Feeling & thinking in attitudes
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CHAPTER 6

Summary and Conclusions
Wanting children, at least in our society, is not something we rationally decide on. Children are not useful, healthy, or good for the environment. It is not (any longer) wise to have as many children as possible in order to provide security for your retirement. I have never heard of someone who after careful consideration and weighing of the pros and cons, decided to have children. Still, many people become parents. Why?

Besides rational arguments or considerations, we base our choices on feelings. Having children could be a typical example of a decision that is determined not by arguments, but by feelings. These feelings could originate from a variety of sources, including hormonal changes. As we have seen in this dissertation, there are other decisions that are also mainly related to feelings, for example decisions related to organ donation (see Chapter 3). Other decisions could be mainly based on thoughts, such as deciding to change jobs.

The goal of this dissertation was to increase our knowledge about the role of feeling and thinking in attitudes in general. I have approached this issue in two ways. First, I investigated affect and cognition as related but separate elements of attitudes. The basic question I tried to answer was: Can affect and cognition in attitudes be distinguished, and how are they related? Second, I investigated their effects on attitudes. The question I tried to answer was: Are there differential effects of feelings versus thoughts in processes of attitude formation?
Before turning to effects of affect and cognition on attitudes, I will briefly elaborate on affect and cognition as attitude factors, and on their relation. To recapitulate, I showed that when people gave their affective, cognitive, and overall evaluations of attitude objects, an attitude model that distinguished between (positive and negative) affective, cognitive, and overall evaluative factors best described these responses, as opposed to a model were all measures were taken together to form a single factor (Chapter 2).

Various researchers have used cognitive and affective factors of attitude next to an overall evaluative factor (Abelson, Kinder, Peters, & Fiske 1982; Crites, Fabrigar, & Petty, 1994; Giner-Sorolla, 2001; 2004, Petty, Fabrigar, & Wegener, 2003). In this dissertation, I confirmed that these three factors can indeed be distinguished. We obtained a similar pattern for various attitudinal issues, confirming not only that affect and cognition should be distinguished in attitudes, but also that affective and cognitive factors of attitude are distinct from an overall evaluative factor. An important question is how these factors of attitude are related to each other. I will elaborate on this question below.

Factors of attitude

As explained in Chapter 1, several models of the relation between the three factors of attitude can be conceptualized. The most common model is a hierarchical one, in which the overall evaluative factor is a summary of affective and cognitive factors (Abelson et al., 1982; Breckler & Wiggins, 1989; Crites et al., 1994; Giner-Sorolla, 2001; 2004; Haddock & Zanna, 1999; Olson & Maio, 2003; Millar & Tesser, 1986a; Petty et al., 2003). Another possibility is a non-hierarchical model consisting of separate but related factors, without assumptions about the causal nature of the relationships between the three factors. More specifically, I proposed that attitudes (apart from affective and cognitive factors) consist of an overall evaluative factor that is not a summary of these affective and cognitive factors, but that the overall evaluative factor can instead have its own independent connection with the attitude object.
Hierarchical versus non-hierarchical models

In chapter 1 I argued that there is not enough support for the hierarchical model, and therefore preferred to adopt the non-hierarchical model as a starting-point, and several outcomes of this dissertation have strengthened that view. I will discuss these findings and arguments below.

First of all, some of the findings in this dissertation are not in line with the hierarchical model. In Chapter 3 we investigated whether affective, cognitive, and overall factors of the attitude toward organ donation predicted donor relevant behavioral decisions differently. We found that the affective factor were differently related to donor relevant behavioral decisions, but that the cognitive factor did not. More important for the present argument is that the overall evaluative factor did not predict donor relevant decisions either. In addition, the overall evaluative factor was strongly related to the cognitive factor.

The above findings are not in line with predictions following from the hierarchical model. The latter model would logically predict that the overall evaluative factor would be the best predictor for relevant behavioral decisions. In addition, one would also expect that the factor with the largest relation with the overall attitude would be more predictive of relevant behavioral decisions.

Another finding that is inconsistent with the hierarchical model was reported in Chapter 4. There we found that the effects of affect versus cognition on attitudes were influenced by whether the overall evaluative measure was expressed before or after the affective and cognitive measures. When the overall evaluative measure preceded the affective and cognitive measures, the effects of affective or cognitive information were no longer apparent. Apparently, the prior expression of the overall evaluation had an impact on the effects of affect versus cognition on the factors of attitude. Because the hierarchical model predicts that the overall evaluative factor is determined by the affective and cognitive factors of attitude, but not the other way around, the finding that the expression of the overall evaluative factor can change the impact on affective
and cognitive factors of attitude is not in keeping with this model. Although the hierarchical model cannot account for these findings, the non-hierarchical model is more flexible and can accommodate a larger variety of causal paths and interrelations between the various factors.

A second point is that no-one has distinguished the non-hierarchical and hierarchical models, because they cannot be distinguished from each other using prevailing ways of measuring attitudes. This means that studies that claimed to investigate the hierarchical model could just as likely have been investigating the non-hierarchical model. In previous research a hierarchical model has been proposed (Crites et al., 1994). However, with their data this model cannot be distinguished statistically from the non-hierarchical model. Although the hierarchical and non-hierarchical models are theoretically clearly different, it is difficult to test them against each other. In fact, in structural equation analyses, a distinction between these models is statistically non-existent. That means that the hierarchical model and the non-hierarchical model result in exactly the same outcome with respect to model fit indices (the chi-squares are equal). See for a more elaborate discussion of the problem that models representing very different causal relationships have the same model data fit for example Bollen (1989). Future research should look into this issue.

As we have seen, several findings in this dissertation are not in line with the hierarchical model. In addition, there is currently no direct test to determine whether one model should be preferred over the other. We argue that at this point in time the best option is to proceed on the basis of the least restricted model, which is the non-hierarchical model. As we will see below, this may have important implications for attitude theories in general.

Implications for attitudes

One implication of favoring a non-hierarchical model over a hierarchical one is the following: When assessing whether a given attitude has a primarily affective or cognitive base, measuring the strength of the correlation between affective and cognitive factors of attitude, on the one hand, and the overall evaluative
factor, on the other, is not the best solution. This procedure is commonly used when investigating affect versus cognition in attitudes (Abelson et al., 1982; Crites et al., 1994; Giner-Sorolla, 2001; 2004, Petty et al., 2003). However, the non-hierarchical model implies that affective and cognitive factors of attitude are related too, but do not determine the overall evaluative factor. Thus, assessing correlations with an overall evaluative factor could be an inappropriate measure to assess affective or cognitive base. Other possible methods include assessing the relation with decisions or behavior (see Chapter 3), or assessing the specific effects of affective or cognitive information on the corresponding affective or cognitive attitudinal factor (see Chapter 4).

A second implication of preferring a non-hierarchical model to a hierarchical model concerns the attitude-behavior relationship. The usual way of assessing the relationship between attitude and behavior has been by measuring the overall evaluative factor (e.g., an evaluation in ‘like-dislike’), and relating it to behavior. However, reasoning from a non-hierarchical model, all three factors can in principle predict behavior. Although for the majority of the attitude objects the three attitudinal factors will probably yield comparable attitude-behavior relations, there might also be instances where one of the three factors is a better predictor of behavior than the other two. Indeed, we demonstrated in Chapter 3 that for attitudes toward organ donation, it was the affective factor, and not the cognitive or the overall evaluative factors that best predicted donor-relevant behavioral decisions. I expect which factor is most predictive of decisions and behavior depends on both the attitude object in question, and on context.

This raises a similar question about implicit measures of attitude, namely: Which attitudinal factor is being measured by implicit measures? Based on similar reasoning as described above for the attitude-behavior relationship, each factor could be related to the implicit response. Which factor drives the implicit response might then depend on the context in which an attitude is assessed. Research has shown that automatic evaluations are also
dependent on contextual factors (Gawronski, Deutsch, & Seidel, 2005; Klauer, Mierke, & Musch, 2003; Wittenbrink, Judd, & Park, 2001). Thus, when for example indirectly measuring attitude toward organ donation in the context of norms and values, this could lead to a response that is based on the cognitive or overall evaluative factor of attitudes, whereas in the context of feelings it might better reflect the affective factor. It could even be that a different context is elicited by different kinds of indirect measures of attitude. For example, an evaluative priming task could elicit an evaluative context, which could result in a response that is based more on the overall evaluative factor. On the other hand, responses obtained with a lexical decision task, because of its cognitive nature, might primarily be based on cognitive factors. Future research could examine these interesting and important questions.

Effects of affect versus cognition on attitudes

The second part of this dissertation was dedicated to investigating effects of affect versus cognition on (factors of) attitudes in the process of attitude formation. We found that both at the level of exemplars (Chapter 4) and at the level of the affective or cognitive categories (Chapter 5) affect and cognition exert different effects on attitude-formation.

In Chapter 4, we investigated the effects on attitude formation of using positive or negative affective versus cognitive adjectives. We expected that the use of affective or cognitive exemplars would have a specific impact on the corresponding attitudinal factor. Apart from effects common to all factors, we expected there to be residual effects on the corresponding attitudinal factor. We indeed found that affective adjectives (e.g., ‘happy’) resulted in a more positive affective evaluation of the issue, but not in a more positive cognitive evaluation, when controlling for effects shared by the attitudinal factors. This implies that the use of the same valence information, but framed in affective rather than cognitive terms, results in attitudes that could be labeled as ‘affective’, not because the overall evaluation is determined more by affective or cognitive
information, but because the corresponding attitudinal factor is influenced over and above effects shared by the other attitudinal factors.

Affect and cognition can also be seen as two general categories in terms of which information is processed (Chapter 5). We argue that processing information whilst attending to feelings versus thoughts results in different perceptions of this information. This can be compared to processing information through different sensory modalities (for example hearing versus seeing). Thus, the categories of affect and cognition could exert more general effects on attitudes not by changing the content of the information, but changing the way this information is perceived. Previous research has suggested that individuals who are asked to attend to their feelings or to their thoughts, exhibit different attitude-behavior relationships (e.g., Millar & Tesser, 1986). We extended these effects by demonstrating that people can be manipulated unobtrusively to focus on thoughts or feelings, which results in making affective or cognitive aspects of information more salient, which in turn results in different attitudes being formed.

That affective versus cognitive focus results in different ways in which information is perceived or processed is clear from the response latencies we found: In an affective focus people were faster to evaluate than in a cognitive focus. Although further research is necessary, our findings suggest that an affective focus makes people evaluate spontaneously. This is a fruitful area for future research and could have important repercussions in daily life. For example, because of a greater propensity to evaluate, a focus on feelings could be important in behavior that necessitates approach-avoidance reactions, because it is related to faster evaluations. However, it could lead to a decrease of processing relevant information, which in turn could lead to more stereotyping, to name just one.
Concluding Remarks

This dissertation has advanced our understanding of affect versus cognition in attitudes, which in turn should lead to a better understanding of how and why we behave and think as we do. As an illustration of what kinds of implications our findings could have in real life, I now return to the example about becoming an organ donor with which I started this dissertation.

Imagine you receive a letter. It is from the Department of Health. In the letter you are asked to send it back, indicating whether or not you want to become an organ donor. You decide to deal with it later. Three weeks later, you meet up with some friends. At one point the discussion turns to organ donation. “Of course everyone should be an organ donor” seems to be the opinion of you and your friends. But then you suddenly remember the unreturned letter. You start to wonder. “Why didn’t I return the letter?”

In this dissertation, we have enhanced our knowledge about the processes that could be responsible for this apparent discrepancy between a positive attitude toward organ donation and not responding to the letter. Because we found that affect and cognition are factors of attitude that can be distinguished from an overall evaluative factor, and because we advocate a model in which the affective, cognitive, and overall evaluative factors are separate but related, I can give the following explanation of the situation described.

I argue that the expression of the attitude toward organ donation could be determined by attitudinal factors other than those that shape the behavior or decision. For instance, we know from Chapter 3 that donor-relevant decisions are determined by ambivalence within the affective attitudinal factor. However, it is possible that the attitudinal expression given above is governed by other factors, for instance cognitive or overall evaluative factors.
One way in which this could happen is because different situational contexts operate during attitude expression from those that operate when decisions regarding organ donation are taken. However, it is also possible that the very matter of expressing an attitude, as opposed to making a donor-relevant decision, gives rise to different (internal) contexts. That is, for organ donation, making decisions related to organ donation evokes feelings people have about organ donation, whereas thinking of one’s attitudinal standpoint evokes thoughts or considerations one has about organ donation. This is something that needs to be investigated in future research.

Proceeding to the practical matter of how one could increase the number of organ donors, we could make use of the above knowledge and the findings reported in the second half of this dissertation. We demonstrated that we can get people to attend more to feelings or thoughts, which results in the formation of different attitudes. Although I do not want to argue that having an affective or a cognitive focus could differentially shape existing attitudes like organ donation, it would be interesting to see whether new information about organ donation is processed differently depending on the prevailing focus. For example, it could be that a focus on feelings would highlight the ambivalence people have toward organ donation, whereas a focus on thoughts would highlight the generally found favorableness to this issue. This might result in differential processing of the available information. Another approach that follows from these findings would be to get people to focus on affective aspects while trying to persuade them to become an organ donor on grounds that organ donation decisions are governed by affective factors. Again these are potentially fruitful possibilities for future applied research. The distinction between affect and cognition in attitudes enhances not only our understanding of attitudes toward organ donation and other issues, but also leads us to new ways in which attitudes can be formed and changed.