

VOLUME I

THE HANDBOOK OF SOCIAL PSYCHOLOGY

FOURTH EDITION

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The McGRAW-HILL Companies, Inc.

Boston, Massachusetts Burr Ridge, Illinois Dubuque, Iowa
Madison, Wisconsin New York, New York San Francisco, California St. Louis, Missouri

*Distributed exclusively by Oxford University Press
New York and Oxford*

McGraw-Hill

A Division of The McGraw-Hill Companies



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Acknowledgments appear on page xx and on this page by reference.

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This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 0 DOC DOC 9 0 9 8 7

ISBN 0-19-521376-9

Publisher: *Jane Vaicunas*
Sponsoring editor: *Beth Kaufman*
Marketing manager: *Jim Rozsa*
Project manager: *Ann Morgan*
Production supervisor: *Deb Donner*
Cover and text designer: *Kiera Cunningham*
Project supervision: *The Total Book*
Compositor: *Ruttle, Shaw & Wetherill, Inc.*
Typeface: 9.5/11 Times Roman
Printer: *R. R. Donnelley—Crawfordsville*

Library of Congress Cataloging-in-Publication Data

The handbook of social psychology / [edited by] Daniel Gilbert, Susan Fiske, Gardner Lindzey. — 4th ed.

p. cm.

Previous ed. edited by Gardner Lindzey and Elliot Aronson.

Includes bibliographical references and index.

ISBN 0-19-521376-9 (v. 1 and v. 2)

I. Social psychology. I. Gilbert, Daniel. II. Fiske, Susan T.

III. Lindzey, Gardner.

HM251.H224 1998

302-dc21

97-5436

Distributed exclusively by
Oxford University Press, Inc.
198 Madison Avenue
New York, NY 10016

With offices in:
Oxford New York Toronto Delhi
Bombay Calcutta Madras Karachi
Kuala Lumpur Singapore Hong Kong
Tokyo Nairobi Dar es Salaam Cape Town
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MOTIVATION

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In his chapter on major developments in social psychology for the third edition of the *Handbook of Social Psychology*, Jones (1985) discussed the waxing and waning of research interests. As he and others have noted, motivational analyses were definitely on the wane in the 1970s and 80s, beginning with the advent of attribution theories in the late 1960s and continuing with the subsequent growth of interest in the application of cognitive theories and paradigms to questions about social cognition. Consistent with this observation, if only symbolically, chapters on social motivation were part of the first and second editions of the *Handbook of Social Psychology* (Murphy, 1954; Berkowitz, 1969), but the third edition (1985) did not contain a chapter explicitly focused on motivation. Of course motivational research did not stop in 1969, but there has been a strong resurgence of interest in motivational thinking in the last decade; many of the new issues and approaches covered in this chapter have been introduced since my last contribution to a selective review of research on motivation in social psychology (Pittman & Heller, 1987). Motivational theories of the underpinnings of cognitive analysis and the construction of reality, the control and meaning of behavior, and of the functioning of self and coping with the knowledge of the end of self are currently generating insight, controversy, interest, and an increasing amount of research. Motivation is back.

I thank John Darley for his comments on an early draft of this chapter, Toni Wein for her editorial assistance on several drafts, Danielle Mikesell for her assistance with reference searches, and Robert Bornstein, Paul D'Agostino, Tory Higgins, and Gifford Weary for their constructive comments.

It would not be feasible to cover everything motivational that has happened since 1969 in one chapter. In its broadest sense, motivation is part of a great many analyses, and even alluding to every project with a motivational aspect would not be possible here. But there are a more limited number of research projects in which the motivational assumptions that are made refer to broad or basic motives, more fundamental to the nature of human desire than particular specific motives that are the result of relatively unique or specific current conditions. These projects are the primary subject of this chapter.

THE NATURE OF MOTIVATIONAL APPROACHES

What is a motivational approach? An informal survey of general texts on motivation revealed no single agreed-upon definition. However, Young's (1961) specification of the roles of energizing and directing behavior (p. 24) is representative and serviceable for social psychological analyses if "behavior" includes the processing of information and the development of cognitive structures as well as more overt actions. Motivation, the activation of internal desires, needs, and concerns, energizes behavior and sends the organism in a particular direction aimed at satisfaction of the motivational issues that gave rise to the increased energy. However, one of the things that social psychologists quickly discovered about human motivation is that the connections between the energizing and direction functions are not always simple and straightforward (e.g., Schachter & Singer, 1962).

Focusing on motivation implies a particular preference for answers to scientific questions on the part of the researcher or theorist. All basic research is after the answers to *why* questions, but there are individual differences among social psychologists in the kinds of answers that seem to be interesting or satisfying. When trying to answer the question "Why did that behavior occur?" some find interest and satisfaction in an answer that specifies aspects of the stimulus field, or in an explanation of the nature of reinforcement contingencies, while others might prefer answers couched in terms of the organism's developmental history. Some look for regularities that will apply to all, while others prefer to concentrate on the things that make each of us different. Perhaps an answer that specifies only cognitive processes will strike some as entirely satisfactory.

Motivationally oriented psychologists like to look inside the person for desires: what is wanted, what is strived for, what will feel satisfying or unsatisfying to the actor? A basic characteristic of motivational analyses is the assumption that one salient feature of behavior in situations is that the person is an active participant, an originating striving source with needs, desires, hopes, and fears, and not simply a wet computer through which information enters, is processed, and is emitted as behavior. If a computer analogy must be used, then for one interested in motivation it has to be a motivated computer, a computer with an attitude, with a heart as well as a mind.

The kind of answer to a "why" question that one will take as satisfactory at any given time is a combination of scientific tactical decisions and personal preferences. The waxing and waning of interest, now in motivation, now in cognition, is a natural and good aspect of scientific cycles of concentration. There is no doubt that the recent focus on social cognition has greatly increased our knowledge of cognitive processes, and as motivational analyses begin their return perhaps the time is ripe for a fruitful new integration of these two approaches that have of course always been intertwined in social psychological theory.

Organizational Plan

This review is divided into three general areas: the construction of understanding, acting on and in the world, and coming to terms with self and the end of self. These distinctions are of course somewhat arbitrary and overlapping, but they capture much of the current motivational thinking in social psychology. The largest area of research, consonant with the recent focus on cognition, has been concerned with how motivation affects the *construction of understanding*, or mental representations of reality. Issues of accuracy and illusion are covered in this section. Another substantial part of this review focuses on how motivation affects overt action, or *acting on and in the world*. The general areas of research reviewed in this section include

work on intrinsic and extrinsic motivational orientations, and on issues of motivational arousal, effort expenditure, and task persistence. The final, and less extensive, section contains a selective review of motivational thinking in the research on *coming to terms with self and the end of self*.

Several topics that could have been included in this review are the subject of other chapters in this handbook and are covered lightly or not at all here. These topics include altruism (see Batson, 1998, in this *Handbook*), aggression (see Geen, 1998, in this *Handbook*), emotion (see Zajonc, 1998, in this *Handbook*), evolution (see Buss & Kenrick, 1998, in this *Handbook*), and the issue of self-regulation (see Wegner & Bargh, 1998, in this *Handbook*, and Baumeister, 1998, in this *Handbook*). Because of its centrality to a number of recent motivational theories, some aspects of the research of the self are covered, but for a more complete review see the chapter on the self (Baumeister, 1998, in this *Handbook*).

THE CONSTRUCTION OF UNDERSTANDING

One fundamental problem, an unavoidable project that presents itself to the unformed person and that remains an ongoing issue throughout life, is the task of making sense out of and acting in a world that is extremely complex and at best only partly open to understanding and influence. Creating useful and coherent mental representations of this environment is clearly a major aspect of development and functioning. In trying to understand how people proceed with this life-long activity of creating abstract systems for understanding and action, most current social psychological theories frame their assumptions from a stance that views the person as an active, generative source in interaction with external influences.¹ The task of making sense and operating effectively is embraced with gusto. The construction of interesting and even entertaining explanations can be satisfying in its own right and gives pleasure when things are working well—when the environment seems understandable and open to influence. However, it is also clear that things do not always hold together; inconsistencies arise, plans fail, expectations can be disconfirmed, and desired outcomes may not be attained or may be attained in ways that seem unpredictable and capricious. Sometimes the world seems to hang together just as expected, but sometimes it reveals a capricious and viciously chaotic aspect that is seriously troubling. Much of the recent work on motivation in social psychology addresses these twin issues of the construction of understanding, and dealing with an unresponsive, confusing, and sometimes frightening and hostile environment.

Because one clear goal is to generate accurate representations that can be used for effective prediction and explanation of events, and for making good action decisions designed to influence events and to achieve desired out-

comes, much of the recent work on motivation has been directed toward understanding when and why accuracy motives are engaged. However, at other times the goal may be to construct and maintain favored or comforting conceptions of reality. When human desires enter to alter or bias the kinds of inferences, predictions, and explanations that are made, our understandings may be more illusory than accurate. This is the other main focus of work on motivation and making sense of the world, targeted on understanding the interplay between accuracy and illusion. Therefore, this section on the construction of understanding first considers research targeted on accuracy, and then reviews research targeted on illusion.

Accuracy

Why do people construct explanatory systems? That such explanatory systems are constructed is obvious, but why are they constructed? What do people hope to gain by developing these systems of understanding, what purpose do they serve? The answer seems obvious: without such systems of understanding there would be little hope of continuing to exist. For example, one has to learn what qualifies as food, where it is, and how to get it, or starvation will ensue. In the social realm, things are more complex, but still one needs to learn at least some of the rudiments of effective social interaction to get a job, attract a companion, or be invited to the next party.

From a motivational perspective, the key is to understand that making sense of reality doesn't happen automatically. It takes an energized and directed person to go out and explore, to seek, to make, to plan, to reflect, to err and learn from errors, and to generate, test, and revise hypotheses. But these activities are neither constant nor random. The motivational question is what gets these thoughts and actions going? When and why does desire energize and direct the active construction of reality?

In the realm of social understanding, much of the research on explanatory systems has been guided or informed by theories of attribution (see Gilbert, 1998, in this *Handbook*). Attribution theorists have assumed that inferences and attributions about the social world are made in the service of rendering that world predictable and, to some degree, potentially controllable (Jones & Davis, 1965; Kelley, 1967, 1971). This motive to render the world predictable and controllable is assumed to be a fundamental aspect of human nature, a basic motive that waxes and wanes but that is the underpinning of our attempts to make sense of things. If the world remained incomprehensible and unpredictable, sensible actions could not be taken, and indeed learning could not occur since learning is in essence discovering regularities in the environment. The desire to render order and sense out of chaos can be assumed to be a fundamental human motive, one that leads to pleasure and

confidence when satisfied and that leads to anxiety and confusion when thwarted (see Weary, Gleicher, & Marsh, 1993, for a variety of perspectives on this viewpoint).

Motivations related to control concerns have long been recognized. The desire to exert control over one's environment was a central theme in White's (1959) analysis of effectiveness, and the experience of competence and self-determination became a central part of theories of intrinsic motivation (e.g., Csikszentmihalyi, 1975; deCharms, 1968; Deci, 1975; Deci & Ryan, 1985). Evidence that deprivation of the ability to control outcomes can have negative consequences was perhaps best represented by the research on learned helplessness (e.g., Abramson, Metalsky, & Alloy, 1989; Abramson, Seligman, & Teasdale, 1978; Seligman, 1975). In a different vein, research inspired by reactance theory (Brehm, 1966; S. Brehm & Brehm, 1981; Wicklund, 1974) suggested that when a specific behavioral freedom is threatened, that freedom becomes more attractive and attempts to reassert the freedom are initiated (see Brehm, 1993, for a discussion of reactance and control).

An early approach to the question of when attributional activity was likely to occur varied characteristics of the stimuli that were presented, characteristics that could be expected to differ in the extent to which they would incite effortful information processing. Findings indicating that some informational characteristics—such as unexpectedness or expectancy violation (e.g. Bargh & Thein, 1985; Clary & Tesser, 1983; Hastie, 1984; Hilton, Klein, & von Hippel, 1991; Lau & Russell, 1980; Pyszczynski & Greenberg, 1981; White & Carlston, 1983; Wong & Weiner, 1981) or unusual degrees of negativity (e.g., Harvey, Yarkin, Lightner, & Town, 1980; Wong & Weiner, 1981)—lead to increased information processing can now be understood from the perspective of a control motivation analysis. These informational characteristics are likely to act as cues that activate control motivation and accuracy concerns because they imply rather directly that something not yet understood or potentially threatening has transpired.

I will review several ways that an increase or decrease in the motivation to develop an accurate understanding has been varied more directly in recent research. One approach is to compare subjects who already differ in their current generalized concern with achieving an accurate conceptualization. This has been done either through a manipulated prior experience designed to enhance control motivation, or by utilizing naturally occurring individual differences in depression that are thought to have arisen at least in part due to experiences with lack of control. A second general approach involves placing subjects into situations that vary systematically in the extent to which they are likely to arouse control concerns, including variations in expectations of future interaction, outcome dependency, accountability for judgments, or the importance of judgments.

Changes in accuracy motivation have been measured in

several ways as well. Increased interest in and utilization of available information, the nature and complexity of inferences that are drawn from available information, and the amount of effort and time devoted to information analysis have all been measured. In other studies, interest in obtaining information about interaction partners, and sensitivity to such information, has been the focus. Another measure of interest has been in the effects of changes in accuracy motivation on errors and biases that frequently occur.

The effects of accuracy motivation have been studied directly in experiments in which attempts to be accurate have been varied by instruction, that is, the experimenter tells some of the subjects to form accurate impressions or judgments while giving different instructions to other subjects. Neuberg and Fiske (1987) found that explicit accuracy instructions (Experiment 3) led subjects to base their impressions on the actual information given rather than on category-based expectations. Neuberg (1989) gave subjects who were acting as interviewers either a negative expectancy or no expectancy, and either instructions to form an accurate impression or no such instructions. He found that the accuracy instructions counteracted the typical effects of a negative expectation. Accuracy instruction subjects formed less negative impressions of the target in the negative expectancy conditions and, generally, behaved in ways unlikely to elicit self-fulfilling prophecies from interviewees. Thompson, Roman, Moskowitz, Chaiken, and Bargh (1994) have shown that explicit accuracy instructions have the effect of attenuating the usual effects of covert priming of traits on impression formation, indicating that when accuracy motivation is increased, judgments become less susceptible to bias, even bias tendencies that occur without the subject's awareness (see also Pittman, 1992, for a discussion of related issues). Ford and Kruglanski (1995) also showed that accuracy instructions resulted in a decreased influence for primed traits when forming impressions, and in a second study showed that subjects chronically low in need for closure exhibited similar effects. There is ample evidence concerning the effects of direct instructions to be accurate, and in the research reviewed next these same sorts of dependent measures have been used to detect changes in accuracy concerns.

Differences in Prior Motivational State

Deprivation of Control The proposal that control motivation underlies attributional analysis has been tested by varying the nature of a prior experience with deprivation of control, and then looking for heightened attributional activity in subsequent unrelated settings. If the motivation to render the social environment predictable and potentially controllable is the fundamental reason for engaging in attributional analysis, then deprivation of control in one setting should lead to an increased general level of control

motivation and therefore more effortful and careful attributional processing in the next setting. To test this prediction, Pittman and N. Pittman (1980) first gave subjects one of three different levels of control deprivation (high, moderate, or none; see N. Pittman & Pittman, 1979), and then a second experimenter in an ostensibly unrelated second experiment provided subjects with attributional materials containing an attribution-relevant informational variation that had already been shown to be sensitive to changes in level of motivation (Pittman, Scherrer, & Wright, 1977). As predicted, subjects did show increased utilization of the available information when responding to a variety of questions concerning the motivation and underlying attitudes of the communicator portrayed in the stimulus materials in the second part of the experiment. This result has been replicated using the same manipulations and materials (Liu & Steele, 1986), and also conceptually replicated by Burger and Hemans (1988) using a closely related individual difference variable—desire for control (Burger & Cooper, 1979).

Pittman and D'Agostino (1985, 1989) reported a further series of studies in which control-deprived subjects were found to be more likely to make and carefully store inferences from textual materials, and that this effect was due to differences in on-line as opposed to memory-based processing. Other studies found control-deprived subjects more willing to exert effort to obtain information (D'Agostino & Pittman, 1982), and more interested in and sensitive to diagnostic information about an interaction partner (Swann, Stephenson, & Pittman, 1981).

Pittman and D'Agostino (1985, 1989) argued that an experience with control deprivation (in a setting in which control was expected and desired) calls into question the general adequacy of one's understanding of the way things work, leading to a change in the mode of information processing likely to be employed. In an effort to ensure that controllability is reestablished, the person now processes new information in a careful and deliberate fashion (which could be described as bottom-up, data driven, or systematic) designed to generate accurate analyses that will be more likely to lead to understanding and control.

One implication of this analysis is that recently control-deprived subjects, because of the increased care and effort they will put into the construction of representations of new situations, may sometimes prove to be more accurate in their judgments and inferences and less likely to show errors or biases in situations where increased care and effort would be likely to lead to increased accuracy. This prediction was tested using the correspondence bias paradigm (Gilbert, 1998, in this *Handbook*; Jones, 1979; Jones & Harris, 1967). Correspondence bias refers to the "tendency to assume that a given action can be explained by reference to a correspondent disposition when actually people with a variety of different dispositions would have behaved in a

information processing was measured, Weary, Jordan, and Hill (1985) found that depressed subjects were more sensitive to another's violation of a social norm, and similar findings were obtained by Marsh and Weary (1994). These findings of increased interest in information about others are complemented by Coyne, Aldwin, and Lazarus' (1981) finding that mildly depressed subjects were more interested in obtaining social comparison information following negative feedback than were nondepressed subjects.

Finally, Yost and Weary (1996) showed that depressed subjects were less likely to show the correspondence bias, a finding parallel to that of Pittman, Quattrone, and Jones (1985). In addition, Yost and Weary demonstrated that this effect was eliminated when a cognitive load was added, indicating that depressed subjects were indeed reducing the correspondence bias by relying on capacity-dependent additional information processing.

Despite some evidence to the contrary (e.g., Sullivan & Conway, 1989), the bulk of the research shows that mild to moderate depression leads to increased cognitive activity in the service of accuracy. Whether these same effects would be obtained with more severely depressed populations is still an open issue.

Manipulations of Situational Characteristics Another approach to the study of motivational influences on the construction of understanding has been to vary some feature of the situation that could be expected to engage motivational concerns about the accuracy of inferences.

Expectation of Future Interaction Early evidence for the efficacy of this approach was provided by Berscheid, Graziano, Monson, and Dermer (1976), who showed that when subjects expected to interact with (i.e., date) another person they paid more attention to that person's characteristics than when they had no such expectation. Monson, Keel, Stephens, and Genung (1982) also found that expectation of future interaction led to more elaborate and extreme attributions about the target. Feldman and Ruble (1988) found a compatible result in a study investigating whether young children would be more likely to use psychological terms in their descriptions of others if their motivation to understand others was increased through expectation of future interaction. Children ages five to six and nine to ten were shown videotapes of target children with whom they either did or did not expect to interact. For both age ranges, expectation of future interaction increased the use of central or psychological traits as opposed to peripheral or merely descriptive statements in the free descriptions the subjects gave of videotaped targets.

The expectation of interaction with another person raises the possibility that the partner's behavior will be important to interpret in order to understand and influence the coming interaction and its outcomes. So it makes sense that

attentional and cognitive resources would be mustered in an attempt to develop an accurate understanding on which to base the interaction. This interpretation has been given a more direct test in the studies on outcome dependency.

Outcome Dependency Not only the fact of an anticipated interaction, but the nature of that interaction would be expected to affect the extent to which a person would be motivated to attempt to develop an accurate impression. In the research on outcome dependency, the extent to which one is dependent on an interaction partner for important outcomes has been varied to see if this variable moderates the extent of motivational arousal and the subsequent nature of social information processing (see Fiske, 1998, in this *Handbook*).

Fiske and Neuberg (1990) made a distinction between category-based and individuating or attribute-based methods of forming impressions. This distinction refers to the likelihood of using pre-existing structures such as stereotypes (heuristic or peripheral processing, top-down or theory-driven processing) versus constructing an impression from the raw data that is available about the target person (systematic or central processing, bottom-up or data-driven processing). Based on the evidence provided by the research on the effects of control deprivation on similar changes in information processing strategy, Fiske and Neuberg (1990) argued that outcome dependency typically motivates the person to construct impressions in a careful and deliberate fashion, relying less on stereotypes and more on individuating information, so as to have an accurate impression upon which to base control-relevant interaction decisions.

Neuberg and Fiske (1987) tested this prediction in several experiments in which subjects were or were not anticipating being dependent on another for a \$20 prize. Information about the other was provided, including information that normally activates a stereotype and leads to category-based impression formation, as well as individuating information that by itself would lead to a different impression. The results across these studies indicated that subjects were more likely to engage in attribute-based processing and less likely to show the effects of category-based processing when they were outcome dependent on the other. These effects appear to be mediated by an increased concern with accuracy in the outcome-dependent conditions.

Erber and Fiske (1984) created outcome dependency and an expectation of competence, and then provided some subjects with information that was inconsistent with the expectation. They found that outcome-dependent subjects paid more attention to inconsistent information, and thought more about it, than did non-outcome-dependent subjects. With consistent information there were no such differences in attention and processing, suggesting that

outcome-dependent subjects are particularly vigilant for information that suggests an expectation may be erroneous. This finding fits with the earlier research on expectation violation that found increased attention and deeper processing when information was unexpected (Clary & Tesser, 1983; Hastie, 1984; Pyszczynski & Greenberg, 1981; Wong & Weiner, 1981), and shows that this effect is related to or at least modulated by differences in situationally induced control motivation. Darley, Fleming, Hilton, and Swann (1988) also showed that when perceivers were dependent on each other, they sought more individuating information from their interaction partners.

These findings, when coordinated with the Neuberg and Fiske (1987) findings on time spent considering information about an interaction partner (time spent increases when outcome dependent—studies 1 and 2) and the parallel effects of accuracy instructions (study 3), and the Swann, Stephenson, and Pittman (1981) and the Hildebrand-Saints and Weary (1989) findings of increased interest in diagnostic information about an interaction partner due to prior deprivation of control or to depression, clearly suggest a [control motivation] → [interest in accuracy] → [change in information processing strategy] causal chain.

Fiske and her colleagues (Depret & Fiske, 1993; Fiske, 1993; Fiske, Morling, & Stevens, 1996) have extended the control motivation analysis to considerations of the effects of asymmetrical outcome dependency, or social power. Fiske (1993) proposed that the relatively powerless are likely to engage in the kind of careful and effortful processing of information about the relatively powerful which has been shown in the many studies on control deprivation and outcome dependence, but that the relatively powerful will not (because they do not need or care less to) expend such effort in forming impressions of the relatively powerless (see Depret & Fiske, 1993, and Fiske, Morling, & Stevens, 1996, for reviews of findings consistent with this analysis).

Personal Accountability Another approach to situationally induced motivation has relied on making subjects accountable in some way for the conclusions or inferences they draw from a specified set of information. Similar to the effect of outcome dependency, this should create a concern with accuracy assuming that the subjects want their accounts to be judged reasonable. In fact this can be considered to be a different kind of outcome dependency, one in which the target of the inferences and the person on whom one is outcome dependent are separated.

With attitudes as the subject of information processing, Tetlock (1983a) found that when subjects were accountable, that is, they expected to have to justify their attitudinal positions to another person, their thoughts became more complex and less one-sided, particularly when the personal attitude of the person to whom the position would have to be justified was unknown. In the realm of impres-

sion formation, Tetlock and Kim (1987) varied whether subjects were told they would have to account for their personality inferences and predictions either before processing the available target personality information, after processing that information, or not at all. Consistent with the findings of Pittman and D'Agostino (1989), Tetlock and Kim found that more complex and accurate predictions were generated only when the accountability information was given before the information about the target was processed, indicating that the effect of accountability occurs as information is considered, as it does in the case of prior control deprivation. Weldon and Gargano (1988) also found that accountability reduced the usual effect of social loafing (Latané, Williams, & Harkins, 1979); on a task on which social loafing normally leads to less complex judgment strategies, accountability ameliorated the effect.

As with other sources of accuracy motivation, accountability has been shown to reduce the likelihood of primacy effects (Tetlock, 1983b) and correspondence bias (Tetlock, 1985). However, accountability does not *always* lead to more accurate judgments, because sometimes the willingness of accountable subjects to expend energy processing the available information and to generate more cognitively complex representations can lead to less optimum judgments. Tetlock and Boettger (1989) found that accountable subjects were more susceptible to the dilution effect (moderation of inferences caused by the addition of nondiagnostic information), presumably due to their willingness to try to use all the available information (also see Pelham & Neter, 1995). This is an important qualification to the general finding that increased accuracy motivation leads to more accurate inferences. Such improvements in accuracy will only be the case for those judgment tasks on which more careful and effortful processing is likely to increase the accuracy of judgments (see Pittman & D'Agostino, 1985).

Importance of the Task Another way of inducing an accuracy set is to make the task seem important in some way, presumably motivating the person to come up with the best or most accurate judgment. Kassin and Hochreich (1977) found that when subjects were told that the task was important either because it was a reflection of social intelligence, or because it was important to the experimenter's doctoral research, subjects made more complex use of attribution-relevant information. Kruglanski and Freund (1983) manipulated "fear of invalidity" with instructions emphasizing the importance of the accuracy of the decision, as well as need for structure with a time deadline. They found that importance decreased the biasing effects of primacy, stereotyping, and numerical anchoring. Freund, Kruglanski, and Shpitzajzen (1985) also replicated the reduction of primacy effects using two different manipulations of the importance of forming an accurate impression.

Individual Difference Measures There are a number of individual difference measures that have been developed to assess chronic preferences for engaging or not engaging in the kind of effortful and careful cognitive processing that is characteristic of control-oriented persons. These measures include: desire for control (Burger & Cooper, 1979; see Burger, 1993), which measures chronic desire for control; need for closure, which measures an individual's desire to attain or avoid closure on cognitive tasks (Webster & Kruglanski, 1994; see Kruglanski & Webster, 1996); personal need for structure, which measures chronic desire for simple cognitive structures (Neuberg & Newsome, 1993; see Moskowitz, 1993); need for cognition, which measures an individual's tendency to engage in and enjoy effortful cognitive activity (Cacioppo & Petty, 1982; see D'Agostino & Fincher-Kiefer, 1992); uncertainty orientation (Sorrentino & Short, 1986; see Driscoll, Hamilton, & Sorrentino, 1991), which measures individual differences in the tendency to approach and attend to, or avoid and ignore, uncertainty; and tolerance for ambiguity (Norton, 1974; see Andersen & Schwartz, 1992), which measures a person's tolerance or intolerance for ambiguous information and settings.

In each case, there is evidence that persons varying along these dimensions show the expected differences in cognitive activity and final conclusions that would be expected given the body of research reviewed here, and some of that evidence has already been reviewed. These measures clearly have at least some overlap, and the variety of supporting data certainly indicates similar effects on attention to and processing of information, but although a full review and comparison is no doubt in order, it is not within the scope of this chapter.

Summary Taken together, the research on the effects of control deprivation and on the effects of mild to moderate depression establish fairly clearly that when experiences with lack of control undermine the sense that the world is understandable, the response is often to make attempts to develop more accurate conceptions in subsequent settings by devoting increased attention, effort, and care to the task of making sense. Very similar findings have been obtained with several different manipulations of situationally-induced accuracy motivation. Overall, this research can be organized under the general view that when prior motivational states, characteristics of the situation, characteristics of the stimulus, or individual difference preferences and habits activate control concerns, ensuing accuracy motivation results in more careful and effortful processing of information that will tend to produce more accurate conceptualizations when the information-processing task is amenable to more accurate analysis through increased attention and effort.

Illusion

Although it is clear that people are sometimes motivated to form accurate depictions of reality, it is equally clear that sometimes our motives are satisfied by or show themselves through distortions in those depictions. This tendency for motivation to distort conceptualization has been studied most intensely in the research inspired by cognitive dissonance theory, and in social psychology it was here that the concept of humans as rationalizers most clearly clashed with the traditional concept of "rational man" (see Taylor, 1998, in this *Handbook*). The very notion of a consistency principle would seem to imply a form of rational governor, and yet cognitive dissonance theory turned it into an engine of self-deception.

Control motivation, shown to lead to more careful and, often, more accurate information processing, has also been shown to produce a variety of biases and distortions. How can control motivation be conceptualized in a way that allows us to understand why, how, and when it leads to accuracy or to illusion? More generally, once a motive has been aroused, how does one manage to come to the conclusions that are desired without being aware of having done so? And what about the apparent self-destructive aspects of illusions? How can people operate effectively when they see the world through the distorted lens of illusory conceptualizations? These questions are addressed in this section on illusion.

The Motivation to Be Consistent One key property of an understanding of the way things work, either in general or for a specific setting or set of events, is internal coherence of the explanatory system. Part of making sense of things is that perceptions, explanations, and beliefs hang together; do not contradict one another; or follow from one another within the assumptions of the framework of understanding. Likewise, expectations and events should show a reasonable degree of correspondence. When expectations are violated the person is likely to gear up the available analytical mechanisms in an effort to restore understanding. Putting things together in consistent ways, to form a coherent whole, was a basic tenet of gestalt psychology, a heritage brought to social psychology by Lewin (1951) and Heider (1958). Piaget's analysis of cognitive development also emphasized the construction of coherent schema, via the processes of accommodation and assimilation (Inhelder & Piaget, 1958; Piaget, 1965), that would make sense out of the physical world within the constraints of the child's current model.

The idea that consistent structures are sought and preferred was a basic assumption of the early theories of cognitive consistency (Abelson et al., 1968; Heider, 1946; Newcomb, 1961). Some of the early empirical work

demonstrated that missing bonds are completed to form balanced structures (Burdick & Burnes, 1958; Morissette, 1958), that consistent relationships are easier to learn and remember than inconsistent ones (Picek, Sherman, & Shiffrin, 1975; Zajonc & Burnstein, 1965), and that balanced structures are preferred over imbalanced structures (Burdick & Burnes, 1958; Jordan, 1953).

Inconsistency and Cognitive Dissonance Theory But, of course, things are not so simple as a model of rational consistency might imply. There will always be some inconsistencies, some unexpected or unexplained events, since most models of the way things work are not going to be perfect (often, they are far from perfect). Some slippage would have to be tolerated, some degree of puzzlement that stays below the threshold for doing something about it, or else all of one's time and energy would be consumed tracking down and making sense of every tiny anomaly. And if inconsistency does reach the threshold of irritation or concern, perhaps there will be a temptation to ignore or do away with the inconsistency rather than admit that basic assumptions about how things work are wrong. Particularly when current conceptions have been in use for a while, have been working reasonably well, and have no clear alternative that would be easy to embrace, then the desire for consistency could be expected to lead to resistance and distortion, and therein lies one of the recurring puzzles in social psychological research. On the one hand, accuracy is obviously desirable; after all, inaccurate conceptions are inherently dangerous since they provide an erroneous launching pad for excursions into reality. On the other hand, inconsistency can be upsetting, troublesome, and difficult to understand, and some inconsistency is inevitable in any case, so ignoring or explaining away will sometimes seem like good ideas. Piaget suggested something like this: the child sticks with a current conception, even in the face of mounting evidence that it doesn't work, until reality and development allow a move to a better system of understanding. A compatible popular philosophical reference, suggesting that just these kinds of processes operate in the conduct of science, is Kuhn's (1962) suggestion that theories are not displaced by inconsistent evidence, since a good deal of inconsistent evidence is typically not enough to lead to the abandonment of a dominant paradigm until a better or more appealing approach becomes available.

If people like their explanations to have consistency, they should also dislike inconsistencies and should be motivated to resolve any obvious inconsistencies that arise. This was the basic assumption of Festinger's (1957) theory of cognitive dissonance. Cognitive dissonance research, once a dominant interest, waned in the late 1970s and 1980s, and this decline in interest has been the subject

of several recent commentaries (see Aronson, 1992; Berkowitz, 1992; Berkowitz & Devine, 1989). However, along with the return of interest in motivation has come an unexpected significant other: like Lazarus or Dracula (depending on your sentiments), cognitive dissonance research is also back!

Cognitive Dissonance Theory Festinger (1957) proposed that when cognitive elements are in an inconsistent relationship they will create negative psychological tension, motivating the person to resolve the inconsistency so as to reduce the tension (see Eagly & Chaiken, 1998, in this *Handbook*, and Petty & Wegener, 1998, in this *Handbook*, for additional coverage of this topic). While most of the research was based on a simple two-cognitive-element version of the theory, Festinger also proposed that the total amount of negative psychological tension aroused would be determined by the proportion of relevant, weighted elements that are involved in dissonant relationships—where “relevant” means that only those elements that are consistent or inconsistent (i.e., not irrelevant) are included in the calculation, and weighting is done by considering the importance of each element. Dissonance reduction is achieved when changes in the cognitive structure bring the total amount of negative psychological tension down to the threshold of acceptability. Changing cognitive elements to make them more consistent or adding new consonant elements to reduce the proportion of dissonant relationships are the two modes of dissonance reduction that were studied in the early research.

Dissonance theory quickly generated a great deal of research (see Wicklund & Brehm, 1976, and Cooper & Fazio, 1984, for reviews) and a great deal of controversy. One implication of this early research is that people may often act in ways that are not entirely rational in the service of inconsistency reduction. They will change their beliefs to bring them into agreement with their behavior, blame their inconsistent behavior on situational constraints, embrace any available justification, convince themselves that their choices are much better than they thought they were before they made them, and selectively avoid new information that might imply inconsistency. In other words, people in these experiments seemed to be more interested in the illusion of consistency than in consistency itself. These findings were not easily accepted as presented and resulted in a number of alternative explanations for dissonance phenomenon.

The initial controversy, sparked by the reverse reinforcement effect obtained in the Festinger and Carlsmith (1959) experiment (i.e., the finding that participants paid only \$1 to endorse an attitude-inconsistent position were more likely to adopt that position than were participants who were paid \$20), was over whether this novel finding

