

DELIBERATIVE VERSUS IMPLEMENTAL STATES OF MIND: THE ISSUE OF IMPARTIALITY IN PREDECISIONAL AND POSTDECISIONAL INFORMATION PROCESSING

JÜRGEN BECKMANN AND PETER M. GOLLWITZER
Max-Planck-Institut für psychologische Forschung

A model of action phases is presented (Heckhausen, 1986) according to which different modes of information processing characterize predecisional and postdecisional phases. In the predecisional phase, one is oriented toward the impartial processing of information on available choice alternatives. In the postdecisional/preactional phase, information processing is geared toward an efficient implementation of the chosen action alternative. In the present study, male subjects were asked to choose one of two female partner subjects with whom they would like to have an informal conversation. Subjects were provided with information about the two partners' attributes, on which cued- and free-recall tests were later given. One group received and recalled the information before making the decision; a second group received the information before deciding, and recalled the information after they had made the decision; and a third group received and recalled the information after making the decision. The third group showed better cued and free recall of the provided information concerning the chosen partner and worse recall of the information concerning the nonchosen partner. The information recalled for the chosen as compared to the nonchosen partner was more implementation-related in this group. Both postdecisional groups recalled more negative than positive personality attributes, even for the chosen partner. These findings, which are hard to explain in terms of dissonance theory, support the present model's concept of postdecisional implementation orientation.

We greatly appreciate the help of Angelika Lengfelder, Erika Regnet, and Barbara Schöpke, who ably served as experimenters. Thanks are also due to Merry Bullock, Heinz Heckhausen, Robin Vallacher, and two anonymous reviewers, who made valuable comments on earlier drafts of this paper. Requests for reprints should be sent to Jürgen Beckmann or Peter M. Gollwitzer, Max-Planck-Institut für Psychologische Forschung, Leopoldstrasse 24, D-8000 München 40, Federal Republic of Germany.

Most models of action are of a strict vertical, hierarchical nature (e.g., Carver & Scheier, 1981; Gallistel, 1980; 1985; Hacker, 1985; Semmer & Frese, 1985). When executing a course of action, the individual is assumed to advance from a concern with abstract, superordinate, higher-level goals to concrete, subordinate, lower-level goals. The temporal, horizontal dimension of action is addressed solely with respect to the organization of single acts or action units within the course of behavior (von Cranach, 1982). Processes by which individuals advance from deliberating possible action goals to committing themselves to one course of action, and finally to initiating this action, are largely neglected.

Recently, a model of action has been proposed (Heckhausen, 1986) that provides a temporal, horizontal perspective. An action is segmented into four subsequent action phases. The first is the "predecisional" phase. Here, the individual deliberates potential action goals. When a firm commitment to pursue one of these goals is formed, a transition to the "postdecisional" (but still "preactional") phase takes place. This second phase ends, and the "behavioral" or "actional" phase begins, when the individual initiates a course of action implied by the chosen goal. Once the action is executed and leads to some kind of outcome, the individual reaches the so-called "postactional" phase.

It is postulated that each different phase is accompanied by a distinct state of mind (Heckhausen & Gollwitzer, 1987). The characteristics of these different states of mind (*Bewußtseinslage*; Marbe, 1901) reflect the action-related tasks that typically must be solved in order to complete each phase. That is, the individual is assumed to be furnished with a readiness or preparedness to meet these phase-typical demands.

The present paper addresses the first two phases: the predecisional phase and the postdecisional/preactional phase. In the predecisional phase, the individual's task is to make a personally correct choice. One goal must be selected from a number of possible action goals, or one must decide whether to act at all. In both cases, the likelihood of a personally correct decision is enhanced when the attainability of the possible action outcomes and the desirability of their potential consequences are deliberated as realistically as possible. The probability of attaining a particular outcome needs to be assessed without self-serving bias, and the incentives associated with the outcome (i.e., attributes or consequences that make it attractive or unattractive) need to be appraised critically. Accordingly, Heckhausen and Gollwitzer (1987) argue that the optimal state of mind to solve this special task should, among other things, be characterized by impartial processing of the information available on the choice alternatives.

In the postdecisional/preactional phase, quite a different task is confronted: The chosen goal now needs to be implemented. Accordingly, the optimal state of mind for the postdecisional phase is one that is oriented toward processing information relevant to attaining the goal. Impartial processing of information about possible outcomes is no longer functional; rather, a one-sided concern for the chosen action goal should be observed.

Recent studies by Heckhausen and Gollwitzer (1987) and by Gollwitzer, Heckhausen, and Ratajczak (1987) have focused on the content of subjects' thoughts before and after making a decision. Before making a decision, individuals were found to focus on weighing incentives and estimating expectancies. These concerns were found to yield to a marked focus on implemental issues once a decision had been made. However, these studies did not address the question of *how* available pieces of information are processed, and thus do not speak to the issue of whether predecisional and postdecisional processing differs with respect to impartiality.

The claim of partial information processing after a decision is not new. Researchers in the tradition of dissonance theory (Festinger, 1957) postulated that postdecisional individuals seek to reduce dissonance that results from being aware of negative attributes of the chosen alternative and positive attributes of the nonchosen, rejected alternative. In support of this line of thought, postdecisional individuals have been found to increase the attractiveness of the chosen alternative and to decrease the attractiveness of the nonchosen alternative (Brehm, 1956); in addition, postdecisional people selectively seek information that potentially supports their choice and actively avoid nonsupportive information (Ehrlich, Guttman, Schönbach, & Mills, 1957; Frey, 1986). These findings have been interpreted either in terms of justifying one's decision in order to serve a need for consistency (Insko, Worchel, Folger, & Kutkus, 1975), or in terms of justifying one's decision for the purpose of arriving at an "unequivocal action orientation" (Jones & Gerard, 1967; see also Beckmann & Irle, 1985; and Wicklund & Frey, 1981), thus precluding further deliberation of the choice alternatives.

Our conceptualization of "postdecisional partiality" goes beyond both of these views. We believe that in the postdecisional/preactional phase the individual is first and foremost interested in implementing the chosen action goal, and that it is this implemental concern that leads to partial information processing in favor of the chosen alternative, rather than a need for consistency or justification. Thus, whenever information on choice alternatives is presented postdecisionally, information on the chosen alternative should be encoded, as long as the individual has reason to assume that this additional information

may facilitate the implementation of the chosen action goal. Whereas adherents of dissonance theory, as well as Jones and Gerard (1967), postulate that after having made a decision, the individual "screens and censors information not according to its merits, but according to its usefulness in justifying the decision" (Jones & Gerard, 1967, p. 196), we hold that information is censored according to its usefulness in implementing the decision, regardless of whether or not this information justifies the decision. In our view, general postdecisional justification appears rather dysfunctional, because it uses information-processing capacity that should be invested in implementation. Furthermore, it is unnecessary as long as the predecisional phase has been efficient in producing a clear-cut decision structure (i.e., sufficient divergence in attractiveness of the chosen and nonchosen alternatives). Only if this is not the case, or if decision-inconsistent information is encountered after the decision has been made, should a need for justifying the decision arise.

Although dissonance researchers have focused for the most part on postdecisional issues, Festinger (1964) reported some studies that also addressed the functioning of predecisional subjects. Festinger postulated that impartial information processing occurs prior to making decisions, and equated a high degree of impartiality with stable estimates of the choice alternatives' attractiveness. In other words, an increase in divergence in attractiveness between a chosen and a nonchosen alternative should not occur until a decision has been made; that is, no change in divergence is postulated for the time period prior to making a decision (Festinger, 1964, p. 4). Empirical support for Festinger's thesis has been inconsistent. Whereas researchers in the tradition of dissonance theory have found support for the thesis that increases in divergence do not occur until a decision has been made (Davidson & Kiesler, 1964; Jecker, 1964; Walster & Festinger, 1964), others, guided by conflict theory, have observed a predecisional increase in divergence (Janis & Mann, 1968; Mann, Janis, & Chaplin, 1969).

From the perspective of our model of action phases, these conflicting findings are not at all surprising. In our view, "predecisional impartiality" refers to an orientation toward a thorough and unbiased deliberation of the outcomes and consequences that potentially arise from choosing and implementing one action goal or the other. This implies that changes (or no changes) in attractiveness of the deliberated choice alternatives may occur, regardless of whether the processing of information on these alternatives is unbiased or not. In other words, changes in attractiveness primarily depend on the content of the information (i.e., whether it is perceived as more or less positive) provided, and not on how it is processed.

It seems, then, that changes in divergence of attractiveness are not the appropriate test of whether predecisional information processing is impartial or partial. Rather, the relative amount of information that is processed on each of the choice alternatives needs to be considered. In the case of impartial information processing, people should pay attention to each of the choice alternatives (Brock & Balloun, 1967; Gerard, 1967), and should therefore recall the information provided on each choice alternative equally well. In contrast, information presented postdecisionally should be differentially encoded and differentially recalled.

The present experiment was designed to test the idea that the predecisional state of mind is characterized by unbiased, impartial processing, whereas the postdecisional/preactional state of mind is associated with partial information processing favoring the chosen alternative. Most importantly, we wanted to demonstrate that this partiality stems from a concern for implementation of the chosen action goal, and *not* from an effort to justify one's choice.

We proceeded as follows: First, we tried to find a choice paradigm that would allow us to place subjects in a postdecisional/preactional state of mind. Choice paradigms that request subjects to choose one of two (or more) attractive objects (Brehm, 1956) are not appropriate, because the decision and its implementation coincide, and a postdecisional/preactional state of mind cannot be discerned. In our choice paradigm, male subjects were led to believe that they would conduct an informal conversation with a female partner subject of their choice. Accordingly, after choosing a partner, but before initiating a conversation, subjects were in a postdecisional/preactional state of mind.

The information materials included photographs of the available partner subjects and written information about their personal attributes, professional interests, hobbies, and family background. The same amount of information about each partner subject was given. Both were portrayed as attractive, so that the choice was difficult and would require deliberation.

To measure subjects' information processing, our central test measures were cued and free recall of the written information provided on each partner subject. As compared to the attention procedure employed by Gerard (1967) or Brock and Balloun (1967), recall measures allow the determination of whether postdecisional/preactional partiality is an attempt to justify one's choice, or instead a consequence of implemental concerns. For this purpose, one simply needs to vary the point in time when recall is requested. Accordingly, we established the following experimental design, which included three subject groups: A predecisional group of subjects received the written information prior to the decision, and were asked to recall this information

before the decision had been made. A second predecisional group received the information on the partner subjects prior to making a decision, but recalled it after the decision. For the postdecisional group of subjects, the information was received and recalled after a choice had been made on the basis of the partner subjects' photographs.

The predictions from our sequential model of action were as follows: Subjects in the postdecisional group should try to prepare themselves for the forthcoming informal conversation with the chosen partner subject. Accordingly, they should focus on the chosen partner's attributes and should generally ignore the nonchosen partner subject's attributes. Consequently, high recall scores should be observed for the chosen partner subject's attributes and lower scores for the nonchosen partner subject. Subjects in the two predecisional groups should, on the one hand, attend to information on both partner subjects (the chosen and the nonchosen) about equally well, since both groups would still be in a predecisional state of mind. As a consequence, their recall scores for the attributes of both partner subjects should be about equally high.

If postdecisional partiality is simply a matter of justifying one's decision, as dissonance theorists would have it, a different pattern of data should prevail. The postdecisional group as well as the critical group of subjects (predecisional processing of information, but postdecisional recall) should feel a need to justify their choice. Accordingly, with respect to subjects' recall scores, the justification position would predict a partiality effect for both postdecisional recall groups. That is, attributes of the chosen alternative should be more readily retrieved than attributes of the nonchosen alternative.

Furthermore, the justification position implies that after a decision has been made, subjects should recall more positive than negative information about the chosen alternative and more negative than positive information about the nonchosen alternative. For the implementation position, the positivity-negativity of the information provided should be irrelevant: The critical factor should be whether the information provided speaks to implemental issues. Accordingly, if negative information should highlight possible difficulties in implementation, it might even be preferred to positive information.

Concerning recall of information about the nonchosen alternative, our predictions were rather cautious. Asking subjects to read information on the nonchosen partner, as well as having them recall the nonchosen partner's attributes, should force subjects' attention on the nonchosen partner. This forced concern should interfere with implementation, especially if positive aspects of the nonchosen alternative

were to become salient. Hence, one might expect postdecisional subjects to recall predominantly negative attributes of the nonchosen partner subject. Thus, concerning the nonchosen alternative, a finding compatible with the justification position might be expected.

Over and above these considerations, we expected the processing of information presented after the decision to be a function of the instrumentality of this information for implementing the decision. Thus, postdecisional subjects' partiality (i.e., predominant concern with information about the chosen alternative) should result from a concern with items of information relevant to the implementation of the decision.

METHOD

SUBJECTS

A total of 54 male students in engineering and the natural sciences participated. Subjects' ages ranged from 19 to 30 years, with a mean of 23 years. They received 20 Deutsche Mark (approximately \$10) for participation.

DESIGN

Subjects were randomly assigned to one of three experimental conditions. In the "pre-pre" condition, relevant information (photographs of two potential partner subjects, information about attributes of both partner subjects) was received and recalled prior to making a decision. In the "pre-post" condition, information was received prior to making a decision, but was recalled after the decision had been made. Finally, in the "post-post" condition, only the photographs were shown prior to making a decision. The information on the partner subjects' attributes was received and recalled after the decision had been made.

PROCEDURE

Two female experimenters conducted the study. Experimenter 2 greeted subjects (two subjects were invited for each experimental session) upon arrival, and seated them in a waiting room. There she explained that the subjects would be participating in a sequence of unrelated

experiments currently being conducted at the Max-Planck-Institute. Then she accompanied the subjects to the laboratory and ushered them into separate experimental cubicles. From then on, the subjects received "canned" instructions via intercom; these were read by Experimenter 1.

After having introduced herself, Experimenter 1 explained that the first study concerned an evaluation of how real estate agents fashion their advertisements. Actually, this part of the procedure served the purpose of assessing baselines in recall memory. Experimenter 1 explained that a standard questionnaire had been developed to present information relevant to potential real estate customers. Subjects were told that their task was to evaluate this kind of presentation. Each subject was asked to open an envelope that had been placed on his desk; this envelope contained a questionnaire form specifying 20 aspects of a given house. For each of the 20 aspects, multiple answers were provided, and one or more of these carried a check mark. For instance, the question "What color does the bathroom have?" was accompanied by the potential answers "blue," "green," "red," "white," "brown," and "beige," and the color "blue" was checked. Altogether, the questionnaire contained 39 check marks—that is, 39 bits of information. Subjects were given 4 minutes to study this questionnaire before putting it back into its envelope. Thereafter, subjects were asked to indicate (on a 6-point scale) how much they liked this style of presentation of information.

Following a 5-minute distractor task (subjects assessed the number of planes of each of several solid geometrical figures), subjects were given 4½ minutes to write down all of the information on the house they could remember (free-recall baseline), and were then given 4 minutes to fill in all the check marks that they remembered on a blank questionnaire form (cued-recall baseline).

After these baseline memory measures had been obtained, Experimenter 1 said that the first study was ended and began to explain the "next" study. This study purportedly investigated first impressions of other people. Subjects were told that they would meet a female partner subject with whom they should engage in an informal conversation for about 30 minutes. Thereafter, the experimenter would ask them about their feelings and thoughts with respect to the partner subject, thus trying to learn something about how people form first impressions.

The experimenter continued by stating that subjects could choose as a partner subject one of two female students (Miss Schmidt and Miss Fischer) who regularly served as partner subjects in this study. To facilitate this choice, both female partner subjects had filled out a

questionnaire that explored their personal attributes. These questionnaires would be given to subjects along with photographs of Miss Schmidt and Miss Fischer.

In both the pre-pre condition and the pre-post condition, each subject was then asked to open an envelope containing two questionnaires and a photograph of each of the partner subjects. The questionnaire containing information on Miss Schmidt was printed on yellow paper, whereas the questionnaire with information on Miss Fischer was printed on blue paper. The questionnaires were printed on different colors of paper to facilitate keeping the information presented on Miss Schmidt and Miss Fischer apart by individuated organization of the two partner subjects' attributes (Pryor & Ostrom, 1981).

The questionnaires had the same format as the real estate questionnaire described above. Each—one presumably completed by Miss Schmidt, the other by Miss Fischer—contained 15 questions, such as "What are your prominent personality attributes?", "What are your favorite leisure-time activities?", "How many brothers and sisters do you have?", and "What kind of people do you get along with most easily?" Each of these questions was accompanied by multiple possible answers, and one or more of these (albeit different ones) had presumably been checked by Miss Schmidt and Miss Fischer. Both partner subjects had made 32 check marks, so that 32 pieces of information were provided on each partner subject.

Check marks were placed in a manner so that both partner subjects were highly attractive, as was established with a group of pilot subjects. We wanted to make the decision difficult in order to encourage deliberation and to prevent snap judgments. Therefore, the questionnaires of both Miss Schmidt and Miss Fischer contained more clearly positive than negative attributes. For each partner subject, there were three clearly positive (Miss Schmidt: "friendly", "energetic," "confident"; Miss Fischer: "attentive," "cheerful," "practical-minded"), and two clearly negative personality attributes (Miss Schmidt: "hot-tempered," "insecure"; Miss Fischer: "credulous," "negligent"). These attributes were selected according to the results of Schönbach's (1972) study on the categorization of adjectives (cf. also Anderson, 1968). The positive-negative categorization of the adjectives used in our study was further supported by the judgments of 15 male students, who were asked to rate these adjectives according to how negative or positive they were.

Subjects were urged to read the questionnaire carefully, and were cautioned against making a premature decision. The experimenter said that such premature decisions would increase the risk of an unfavorable choice and should therefore be avoided. The experimenter

emphasized that there would be ample time for deliberation once subjects finished studying the questionnaires, and that she would not be prepared to record their decision until the light on a small box placed in front of each subject changed from red to green. Therefore, subjects should wait for the green light before making up their minds.

In the pre-post condition, the experimenter gave subjects 8 minutes to study the questionnaires and then asked them to put the questionnaires back into their envelope. She then waited 90 seconds before switching the light from red to green and asking subjects to indicate their decision. After a further waiting period of 1 minute, she announced that the conversation would begin in a few minutes, and that subjects should fill this time with working again on a series of solid geometrical figures (i.e., counting the number of planes for each figure).

After 5 minutes of this distractor task, subjects were asked to recall what they had read about Miss Schmidt and Miss Fischer. To obtain free-recall scores, subjects were instructed to write down all they remembered about Miss Schmidt on an empty yellow sheet of paper; for Miss Fischer, an empty blue sheet was provided. Ten minutes later, blank versions of the questionnaires on Miss Schmidt's and Miss Fischer's attributes were handed out, and subjects were asked to fill in the respective check marks. Subjects spent 8 minutes on this cued-recall task. Subsequently, a final questionnaire had to be answered that raised the following questions: "How important was it for you to choose the partner subject you like the most?", "How hard did you try to make the right decision?", "How difficult was the decision?", "How extensive were your deliberations?", "Did you have an early preference?", and "Was there any information that precluded the choice of one of the two partner subjects?" (All of these questions were accompanied by 10-point scales.) Upon completion of this questionnaire, the experiment was ended, and subjects were thoroughly debriefed by Experimenter 2.

In the pre-pre condition, the course of events took a slightly different twist. After subjects had studied the questionnaires on Miss Schmidt and Miss Fischer, the experimenter made additional efforts to encourage subjects to suspend their decision. Not only did she keep on the red light on the little box placed in front of each subject; in addition, she created hopes that subjects would actually have a chance to meet both partner subjects before deciding in favor of one of them. She stated, "I have just asked my colleague whether there is a chance to introduce both partner subjects to you before you decide in favor of one of them. Meeting these students face to face should certainly facilitate your decision." The experimenter continued that

until her colleague returned from discussing this plan with both partner subjects, subjects should busy themselves with a couple of tasks. Then subjects were asked to work on the distractor task. As in the pre-post condition, this was followed by the free- and cued-recall tests and the final questionnaire.

In the post-post condition, the questionnaires were not presented to subjects prior to their making a decision. Only the photographs of Miss Schmidt and Miss Fischer were shown. Subjects were allowed to look at these pictures and, after they had put them back into the envelope, were given 90 seconds to think about who they wanted to choose. Then the red light was switched to green, and subjects were asked to indicate their decision. Subsequently, subjects received both questionnaires with information on Miss Schmidt and Miss Fischer and were given 8 minutes to study them. After completing the subsequent distractor task, they were asked for free and cued recall of the written information provided.

RESULTS

EQUIVALENCE OF GROUPS

No significant differences were found for most of the items on the final, postexperimental questionnaire. There were no differences between groups with respect to estimated importance of making the correct decision, estimated intensity of deliberation, whether there was an early preference, and whether some information precluded the choice of one of the presented partner subjects (all overall F 's < 1.2, p 's > .30). Although Miss Fischer was chosen slightly more often than Miss Schmidt (28 vs. 26 choices), this did not differ across conditions ($\chi^2 = 1.04$, $p = .60$).

The estimated difficulty of the decision tended to differ across conditions, $F(2, 51) = 2.95$, $p < .07$. Subjects in the pre-pre condition found the decision to be more difficult ($M = 6.8$) than did subjects in the pre-post condition ($M = 4.9$) and subjects in the post-post condition ($M = 5.2$), both t 's (51) > 1.9, p 's < .07. A similar data pattern was found with respect to the question of whether subjects found the available information to be sufficient, $F(2, 50) = 3.13$, $p < .06$. Subjects who still had to make a decision not only found the decision to be more difficult than subjects who had already made up their minds, but also considered the available information to be comparatively less sufficient (M for pre-pre = 3.7, M for pre-post = 5.4, M for post-post = 5.2), both t 's (50) > 2.0, p 's < .06. These findings suggest that

subjects in the pre-pre condition followed our request to suspend their decisions.

Recall performance on the real estate questionnaire was scored according to a strict criterion. Only information items that were completely correctly reproduced were counted. Subjects in the three experimental groups tended to differ in the number of pieces of information that were correctly recalled in the baseline cued-recall test, overall $F(2, 51) = 3.1, p < .06$. Subjects in the pre-post group ($M = 37.1$) recalled more than subjects in the post-post group ($M = 32.9$), $t(51) = 2.5, p < .05$, with subjects in the pre-pre group ($M = 34.4$) being placed in between. When analyzing the relation of subjects' cued-recall performance to the respective dependent measure (i.e., total cued-recall performance on both critical questionnaires), we observed a significant correlation ($r = .27, p < .05$). Accordingly, for all analyses of variance on the dependent cued-recall measure, we employed subjects' performance on the real estate cued-recall task as a covariate for subjects' cued-recall performance on the partners' attributes. Because similar differences among the experimental groups were found with respect to recall in the free-recall baseline measure, overall $F(2, 51) = 2.3, p = .11$, this measure was also employed as a covariate.

DEPENDENT VARIABLES: CUED RECALL AND FREE RECALL¹

We conducted a 3 (experimental condition: pre-pre, pre-post, post-post) \times 2 (partner: chosen vs. nonchosen) analysis of covariance on subjects' cued recall on the partner subjects' attributes (see Figure 1). Cued-recall scores were determined by the same strict criterion employed for the baseline measure. As expected, a significant interaction effect emerged, $F(2, 51) = 22.1, p < .001$; this was due to pronounced partiality in favor of the chosen partner subject in the post-post condition. This particular pattern of data also led to a significant main effect for partner, $F(1, 51) = 42.2, p < .001$. There was no significant main effect for experimental condition ($p > .50$).

Supporting the hypothesis that information processing—once a decision had been made—would be partial in favor of the chosen partner subject, planned comparisons revealed that attributes of the chosen partner subject were recalled better in the post-post condition ($M = 31.3$) than in the pre-pre condition ($M = 23.8$), $t(33) = 3.2, p < .005$, whereas attributes of the nonchosen partner subject were recalled much more poorly (M for post-post = 11.9 vs. M for pre-pre = 21.9), $t(33) = 3.5, p < .001$.

1. All reported means were adjusted for baseline scores.

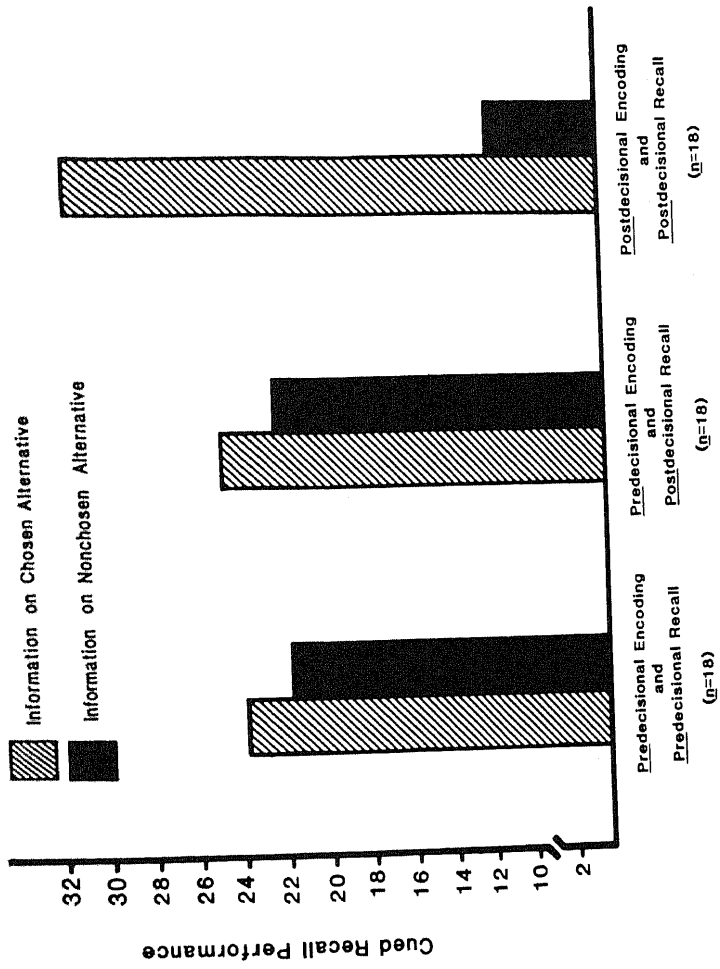


FIGURE 1
 Mean cued-recall performance of the information provided for the pre-pre, pre-post, and post-post conditions.

According to our conceptualization of postdecisional partiality, recall in the pre-post condition should significantly differ from that in the post-post condition, whereas no differences between the pre-post condition and the pre-pre condition should be found. Again, planned comparisons revealed better recall of the chosen partner subject's attributes in the post-post condition ($M=31.3$) as compared to the pre-post condition ($M=24.7$), $t(33)=4.4$, $p<.001$, whereas the reverse was found for the nonchosen partner subject (M for post-post=11.9 vs. M for pre-post=22.4), $t(33)=3.9$, $p<.001$. As expected, planned comparisons of the pre-pre and pre-post conditions failed to show significant effects (both t 's < 1.3 , both p 's $> .10$).

This pattern of data suggests that postdecisional partiality is not a phenomenon of justifying one's decision; rather, postdecisional partiality seems to result from an orientation toward implementing the chosen action goal. Contrasting recall for the chosen partner subject's attributes with recall for the nonchosen partner subject's attributes within each experimental condition revealed the following t scores: pre-pre condition, $t(17)=.88$, $p=.39$; pre-post condition, $t(17)=1.8$, $p<.10$; and post-post condition, $t(17)=7.4$, $p<.001$.

Similar analyses of the free-recall measure revealed a pattern of results that was identical to the cued-recall pattern (see Figure 2). The only difference between the two recall measures was a general superiority of cued over free recall, reflected in a significant main effect of this factor in a 3 (experimental condition) \times 2 (partner) \times 2 (cued vs. free recall) analysis of covariance, $F(1, 50)=13.4$, $p<.001$.

CUED RECALL OF POSITIVE VERSUS NEGATIVE ATTRIBUTES²

To amass further support for our implementation explanation of the present pattern of data, recall of the three positive and two negative personality attributes was analyzed. Since the number of presented positive and negative attributes differed, mean percentage of recall of each category was calculated for each experimental group (see Table 1). A 3 (experimental condition) \times 2 (partner) \times 2 (attributes: positive vs. negative) multivariate analysis of variance revealed a significant main effect for partner, $F(1, 51)=15.4$, $p<.001$, qualified by the expected significant interaction with experimental condition, $F(2, 51)=4.7$, $p<.02$.

In addition, there was only a significant main effect for attributes,

2. For the following analyses, only cued-recall scores were considered, since free-recall performance tended to be negligible for all groups of subjects.

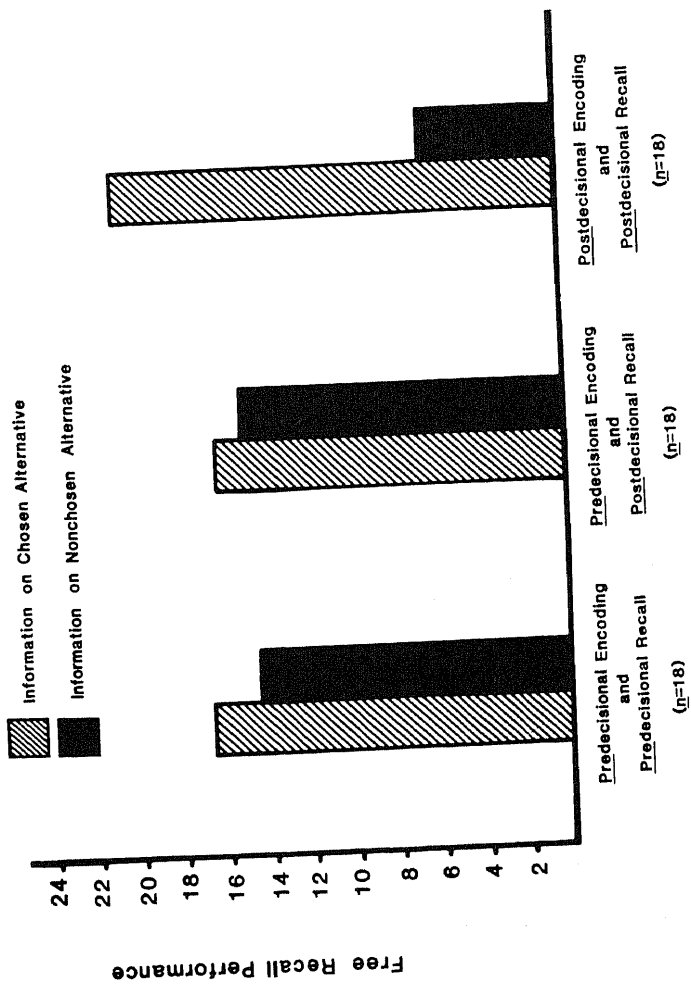


FIGURE 2
 Mean free-recall performance of the information provided for the pre-pre, pre-post, and post-post conditions.

TABLE 1
Percentage of Cued Recall of Positive and Negative Attributes for
the Chosen and Nonchosen Partner Subjects

TYPE OF INFORMATION	EXPERIMENTAL CONDITIONS		
	PRE-PRE	PRE-POST	POST-POST
Chosen partner			
Positive attributes	53.7	33.3	53.7
Negative attributes	55.6	72.2	75.0
Nonchosen partner			
Positive attributes	38.9	33.3	16.7
Negative attributes	50.0	61.1	38.9

$F(1, 51) = 27.5$, $p < .001$, but no interaction with partner. Generally, more negative ($M = 58.8$) than positive attributes ($M = 38.3$) were recalled. The significant interaction effect with experimental condition, $F(2, 51) = 3.9$, $p < .03$, was due to the fact that in both postdecisional recall conditions fewer positive attributes (M for pre-post = 33.3; M for post-post = 35.2), and more negative attributes (M for pre-post = 66.7; M for post-post = 57.0) were recalled than in the predecisional recall condition (M for pre-pre positive = 46.3, M for pre-pre negative = 52.8). No other interaction effects were significant.

These results suggest that superior recall of the chosen partner subject's attributes in the post-post condition was not due to a one-sided recall of the partner subject's positive attributes, as the justification view would have it. As Table 1 shows, subjects in the post-post condition even recalled more negative than positive attributes of the chosen partner subject, $t(17) = 2.7$, $p < .02$. Similarly, subjects in the pre-post condition recalled more negative than positive attributes of the chosen partner subject, $t(17) = 4.3$, $p < .001$, whereas no difference between recall of positive and negative attributes was found for the pre-pre group ($p > .85$).

With respect to the nonchosen partner subject, the pattern of data was very similar. More negative than positive attributes were recalled in the pre-post condition, $t(17) = 2.4$, $p < .03$, and in the post-post condition, $t(17) = 2.5$, $p < .03$, whereas no significant difference was found in the pre-pre group ($p > .20$).

IMPLEMENTAL RELEVANCE OF RECALLED INFORMATION

We expected the information recalled by subjects in the post-post condition to be of higher implemental relevance for the chosen part-

ner than for the nonchosen partner. In order to test this assumption, we asked independent raters (60 students) to evaluate each single item experimental subjects had received as information on both partner subjects. Rater subjects had to judge the instrumentality of these items, both with respect to their relevance to making the correct decision between partner subjects (10-point scale), and with respect to their relevance to conducting a smooth conversation. The ratings obtained were then used to identify implementation-related items. For each item, the first rating was subtracted from the second. Items with a positive difference score were classified as implementation-related.

Each experimental subject's recall performance was then scrutinized with respect to what kind of implemental items had been recalled. Each item was assigned its difference score as obtained in the rating study; these scores were added up and divided by the total number of recalled implemental items. This index of implemental relevance of recalled information was finally subjected to a 3 (experimental condition) × 2 (partner) analysis of variance. The results are depicted in Table 2.

No significant main effect was found (both F 's < 1.4, both p 's > .25), but a significant interaction effect emerged, $F(2, 51) = 4.9$, $p < .02$. This effect was due to significantly higher scores for the chosen partner in the post-post condition as compared to the pre-pre condition, $t(34) = 3.1$, $p < .005$, and the pre-post condition, $t(34) = 2.9$, $p < .01$. Although lower scores were found for the nonchosen partner in the post-post condition as compared to the other two conditions, these differences failed to reach significance (both t 's < 1.5, both p 's > .14). The difference between the pre-pre and the pre-post conditions were significant neither for the chosen nor for the nonchosen partner (both t 's < .7, both p 's > .50). In addition, the differences between the scores for the chosen and nonchosen partners in the post-post condition was clearly significant, $t(17) = 2.8$, $p < .02$, whereas no significant differences were found for the other two conditions (both t 's < .80, both p 's > .45).

TABLE 2
Implemental Relevance of Recalled Information

TYPE OF INFORMATION	EXPERIMENTAL CONDITIONS		
	PRE-PRE	PRE-POST	POST-POST
Chosen partner	1.40	1.52	1.93
Nonchosen partner	1.59	1.60	1.17

DISCUSSION

The results of the present study support the idea that postdecisional partiality is due to a concern with implementation of the chosen action goal, rather than to a need for justification. Increased recall of information concerning the chosen alternative occurred when information was made available postdecisionally, but not by postdecisional retrieval of predecisionally encoded information. When the information was received before a decision had been made, it was recalled equally well before or after the decision. Information recalled on the chosen partner subject as compared to the nonchosen partner subject was found to be of higher implemental relevance only for those subjects who received and recalled information after the decision had been made. These findings support the view that postdecisional processing of information is partial so that the chosen action alternative may be effectively implemented.

In the present study, both postdecisional groups had also to deal with information that was inconsistent with their choice. For the chosen partner subject, inconsistent information was represented by negative personality attributes (e.g., "hot-tempered," "insecure"), whereas for the nonchosen partner subject inconsistent information was seen in positive personality attributes (e.g., "friendly," "confident"). In contrast to the justification position, we observed that subjects did not recall more consistent than inconsistent information on the chosen partner subject. On the contrary, significantly more inconsistent than consistent information was recalled. This finding raises problems for the justification position, but can easily be accommodated by the implementation view. Apparently, negative attributes such as "hot-tempered" were to be considered when talking to the chosen partner; otherwise, the conversation might not turn out to be very pleasant. Positive attributes such as "friendly," on the other hand, raised no difficulties, but instead guaranteed a smooth conversation. Therefore, the subjects did not have to pay special regard to these attributes when planning the forthcoming conversation. In other words, the implemental value of the positive attributes was lower than that of the negative attributes, and therefore they were recalled more poorly than negative attributes.

However, negative attributes should be implementation-relevant in the case of the chosen partner only. Thus the implementation view predicts no better recall of negative attributes concerning the nonchosen partner. But the findings showed better recall of negative than positive attributes in the case of the nonchosen partner in both postdecisional conditions. One might suspect a general bias toward better

recall of negative attributes in these two conditions. However, there is some reason to assume that the better recall of negative than of positive attributes was mediated differentially for the chosen and the nonchosen partner.

For the nonchosen partner, negative attributes were choice-consistent, whereas positive attributes were choice-inconsistent. Thus, more choice-consistent than choice-inconsistent information was recalled for the nonchosen partner. This clearly supports the justification position, but it does not contradict our implementation point of view. According to this view, postdecisional individuals should generally try to focus on the chosen alternative, since the nonchosen alternative is of no implemental relevance. However, if they are forced to think about attributes of the nonchosen alternative (as was done in both postdecisional recall groups of the present experiment), postdecisional individuals should try to terminate this concern as quickly as possible. This is done most effectively by elucidating the negative attributes of the nonchosen alternative—that is, by justifying its rejection.

The present finding raises the question of *when* postdecisional individuals' justifying needs become predominant and "overrun" implemental concerns. For this phenomenon to occur, do postdecisional individuals need to proceed to the actional phase and run into difficulties when implementing the chosen goal? And do they have to feel responsible for these difficulties (Wicklund & Brehm, 1976)? Or do they have to proceed to the postactional phase and achieve outcomes or experience consequences that do not match the goal state they had envisioned when making a decision? And do these negative consequences have to be foreseeable (Wicklund & Brehm, 1976)? Or does a strong need for justification arise even in the postdecisional/preactional phase, if the individual is forced to deal with information that is unambiguously inconsistent with the chosen alternative?

Clearly, the present experimental study was not designed to answer these questions. It was conducted to explore postdecisional individuals' partiality in information processing, based on the idea that there is primacy of phase-congruent information processing. In other words, people in a *predecisional* state of mind are assumed to analyze provided information in terms of what is said about the evaluated choice questions' incentive value. On the other hand, people in a *postdecisional* state of mind are assumed to scrutinize the information at hand with respect to what is said about how to implement the chosen goal option. This line of thought implies that postdecisional partiality is no effort to justify one's choice, but instead originates from a state of mind that is oriented toward processing implemental

information. The presented model of action phases provides a perspective on human action that differs from the common hierarchical action models. Whereas the latter models are concerned with the individual's moving up and down from goal levels of various abstraction, the present model tries to specify the changes in a person's commitment to an envisioned goal state. Most interestingly, this route from wishes to actions seems to be accompanied by changes in the individual's cognitive functioning. The present data exemplify this assumption with respect to impartiality of information processing associated with a predecisional as compared to a postdecisional/preactional state of mind.

REFERENCES

- Anderson, N. H. (1968). Likeableness ratings of 555 personality-trait words. *Journal of Personality and Social Psychology, 9*, 272-279.
- Beckmann, J., & Irle, M. (1985). Dissonance and action control. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 129-150). Berlin: Springer-Verlag.
- Brehm, J. W. (1956). Postdecision changes in the desirability of alternatives. *Journal of Abnormal and Social Psychology, 52*, 384-389.
- Brock, T. C., & Balloun, J. L. (1967). Behavioral receptivity to dissonant information. *Journal of Abnormal and Social Psychology, 6*, 413-428.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.
- Davidson, J. R., & Kiesler, S. B. (1964). Cognitive behavior before and after decisions. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 45-61). Stanford, CA: Stanford University Press.
- Ehrlich, D., Guttman, J., Schönbach, P., & Mills, J. (1957). Postdecision exposure to relevant information. *Journal of Abnormal and Social Psychology, 54*, 98-102.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L. (Ed.). (1964). *Conflict, decision, and dissonance*. Stanford CA: Stanford University Press.
- Frey, D. (1986). Recent research on selective exposure to information. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 41-80). New York: Academic Press.
- Gallistel, C. R. (1980). *The organization of action: A new synthesis*. Hillsdale, NJ: Erlbaum.
- Gallistel, C. R. (1985). Motivation, intention, and emotion: Goal-directed behavior from a cognitive-neuroethological perspective. In M. Frese & J. Sabini (Eds.), *Goal-directed behavior: The concept of action in psychology* (pp. 48-64). Hillsdale, NJ: Erlbaum.
- Gerard, H. B. (1967). Choice difficulty, dissonance, and the decision sequence. *Journal of Personality, 35*, 91-108.
- Gollwitzer, P. M., Heckhausen, H., & Ratajczak, H. (1987). *From weighing to willing: Approaching a change decision through pre- or postdecisional mentation*. Unpublished manuscript. Max-Planck-Institut für psychologische Forschung, München.

- Hacker, W. (1985). Activity: A fruitful concept in industrial psychology. In M. Frese & J. Sabini (Eds.), *Goal-directed behavior: The concept of action in psychology* (pp. 262-283). Hillsdale, NJ: Erlbaum.
- Heckhausen, H. (1986). Why some time out might benefit achievement motivation research. In J. H. L. van den Bercken, Th. C. M. Bergen, & E. E. J. De Bruyn (Eds.), *Achievement and task motivation* (pp. 7-39). Lisse, The Netherlands: Swets & Zeitlinger.
- Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion*, 11, 101-120.
- Insko, C. A., Worchel, S., Folger, R., & Kutkus, A. (1975). A balance theory interpretation of dissonance. *Psychological Review*, 82, 169-183.
- Janis, I. L., & Mann, I. (1968). A conflict-theory approach to attitude change and decision-making. In A. Greenwald, T. Brock, & T. Ostrom (Eds.), *Psychological foundations of attitudes* (pp. 327-360). New York: Academic Press.
- Jecker, J. D. (1964). The cognitive effects of conflict and dissonance. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 21-30). Stanford CA: Stanford University Press.
- Jones, E. E., & Gerard, H. B. (1967). *Foundations of social psychology*. New York: Wiley.
- Mann, L., Janis, I. L., & Chaplin, R. (1969). Effects of anticipation of forthcoming information on predecisional processes. *Journal of Personality and Social Psychology*, 11, 10-16.
- Marbe, K. (1901). *Experimentell-psychologische Untersuchungen über das Urteil: Eine Einleitung in die Logik*. Leipzig: Engelmann.
- Pryor, J. B., & Ostrom, T. M. (1981). The cognitive organization of social information: A converging operations approach. *Journal of Personality and Social Psychology*, 41, 628-641.
- Schönbach, P. (1972). Likeableness ratings of 100 German personality-trait words corresponding to a subset of Anderson's 555 trait words. *European Journal of Social Psychology*, 2, 327-334.
- Semmer, N., & Frese, M. (1985). Action theory in clinical psychology. In M. Frese & J. Sabini (Eds.), *Goal-directed behavior: The concept of action in psychology* (pp. 296-310). Hillsdale, NJ: Erlbaum.
- von Cranach, M. (1982). The psychological study of goal-directed action: Basic issues. In M. von Cranach & R. Harré (Eds.), *The analysis of action* (pp. 35-73). Cambridge, England: Cambridge University Press.
- Walster, E., & Festinger, L. (1964). Decisions among imperfect alternatives. In L. Festinger (Ed.), *Conflict, decision, and dissonance* (pp. 131-145). Stanford, CA: Stanford University Press.
- Wicklund, R. A., & Brehm, J. W. (1976). *Perspectives on cognitive dissonance*. Hillsdale, NJ: Erlbaum.
- Wicklund, R. A., & Frey, D. (1981). Cognitive consistency: Motivational versus non-motivational perspectives. In J. P. Forgas (Ed.), *Social cognition: Perspectives on everyday understanding* (pp. 141-163). London: Academic Press.