an important negative post-behavioural consequence of not using a condom is a possible infection with a sexually transmitted disease (STD). Thus if a person failed to use a condom in a casual sexual interaction, he or she is likely to worry about a possible STD (including HIV-infection), and experience regret and other negative feelings. Since worry and regret are negative feelings that are more likely to be experienced after risky sexual behaviour, these feelings are likely to become more salient when people think about how they would feel afterwards. Thus by stimulating respondents to focus on their feelings after unsafe sex, they expected them to become increasingly aware of the negative affective consequences of unsafe sexual behaviour. In line with van der Pligt & Richard (1994) Richard et al. (1996b) predicted that this increased awareness would make people more risk averse and would reduce the likelihood to engage in risky sexual practices.

In the first study, respondents were asked to imagine the following hypothetical situation: "Suppose you are on a holiday and you meet a very attractive boy (girl) and after spending some time with him (her) the two of you have sex".

Respondents were randomly allocated to two groups. Respondents in the "feelings about" condition were asked to describe the feelings they would have about having sex (in the above situation) when not using a condom. On the next page they were asked to describe the feelings they would have about sexual

intercourse (in the same situation) when using a condom. Respondents in the "feelings after" condition were also asked about the feelings they would have, but now the questions referred to anticipated feelings after having had safe or unsafe sex.

Feelings were assessed with a list of 40 affect-terms, of which 18 were positive and 22 were negative. Examples of these are "elated" "active", "excited" for positive affect terms, and "regretful", "fearful", "guilty" and "worried" for negative affect terms. In each case, respondents described their feelings by selecting ten affect terms. Overall, affective reactions to unsafe sex were much more negative than were affective reactions to safe sex (use of condoms). More importantly, results also showed a significant main effect of time perspective on the number of negative feelings mentioned with respect to the risky behaviour (unsafe sex), with significantly more negative affect terms being selected in the "feelings after" condition.

Further analyses showed that the increased tendency to endorse negative affect terms in the "feelings after" condition was largely due to a greater endorsement of the terms "regret" and "guilt". For unsafe sex, the "feelings after" condition resulted in nearly 60 per cent of the respondents selecting the term "regret", which was nearly twice as many as in the "feelings about" condition. Percentages for "guilt" were also considerably higher in the "feelings after" condition. The observed greater endorsement of negative terms in the "feelings after" condition was largely at the expense of positive affect terms (such as "excited", "pleasurable", and "energetic") associated with the act itself. The increased salience of negative (post-behavioural) feelings with respect to unsafe sex was related to increased expectations to engage in safe, preventive behaviour; in the "feelings after" condition respondents indicated stronger expectations to use

condoms in future casual sexual interactions than in the "feelings about" condition.

Richard et al. (1996b) also tested the effects of the time perspective manipulation on actual behaviour in a second study which included two follow-up measures of self-reported condom use in casual encounters over a period of five months. In this study respondents were asked to report their actual condom use in new or casual sexual encounters after one month, and after five months. Respondents indicated their feelings on ten 9-point scales referring to the following affective states: regretful, enjoyable, contented, worried, tense, pleasant, anxious, satisfied, good, and ill-at-ease. For each of these terms respondents were asked to indicate whether the affect term was more strongly associated with safe sex (condom use) or with unsafe sex (not using a condom). As expected respondents in the "feelings after" condition associated unsafe sex more strongly with negative feelings, and the use of condoms more strongly with positive feelings. This difference was obtained for all positive and negative affect terms. Thus people associated negative feelings (e.g. regret, anxiety, worry) more with unsafe sex than with safe sex, but only when they were asked to describe their post-behavioural feelings. This difference was not obtained when respondents indicated their feelings about the behaviour itself. Again, respondents in the "feelings after" condition had stronger expectations that they would use condoms because they associated the use of other contraceptives more with negative affect and the use of condoms more with positive affect. Moreover, relative to respondents who focused on the feelings they have about the behavioural act itself, those who focused on their anticipated feelings after the behavioural alternatives also reported a more frequent use of condoms in sexual encounters in the five months following the experimental manipulation. Thus a simple manipulation intended to focus respondents on post-behavioural affective consequences of risky behaviour had a clear impact on behavioural intentions

and also on actual behaviour as measured five months after the manipulation. These findings suggest that interventions stressing post-behavioural affect could be useful in applied settings such as health-education.

Although additional research seems required to illuminate the precise mechanisms underlying our findings, they suggest that increasing the awareness that an action can have negative post-behavioural affective consequences is an important factor in producing behavioural change. Simonson (1992) used an experimental manipulation similar to the one we used, in an attempt to influence consumer behaviour (e.g. a cheap consumer good of an unknown brand and quality, versus a more expensive alternative of a respectable producer). In his study respondents were asked to anticipate how they would feel if, after choosing between two alternatives, the wrong decision was made. The remaining respondents were not asked how they would feel. Results showed that respondents in the experimental condition were more risk averse (i.e., made more conventional choices) than were those in the control condition. Simonson also asked respondents to think aloud as they made their decisions. Protocol analysis revealed that the main difference between the conditions was that in the experimental condition respondents tended to base their decisions more on anticipated regret. Thus, his findings also show that asking people to indicate post-behavioural feelings makes them aware of the affective consequences which are subsequently taken into account when they make their decision. Our own findings revealed modest but significant and stable effects due to a simple rating task requiring little effort. It would be interesting to study ways to enhance the effectiveness of the time perspective manipulation and test whether more demanding tasks (e.g. writing a short essay about post-behavioural feelings) increase the size of the effect.

Summary and conclusions

Since the early 1980s there has been a dramatic increase in research on the impact of affect on attitudinal judgment, attitude-change processes and decision making. Unfortunately, the term affect is used to denote many different things. For instance, Zajonc (1980) refers to affect as the outcome of valenced holistic processes that may proceed automatically without awareness, and are independent from cognitive processes. Others (e.g. Petty, Schumann, Richman & Strathman, 1993) studied affect by focusing on the impact of mood on information processing and attitude change. In the context of expectancy-value approaches to attitudes and behaviour, the term affect is used to refer to rather holistic, undifferentiated affective reactions to the attitude object. Still others study affect by looking at specific emotions. In this chapter the emphasis was on affect as the outcome of a cognitive appraisal. We discussed recent theoretical and empirical developments concerning the role of affect in attitudinal judgment and decision-making. Several studies indicate that it is possible to distinguish between affective and more cognitive, instrumental determinants of attitudes and behavioural decisions. We argued that this distinction should be extended to attitude-behaviour models such as the theory of planned behaviour. Most research on the role of affect in attitudes relies on holistic measures of affect and a rather crude dichotomy of positive versus negative affect. Early attempts to incorporate affective determinants of behavioural intentions in the theory of planned behaviour resulted in only marginal improvements of its predictive validity (see e.g. Ajzen & Driver, 1991). Later research (see e.g. Manstead & Parker, 1995) supported the view that more specific measures of affect-based beliefs can make an independent contribution to the prediction of behavioural intentions. Their research focused on driving behaviour. The findings of Richard et al. (1996a) discussed earlier in this chapter, also point at the independent role of anticipated affect as a determinant of intention in other behavioural domains.

This evidence thus provides further support for the usefulness of the affect-cognition distinction in the context of attitude-behaviour models. Generally, research based on these models emphasizes utilitarian beliefs about the outcomes of behavioural alternatives. Research using the models of Fishbein and Ajzen tends to rely on elicitation techniques to assess the modal set of beliefs that require respondents to list advantages and disadvantages of the target behaviour. This wording may induce respondents to focus more on utilitarian consequences and pay less attention to the possible affective or emotional consequences of the behaviour. Paying explicit attention to both components could provide more information about the structure of attitudes and the relative importance of affect and belief based considerations.

Most research on the role of affect in attitudinal judgment, attitude formation and attitude change relies on a simple dichotomy between positive and negative affect. We argued that it is essential to be more specific about affective determinants of attitudes, behavioural intentions and behaviour, especially when we are dealing with controlled as opposed to automatic aspects of information processing. Even if we rely on a simple dichotomy between positive and negative affect, it seems essential to assess whether we are dealing with general affective reactions towards the behavioural act itself or with anticipated, post behavioural affective reactions. Especially in the context of attitude-behaviour models it is not only crucial to distinguish between the evaluation of the behaviour and affect associated with the behaviour, but also between the latter and anticipated post-behavioural affective consequences.

Interestingly, most belief-based measures of attitudes focus on specific possible consequences of the behaviour in question, while studies incorporating affect tend to rely on rather general affective associations with the behavioural activity

itself. We would like to argue that an approach paying attention to both utilitarian and affective consequences of behavioural actions is to be preferred. Thus it seems essential to distinguish between the various possible affective reactions towards behavioural actions, and go beyond the rather crude distinction between positive and negative affect. Crites et al. (1994) also argue in favour of a differentiated measure of affect and recommend that affect should be conceptualized in terms of discrete emotional reactions. In this chapter we paid attention to one specific emotion; i.e., anticipatory regret. Research in the area of decision-making has shown that this emotion can have profound effects on behavioural choice. The discriminant validity of measures of anticipatory regret seems adequate, and the anticipation of this emotion is especially relevant in domains that are characterized by a discrepancy between the affective responses to the behavioural act itself and post-behavioural affective reactions.

Some issues remain unresolved, however. The studies presented in this chapter do not provide an answer to the question whether affective and cognitive determinants of attitudes can be really separated and related to different information processing systems. The view of separate systems was advanced by Zajonc (1980, 1984), but his claims for the primacy of affect and the independence of cognitive appraisal and affective judgment have proven controversial (see for instance, Birnbaum, 1981; Lazarus, 1982, 1984). This controversy partly revolves around definitional issues concerning the nature of cognition. Moreover, Zajonc's view of affect makes it difficult to distinguish it from cognitive mechanisms that can proceed automatically, without awareness. Buck (1985) suggested that Zajonc's definition of affect resembles what Tucker (1981) called syncretic cognition (holistic and vague), while his definition of cognition resembles what Tucker called analytic cognition. Although Zajonc acknowledges that affect and cognition influence each other, he tends to emphasize their autonomy. The main contribution of Zajonc's work is that it

showed that automatic processes can also influence attitudes. His proposal to distinguish two separate systems has also influenced attitude research but generated a sometimes mysterious discussion about the primacy of affect, and often relied on rather contrived assessment techniques (e.g. presenting the same rating-scales preceded by questions about one's thoughts (cognition) or feelings (affect)).

Assessment techniques requiring respondents to think about their affective responses tap cognitions about these responses and seem far removed from the automatic processes Zajonc referred to. We argue that if we focus on cognitions about affect it seems unwise to treat affect as an undifferentiated, valenced response and recommend decomposing affect into concrete emotions. In the context of attitude-behaviour models this emphasis should also include anticipated post-behavioural emotions. One of these is regret which seems a powerful predictor of behaviour. This is especially the case when there is the possibility of alternative actions with different outcomes and when some of these outcomes are irrevocable. This suggests that it could be useful for expectancy-value models to also consider alternative courses of action. This might capture the decision process better (see also Ronis, 1992).

Interestingly, the counterpart of regret (rejoicing) seems to have less predictive power. Much theorizing and research focused on (anticipated) regret and related negative emotions, while positive emotions such as rejoicing and elation received far less attention. One reason for this could be that the impact of (anticipated) positive emotions is far less pronounced than that of negative emotions. It seems that Tversky and Kahneman's view that "losses loom larger than gains" not only applies to utilitarian beliefs but also to anticipated emotions. In the one study where we attempted to test for the effects of anticipated elation (Richard et.al., 1996a) we found very modest effects; moreover more recent

attempts (van der Pligt & de Vries, in preparation) show similar (non-)effects of the positive counterpart of regret. This seems in accordance with emotion research. Attempts to develop a taxonomy of emotions tend to differentiate between many more negative emotions (each with their own characteristics and action tendencies) than positive emotions (see for instance Ortony & Turner, 1990).

Are there other negative emotions that should receive attention in the context of attitude-behaviour models apart from regret? One obvious candidate is disappointment. Disappointment is studied in research on behavioural decision-making (e.g. Bell, 1985; Kelsey & Schepanski, 1991; Loomes, 1987; van Dijk & van der Pligt, 1997) and the anticipation of disappointment can affect expectations (Shepperd, Ouellette & Fernandez, 1996) as well as attitudes towards different goals and/or tasks. Empirical evidence for the impact of anticipated disappointment on attitudes and behaviour is limited, and this also applies to other anticipated emotions that could have an impact on attitudes such as fear, guilt, embarrassment and shame. On the positive side one could think of (anticipated) emotions such as pride, relief and joy. As mentioned before, empirical evidence concerning the possible impact of these anticipated emotions is extremely limited. Our main argument is that the various possible anticipated emotions should receive more attention in belief-based measures of attitudes. If we want to learn more about the role of affective versus more cognitive determinants of attitudes and behaviour, both should be assessed adequately and be based on a similar time perspective. Moreover, both should be assessed at the same level of specificity. Too often, utilitarian beliefs are assessed in great detail, while affect is assessed at a more general level, measured often with only one or two items.

An added benefit of focusing on specific emotions may be that it helps us to get rid of the sometimes artificial contrast between affect and cognition. Clore (1994) argued that all emotions require cognitions. The anticipation of post-behavioural affective consequences such as regret requires considerable cognitive processing. It requires thinking through various courses of action and estimating the likelihood of regret by comparing a chosen action with non-chosen actions. The anticipation and experience of regret thus obviously requires cognition and can hardly be seen as affect in terms of the crude dichotomy discussed earlier. The same applies to related emotions such as disappointment, which is a function of the difference between expectations and the obtained outcomes of one's behaviour.

The findings of the last two studies presented in this chapter show that it is relatively easy to increase the salience of anticipated regret and related (negative) affective reactions. A simple procedure requiring respondents to take a slightly longer time perspective made these emotions more salient, and this also influenced behavioural intentions and self-reported behaviour as shown by the results of Richard et al. (1996b). Their findings were limited to sexual risk-behaviour but there is other evidence suggesting that the awareness that an action can have negative post-behavioural affective consequences is an important factor in producing behavioural change. For instance, Simonson (1992) used a similar experimental manipulation to influence consumer behaviour.

The applied value of this research is that these outcomes point at the potential usefulness of focusing on more immediate affective consequences of risky behaviour, such as regret and worry, to foster behavioural change. This seems especially relevant in the context of health behaviours, because many negative consequences can be seen as a long way off and are more likely to be discounted (van der Pligt & de Vries, 1997). Health education campaigns that stress rather

immediate post-behavioural affective consequences could help to increase the willingness to engage in preventive behaviour. Moreover, stressing post-behavioural affective consequences seems a less extreme manipulation than fear-appeals. Research has shown that the amount of fear aroused by a communication is predictive of intentions to adopt the recommended action independently of cognitive, more utilitarian considerations. However, it has also been shown that excessive levels of fear can trigger maladaptive coping-styles and reduce the effectiveness of recommendations to change one's behaviour (e.g. Liberman & Chaiken, 1992; Joseph, Montgomery, Emmons, Kirscht & Kessler, 1987). It could be that stressing post-behavioural affective consequences results in lower anxiety levels and still stimulates preventive behaviour.

Summarizing, affect seems to have regained its place in research on attitudes and decision-making. Expectancy-value models of attitudes and behaviour can benefit from this renewed interest in affect. This would be enhanced if research in this tradition also focuses on specific affective reactions or emotions and takes account of their time-perspective. Holistic assessments of affective associations with behavioural acts are less likely to help improve our understanding of the role of affect in controlled information processing underlying attitudes and decisions. More correspondence of measurement between outcome related beliefs and expected affects, as well as a more differentiated approach to the measurement of affect should help to increase the expected utility of expectancy-value approaches to attitudes and behaviour.

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Author note

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Figure captions

Figure 1. The role of anticipated affect as a determinant of "using soft drugs".

Note: Parameter estimates are standardized; all parameters are significant at $p < .01$ except ^a $p < .10$

Adapted from Richard, van der Pligt, and de Vries (1996a, p.122).

Figure 2. The role of anticipated regret as a determinant of safe sex (condom use).

Note: Parameter estimates are standardized; all parameters are significant at $p < .01$ except ^a $p < .10$.

Adapted from Richard, van der Pligt, and de Vries (1995, p. 17).

Figure 3. The role of anticipated regret as a determinant of safe sex.

Note:

Parameter estimates are standardized; *n.s, all other parameters are significant at $p < .01$.

Adapted from van der Pligt, de Vries & Richard (1997).

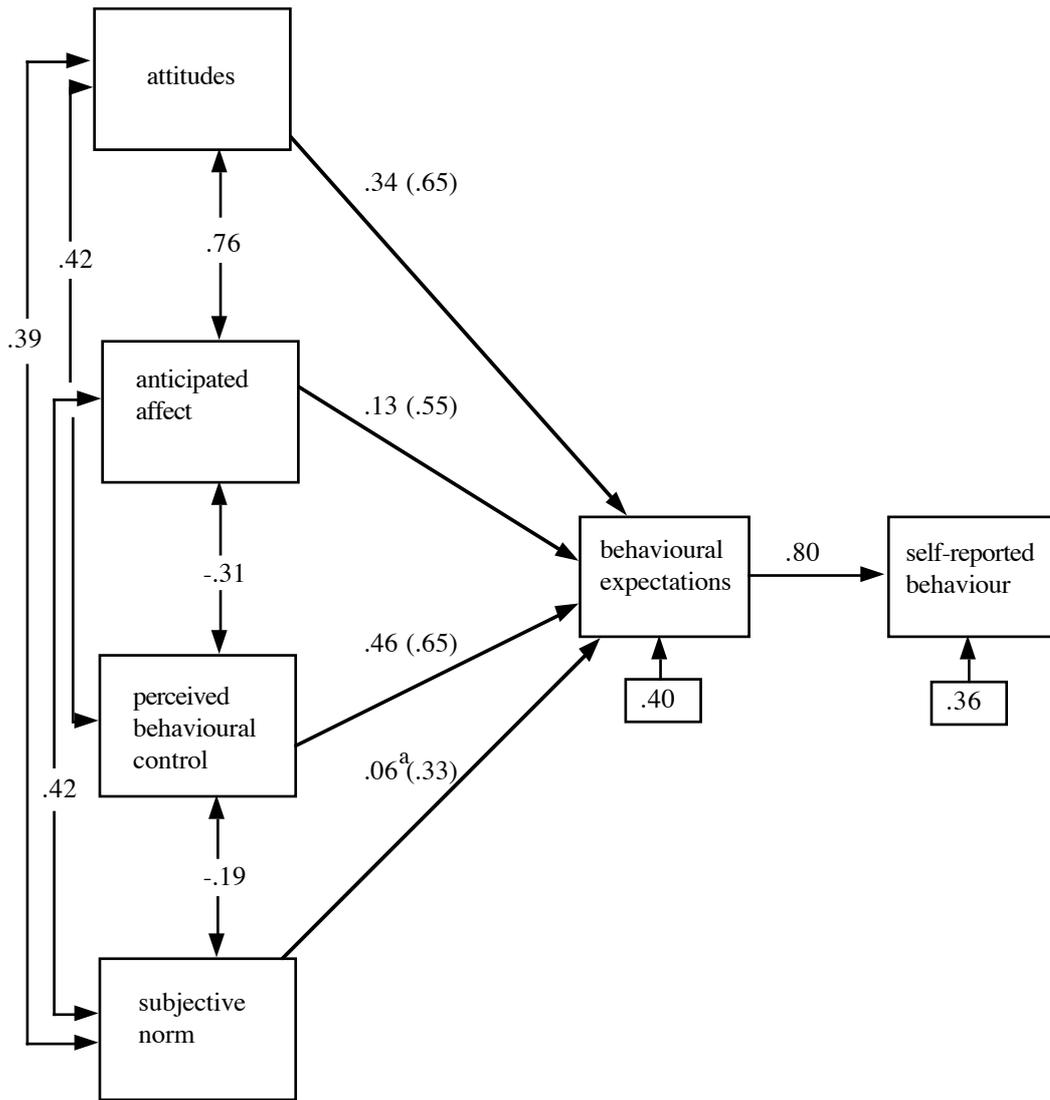


Figure 1.

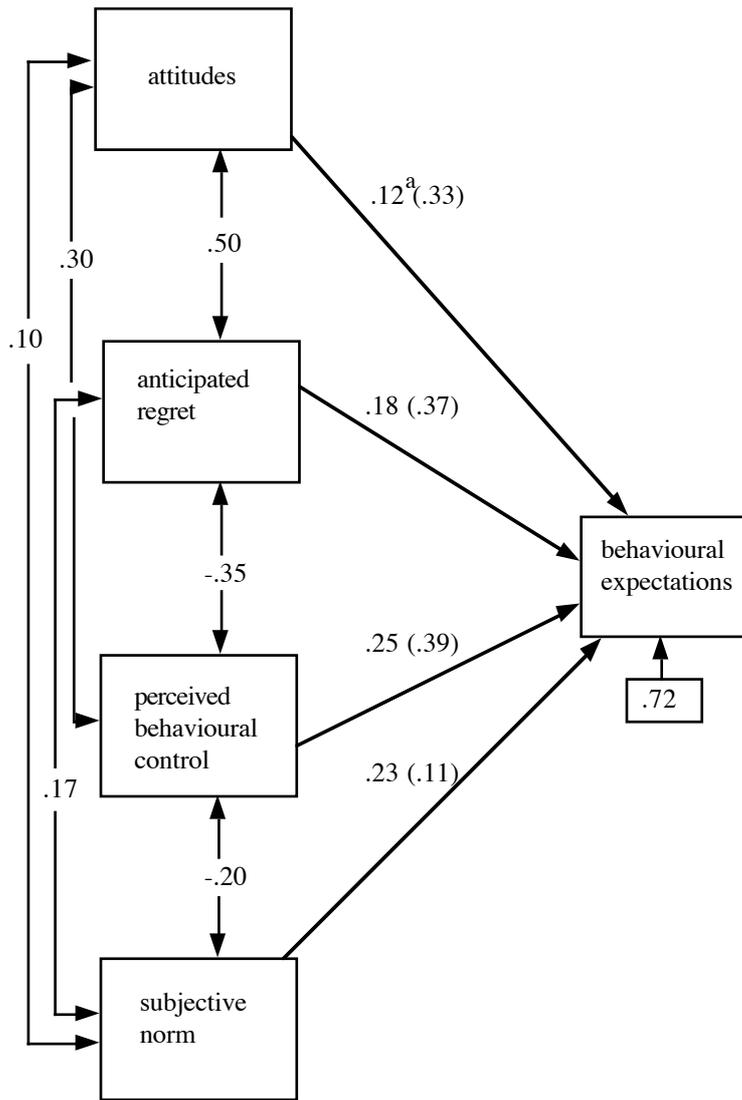


Figure 2.

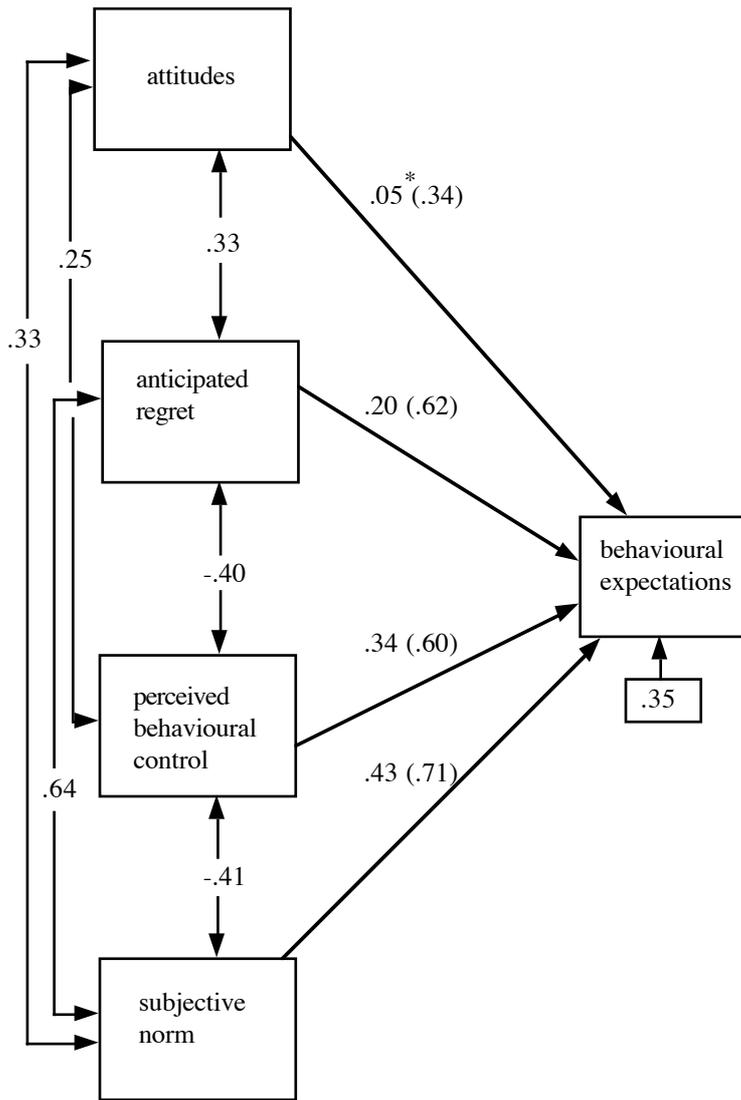


Figure 3.