Social Psychology
A MODULAR COURSE

Attitudes and Attitude Change

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Most persuasion research since the mid-1980s has been based on theories that incorporate the assumptions of the cognitive response approach about active, effortful processing, but also include hypotheses about persuasion effects based on effortless processing. These dual-processing theories are the elaboration likelihood model (ELM; Petty & Cacioppo, 1986a,b; Petty & Wegener, 1999) and the heuristic-systematic model (HSM; Bohner et al., 1995; Chaiken, 1987; Chaiken et al., 1989; Chen & Chaiken, 1999). Both have been developed into comprehensive frameworks of persuasion (and beyond; see Chaiken et al., 1989; Chen & Chaiken, 1999), and both distinguish two prototypical modes of persuasion that form the poles of a continuum of processing effort. In this chapter, we present and critically compare both models and then briefly introduce a recently proposed single-process alternative.

**The elaboration likelihood model**

In the ELM, the two processing modes are called the central route, in which persuasion is mediated by effortful scrutiny of message arguments and other relevant information, and the peripheral route, which features the influence of peripheral cues (i.e., noncontent aspects like the message source) and includes a variety of less effortful mechanisms such as conditioning, social identification and the use of heuristics (see Figure 7.1 for an illustration). The seven basic postulates of the ELM (Petty & Cacioppo, 1986a,b) are presented in Table 7.1.
The seven postulates of the elaboration likelihood model (adapted from Petty & Cacioppo, 1986a)

<table>
<thead>
<tr>
<th>Postulate</th>
<th>Description</th>
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<tr>
<td>1. Underlying motivation: People are motivated to hold correct attitudes.</td>
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<td>2. Variations in elaboration: Although people want to hold correct attitudes, the amount and nature of issue-relevant elaboration in which they are willing or able to engage to evaluate a message vary with individual and situational factors.</td>
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<td>3. How variables affect persuasion: Variables can affect the amount and direction of attitude change by (a) serving as persuasive arguments, (b) serving as peripheral cues and/or (c) affecting the extent or direction of issue and argument elaboration.</td>
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<td>4. Objective elaboration: Variables affecting motivation and/or ability to process a message in an objective manner can do so by either enhancing or reducing argument scrutiny.</td>
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<td>5. Biased elaboration: Variables affecting message processing in a biased manner can produce either a positive (favourable) or a negative (unfavourable) motivational and/or ability bias to issue-relevant thoughts.</td>
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<td>6. Tradeoff between argument elaboration and peripheral cues: As motivation and/or ability to process arguments is decreased, peripheral cues become relatively more important determinants of persuasion. Conversely, as argument scrutiny is increased, peripheral cues become relatively less important determinants of persuasion.</td>
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<td>7. Consequences of elaboration: Attitude change that results mostly from processing issue-relevant arguments (central route) will show greater temporal persistence, greater prediction of behaviour and greater resistance to counterpersuasion than attitude change that results mostly from processing peripheral cues.</td>
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Determinants of the route to persuasion

The ELM assumes that people are generally motivated to hold "correct" attitudes (postulate 1 in Table 7.1). Petty and Cacioppo (1986a) use this term in a broad functional sense, equating correctness with adaptive utility (see "Knowledge organisation and regulating approach and avoidance" in chapter 1). They acknowledge that there cannot be any absolute standard of correctness; rather, people are thought to be capable of using various standards (e.g., social comparisons) for judging the adaptiveness of their attitudes (p. 6).

As people have limited time and resources in their striving for valid attitudes, they cannot elaborate the details of every persuasive message they encounter—thus, peripheral-route processes should be the default (cf. the "cognitive miser" metaphor; Taylor, 1981). Generally, elaboration likelihood varies along a continuum and is a...
Multiple roles of persuasion variables

The ELM assigns three basic roles to variables in the persuasion process (postulate 3): serving as arguments, serving as peripheral cues, or affecting the amount or direction of elaboration. Furthermore, variables are thought to be capable of playing “multiple roles” (for discussion, see chapter 8 of Petty & Cacioppo, 1986a) depending on the overall elaboration likelihood. This may be exemplified by the potential effects of source attractiveness. The attractiveness of a model who promotes a skin care product in a television advert may serve as a peripheral cue if elaboration likelihood is low, affecting attitudes to the product directly through a peripheral mechanism (e.g., evaluative conditioning); the model’s attractiveness may serve as a message argument if elaboration likelihood is high, increasing persuasion through issue-relevant cognitive responses (“If I use this product, my skin will look as smooth as hers”); and finally, the model’s attractiveness may enhance the motivation to centrally process the message if the elaboration likelihood is not constrained at a high or low level by other factors, i.e., in the middle range of the elaboration continuum (see Petty & Wegener, 1998a).

In most empirical tests of the ELM, however, source and content variables have been used to operationalise peripheral cues (e.g., expertise, attractiveness, number of sources), whereas variations in message content have been used to assess central route processing.

Varying argument quality as a methodological tool

The systematic variation of argument quality to study how variables influence the degree of message processing (postulate 4) is an important methodological tool that Petty and his colleagues introduced (e.g., Petty, Wells, & Brock, 1976). It is done by pilot-testing diverse arguments in favour of a certain issue and selecting arguments to be included in strong and weak message versions based on the kind of thoughts they evoke when carefully scrutinised. Strong arguments are those that evoke predominantly favourable cognitive responses and result in more positive attitudes; whereas weak arguments produce mainly unfavourable thoughts and lead to less positive attitudes (see chapter 2 of Petty & Cacioppo, 1986a). Examples for strong and weak arguments, used in a study by Bohnert, Erb & Crow (1995), are given in Box 7.1.

If argument quality is used as one experimental factor, the kind of influence that another variable has in the persuasion process can be inferred from the result pattern it causes (Petty & Cacioppo, 1986a,b).
BOX 7.1 Strong and weak versions of arguments presented in a persuasive message

The following arguments favoring the fluoridation of drinking water were presented in a persuasion study by Bohner, Erb & Crow (1995).

Weak arguments  
In recent years, the prevalence of caries in highly developed countries has decreased only slightly, which means that an effective prevention is becoming more and more necessary. Studies ... carried out over many weeks suggest that the provision of fluorides through the drinking water supplies is technically feasible and relatively harmless.

Research participants were 31 women and men between 18 and 25 years of age. The sample included persons with prior illnesses like, for example, hayfever. On average, we observed no detrimental effects that could unequivocally be attributed to the fluoride.

The production of suitable fluoride compounds would of course have its cost. All things considered, consumers would face an estimated increase in water bills of less than 50%. But ultimately, prices increase in all areas, so this would not be an unusual development.

Strong arguments  
In recent years, the prevalence of caries in highly developed countries has increased so much that an effective prevention is becoming more and more necessary. Clinical studies ... carried out over many years prove that the provision of fluorides through the drinking water supplies is effective and free from negative side effects.

Research participants were 1300 women and men between 18 and 75 years of age. The sample included persons suffering from diabetes and cardiovascular diseases. We observed no detrimental side effects or interactions with medication on any participant, while the incidence of caries was markedly reduced.

Nowadays, the production of an unlimited amount of suitable fluoride compounds is possible and comes at a relatively low cost. Furthermore, we have to take into account that in the long run the costs for dental treatment will be reduced.

Possible patterns are depicted in Figure 7.3. In the next section, we illustrate this principle by discussing research on the effects of distraction.

Distraction may enhance or reduce persuasion  
Various studies that addressed the effects of distraction on persuasion found that distraction reduces persuasion. But sometimes the opposite effect was observed, namely that recipients who were distracted while listening to a counterattitudinal message were more persuaded than nondistracted recipients (see Petty & Brock, 1981). The latter finding may seem surprising if one assumes that learning message content is the primary mediator of persuasion, as did...

Figure 7.3  Possible effects of a persuasion variable according to the ELM. Panel 1 shows the basic pattern of post-message attitudes as a function of elaboration likelihood and argument quality: If elaboration likelihood is low, strong versus weak arguments should hardly make a difference; if elaboration likelihood is high, strong arguments should produce more positive attitudes than weak arguments. Panel 2 shows the typical effect of a peripheral cue: Depending on its valence, it either enhances or decreases persuasion independent of argument quality. Panel 3 shows the effect of a treatment variable that enhances or decreases elaboration (e.g., personal relevance, distraction), which results in a symmetrical interaction of that variable with argument quality. Finally, Panel 4 shows the effect of a treatment variable that introduces a positive or negative bias to elaboration (e.g., forewarning), which should result in an asymmetrical interaction of that variable and argument quality.
(3) Objective Elaboration

(a) enhance

Attitude

strong arguments

weak arguments

Baseline  Treatment

(b) reduce

Attitude

strong arguments

weak arguments

Baseline  Treatment

(4) Biased Elaboration

(a) positive

Attitude

strong arguments

weak arguments

Baseline  Treatment

(b) negative

Attitude

strong arguments

weak arguments

Baseline  Treatment

Figure 7.3. (Continued)

researchers in the Yale tradition. If so, any factor that interferes with the learning process should reduce persuasion. From the viewpoint of the ELM, however, distraction is thought to reduce recipients' ability for central route processing, thus undermining the dominant cognitive responses that the message would otherwise have elicited, whatever their valence. The dominant response to a weakly argued or counterattitudinal message should be counterarguing, and if this process is disrupted, resistance to persuasion should be weakened.

To test this disruption-of-counterarguing idea, Petty et al. (1976, Experiment 1) manipulated both distraction (at four levels, from no distraction to intense distraction) and argument quality (at two levels, strong versus weak) in a factorial design. Students were asked to listen to a tape-recorded message that advocated an increase in tuition fees at their university. The strong message included the arguments that the fee increase was recommended after a large-scale two-year investigation, that it would lead to higher quality of teaching, and that it would help to substantially increase graduates' starting salaries; the weak message featured the arguments that the recommendation of a fee increase was the result of a two-month study, that the increased fees would be used to plant more trees on campus, and that better lighting of classrooms was needed to reduce student headaches. To vary distraction, students were asked to perform a second task while listening to the message. Specifically, they had to monitor and record the position of an "X" that was briefly projected on a screen at varying time intervals. Depending on condition, the number of "X"s projected per minute was zero, four, twelve or twenty.

Petty et al. (1976) hypothesised that the strong message would be difficult to counterargue and thus distraction would reduce persuasion for this message, whereas the weak message would be easy to counterargue and thus distraction would increase persuasion. As can be seen in Figure 7.4, these hypotheses were supported. At higher levels of distraction, participants who listened to the weak message showed more agreement, and participants who listened to the strong message showed less agreement, than at lower levels of distraction. The favourability of participants' cognitive responses, which were assessed with a thought-listing technique (see Cacioppo & Petty, 1981), showed a very similar pattern: Thoughts were increasingly favourable at higher levels of distraction for the weak message, and were increasingly unfavourable at higher levels of distraction for the strong message. This overall pattern of results is incompatible with the message-learning approach, which would have predicted a general decrease in persuasion with increased distraction.

Other variables affecting the degree of elaboration

Interactions with argument quality have been observed for many variables that affect either the motivation or the ability to carefully
process a message, such as message repetition, accountability for evaluating a message, the number of message sources, the functional matching of message content, recipients’ mood or need for cognition (for an overview, see Petty & Wegener, 1998a). Research on some of these variables will be addressed in the following sections.

Issue involvement

Perhaps the most prominent motivational variable is issue involvement, the degree to which recipients perceive an issue as personally relevant (e.g., Petty, & Cacioppo, 1979; Petty Cacioppo, & Goldman, 1981; for a review see Johnson & Eagly, 1989). Recipients who are highly involved in an issue should be motivated to elaborate a message on this issue more than recipients who are not involved. In one experiment addressing this hypothesis, Petty, Cacioppo, and Goldman (1981) asked undergraduates to listen to a message stating that mandatory comprehensive examinations would be introduced in their area of study. Using a $2 \times 2 \times 2$ factorial design, the authors varied three experimental factors: issue involvement, source expertise and argument strength. Adopting a technique that was introduced by

Apsler and Sears (1968) they told students in the high involvement condition that the new exam policy would take effect in the following year (and thus affect them personally), whereas students in the low involvement condition heard that it would be ten years before the policy would be implemented. To induce high versus low source expertise, the message was said to come either from “the Carnegie Commission on Higher Education” or from a local high school class. Finally, the comprehensive exam proposal was supported with either strong or weak arguments. After listening to the message, participants reported their attitude toward comprehensive exams on several items that were later combined to form a standardised index.

Petty, Cacioppo, and Goldman (1981) predicted that students for whom involvement was high would elaborate the message, which would lead them to generate mainly positive thoughts and thus report more positive attitudes after listening to strong arguments, but to generate mainly negative thoughts and thus report more negative attitudes after listening to weak arguments. Students for whom involvement was low, on the other hand, were expected not to elaborate message content but to follow the peripheral route to persuasion, i.e. to agree more with a high expertise source than with a low expertise source. The results supported these predictions, as can be seen in Figure 7.5.

Matching of message content with an attitude’s functional basis

By analysing the impact that diverse variables have on message elaboration, the ELM has provided a useful framework for readdressing topics in persuasion that had produced seemingly inconsistent findings in the past. This point is nicely illustrated by recent research on the functional matching hypothesis. Petty and Wegener (1998b) reframed in ELM terms the early suggestion that, in order to be effective, messages should match the functional basis of an attitude (e.g. Smith et al., 1956). They predicted that a message would be scrutinised more thoroughly if it matched the particular functional aspect of an attitude object that was most relevant to a recipient. Using an experimental paradigm similar to the one employed by Snyder and DeBono (1985; see chapter 1, Box 1.1), Petty and Wegener found support for their prediction. Replicating earlier results, strong arguments led to more persuasion when they matched rather than mismatched recipients’ most central attitude function (e.g., image concerns for people high in self-monitoring); conversely,
Persuasion II: DUAL PROCESSING APPROACH

A common criticism of the classical approach to persuasion is that it fails to account for the role of cognitive processing. In contrast, the dual-processing approach suggests that persuasion can be understood as a combination of automatic and controlled processes.

Automatic processing refers to the rapid, intuitive, and effortless processing of information. Controlled processing, on the other hand, involves more deliberate and effortful processing of information.

In the context of persuasion, automatic processing can occur through the influence of source characteristics, such as the credibility or attractiveness of the speaker. Controlled processing, on the other hand, occurs through the evaluation of the message content and the alignment with the recipient's own beliefs and attitudes.

The dual-processing approach has been used to explain the phenomenon of the post-message effect, where individuals may change their attitudes or behaviors following exposure to persuasive messages.

Mood

Mood can also play a role in persuasion, influencing the way individuals process and respond to messages. Positive mood can enhance the effectiveness of persuasive messages, while negative mood can be more resistant to change.

Figures 14a and 14b illustrate these concepts, showing how the manipulation of source characteristics and message content can lead to changes in persuasion outcomes.
toward an increase in student services fees and listed their cognitive responses to the message. To obtain an attitude baseline, students in a control condition were neither exposed to a mood manipulation nor to a persuasive message, but simply reported their attitude toward the proposed increase in student services fees.

As shown in Figure 7.6, participants in a negative mood reported more favourable attitudes toward the proposed fee increase when they were exposed to strong arguments than when they were exposed to weak arguments. Participants in a positive mood, on the other hand, were not differentially affected by strong versus weak arguments, but showed a moderate degree of attitude change in comparison to the control condition regardless of message content. These results suggest that students in a happy mood were less likely to elaborate the specific content of the message than students who were in a sad mood. This conclusion was supported by the analysis of participants' cognitive responses. Participants in a sad mood reported a higher proportion of favourable thoughts and a lower proportion of unfavourable thoughts in response to strong rather than weak arguments. Thus, their cognitive responses reflected high elaboration of message content. This was not true, however, of participants in a happy mood. Neither the proportion of favourable nor the proportion of unfavourable thoughts reported by these participants differed as a function of argument strength, suggesting a low degree of message elaboration.

Interestingly, several studies show that a negative mood does not invariably increase message elaboration compared to a positive mood. As with more direct effects of mood on evaluative judgment (Schwarz & Clore, 1983), directing a person's attention to the true, judgment-irrelevant source of their mood leads to discounting of its informational value; the mood is then not interpreted as signalling a problematic or benign situation any more, and any mood differences in processing effort disappear (Sinclair, Mark, & Clore, 1994). Finally, the mood effect on message processing may even reverse in direction. Specifically, if recipients interpret a negative mood not as a reaction to the issue under consideration, but rather as a response to illegitimate pressure to change their views, it tends to reduce rather than increase message elaboration. This was shown in a series of studies by Böhner and Weinirth (2000, 2001). Without the theoretical framework provided by the dual-processing approach, these complex patterns of findings would be very difficult to explain (for additional hypotheses about mood effects on message processing, cf. Wegener & Petty, 1994; Wegener, Petty, & Smith, 1995).

Need for cognition

As a final example for factors affecting the degree of message elaboration we consider an individual difference variable, the need for cognition (NFC; Cacioppo & Petty, 1982; Cacioppo, Petty, Feinstein, & Jarvis, 1986). This variable is assessed by a self-report measure containing items like "I am usually tempted to put more thought into a task than the job minimally requires" (Cacioppo & Petty, 1982). Individuals high in NFC tend to engage in and to enjoy effortful thinking across situations and topics, whereas individuals low in NFC are generally unwilling to expend much cognitive effort, unless forced to do so under situational pressure. High-NFC (as opposed to low-NFC) individuals have been found to show more central route processing of persuasive messages (e.g. Bless, Wänke, Böhner, Fellhauer, & Schwarz, 1994; Cacioppo, Petty, & Morris, 1983) but to be less susceptible to the impact of peripheral cues (see Chalklin's, 1987, study on the reliability of liking cues we discussed in chapter 6; Hagtvedt, Petty, & Cacioppo, 1992; Keller, Böhner, & Erb, 2000).

We have now discussed variables that seem to be very different at first sight, representing situational influences (distraction), the relationship between recipient and attitude object (involvement, attitude
functions), subjective states of the recipient (mood) and enduring individual differences (NFC). Yet these variables’ complex effects on persuasion can be subsumed under a common principle: They affect persuasion by enhancing or reducing motivation or ability to elaborate a message. This parsimonious explanation became possible on the basis of the dual-processing perspective, and by using its methodological tool of varying argument quality along with other factors to infer processing effort (e.g. Petty & Cacioppo, 1986b).

Biased elaboration

Variations in motivation and capacity may not only enhance or reduce the general amount of thinking (or, in ELM terminology, objective elaboration) as in the examples discussed above; according to the ELM’s biased elaboration assumption (postulate 5), both cognitive and motivational factors may also facilitate specifically either positive or negative elaborations. This results in an asymmetrical interaction of the variable in question with argument quality, as shown in panel 4 of Figure 7.3.

We have already discussed Tesser’s (1978) mere thought approach, which showed that schema-guided thinking may lead to a polarisation of initial attitudes (see chapter 6). Similarly, well-developed schemata and prior knowledge may enhance recipients’ ability to elaborate externally presented arguments that are consistent with their prior attitude. To test this idea, Cacioppo, Petty, and Sidera (1982) studied the effect of proattitudinal messages on abortion that featured either religious or legalistic arguments (e.g. pointing out the sacramental quality of life versus constitutional aspects). These were presented to participants who had been identified as possessing either a legalistic or a religious self-schema. In line with the ELM’s biased elaboration postulate, participants generated a greater number of mostly favourable cognitive responses, and found the message more convincing, when the arguments fitted (versus did not fit) their self-schema. In other studies, it has also been shown that extensive prior knowledge about an issue facilitates the recognition of counterattitudinal arguments (e.g. Wood, 1982). We will have to say more about this issue in chapter 9.

On the motivational side, it has been shown that forewarning may motivate recipients specifically to counterargue a message (e.g. Petty & Cacioppo, 1977). Other potential sources of biased message processing are the recipient's current processing goal (motivational) and accessible persuasion heuristics (cognitive). As these factors have been conceptualised within the heuristic-systematic model, we will address them in a later section.

Consequences of elaboration

The ELM’s seventh and final postulate addresses the consequences of the different routes to persuasion. Petty and Cacioppo (1986a) emphasise three characteristics of an attitude that are enhanced by central route as opposed to peripheral route processing: Attitudes formed via the central route are assumed to be more persistent, more resistant to counterpersuasion and more predictive of behaviour than those formed via peripheral mechanisms. These three aspects may be interrelated and have been conceptualised as consequences of attitude strength (see chapter 3; Petty et al., 1995).

Why should message elaboration lead to stronger attitudes? Petty and his colleagues (1995) discuss three mediating mechanisms that may operate in concert or independently. Firstly, issue-relevant thinking may increase the structural consistency of an attitude schema, because initial inconsistencies may be noticed and resolved in the process. Secondly, by elaborating a message, the attitude and associated beliefs will be activated repeatedly, thus rendering them more accessible. As you will see in chapter 10, more accessible attitudes are stronger predictors of behaviour than are less accessible attitudes. And finally, the individual may consciously perceive that she expended considerable mental effort, thereby becoming more confident in the resulting attitude.

Research on the consequences of elaboration has typically studied the effects of known antecedents of elaboration (e.g. personal relevance, need for cognition) on one or two outcome variables (e.g. resistance and persistence). To illustrate the basic paradigm, let us consider a study by Petty, Cacioppo, Haugtvedt, and Heesacker (1986; reported in Petty & Cacioppo, 1986a, pp. 175ff). Participating students listened to a message that argued for adopting comprehensive exams, either at their own university (high personal relevance) or at another university (low personal relevance). The message came in one of two versions: A positive version contained both strong arguments and was delivered by a prestigious, expert source; a negative version consisted of weak arguments and came from a low-status,
The Heuristic-Systematic model

will discuss next, we will see how the difference in the order of processing the three issues of persuasion can lead to unique outcomes. In this model, the three issues of persuasion are: (1) the source, (2) the message, and (3) the audience. The order in which these issues are presented can significantly impact the effectiveness of the message.

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Summary

(see page 61)