CHAPTER 3

EXPECTANCY EFFECTS IN RECONSTRUCTIVE MEMORY

When the Past Is Just What We Expected

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Memories of the past play an essential role in our everyday lives. We recollect past events and experiences shared with our families and friends. We assess our students' learning by examining their retention and memory for past information covered in our courses. We evaluate social change by comparing the present to our memory for what things were like in the past. Given the importance we place on memory, a critical issue is the potential accuracy of these memories.

Although people would like to believe that their memories are veridical, the dominant view emerging from the psychological literature emphasizes the constructive nature of memory. This view, dating back to the seminal work of Sir Frederick Bartlett (1932), illustrates the role that prior knowledge structures or schemas play in recalling past information. Bartlett gave his subjects an unusual and unfamiliar text, a Native American folk tale titled "The War of the Ghosts," and asked them to recall the story as accurately as possible. He found that subjects often distorted the story to fit with their expectations. His work emphasized the theory-driven nature of memory and the biasing effect that schemas and expectancies have on what information is retrieved. This work on reconstructive memory paints a bleak picture of the potential accuracy of past memories.

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SOURCES OF SCHEMATIC EFFECTS ON MEMORY

As we begin, it would be helpful to first discuss what we mean by the term "schema". Schemas are organized knowledge structures stored in memory that are developed through experience. Basically, schemas represent summaries and abstractions derived from prior experience. For example, most of us (based on similar experiences) have a schema for an event such as a wedding. Weddings have a bride and groom, a wedding party, a ceremony that typically includes certain features (e.g., a procession, an exchange of vows, exchange of wedding rings, and a celebrant/justice of the peace), a receiving line, a reception, wedding toasts, a wedding cake, and so on. People have schemas for events and activities (e.g., chess, football games, and whodunnit mystery novels), individuals or groups of people (e.g., stereotypes), and social roles (e.g., occupations). Schemas are very useful in that they provide us with a frame of reference from which to perceive new experiences. Do any of you remember attending your first football game? For novices, it seems like a bunch of people running chaotically around a field: They have little idea where to focus their attention, and they can attach little meaning to the events going on around them. However, with more and more experience, they develop an understanding of the game, are able to notice and identify entire plays (larger units of analysis), and can compare the present to past performances by the same players and teams. Schemas have implications for all phases of information processing—from attention and perception, to encoding (interpreting and attaching meaning to perceived events), to memory (storage and retrieval of information). In this chapter, we focus on the implications that schemas have for memory (and the accuracy of memory).

How do schemas exert such a powerful influence on memory? In general, schema theories propose two different processes by which schemas affect memory. First, schemas drive encoding. Based on prior knowledge, schemas generate expectancies that direct and guide our attention to schema-consistent information. As a result, schema-consistent rather than schema-inconsistent or schema-irrelevant information is preferentially encoded and thus is "available" (Tulving & Pearlstone, 1966) for later recall. A number of studies illustrate how schematic expectations lead to the preferential encoding of schema-consistent information (Rothbart, Evans, & Fulero, 1979; Zadny & Gerard, 1974), resulting in better recall of schema-consistent information. For example, Cohen (1981) had participants watch a videotape of a woman and were told that she was employed as either a waitress or a librarian. Although all participants saw the same videotape, Cohen found that participants in the waitress condition noticed and remembered more details consistent with their stereotype of a waitress (e.g., she owned a bowling ball and she drank beer), whereas those in the librarian condition noticed and remembered more details consistent with their stereotype of a librarian (e.g., she had many bookshelves and she wore glasses).

Furthermore, people tend to interpret ambiguous information in a

manner consistent with their expectations (Darley & Gross, 1983), leading to the perception of greater support for one's expectations than is objectively warranted. Chapman and Chapman's (1967) work on the "illusory correlation" phenomenon illustrated how clinicians holding expectations about the relationship between specific symptoms and clinical diagnoses found evidence supporting their beliefs even in a set of data in which no such relationship actually existed. Thus, according to this view, schemas act as filters that selectively encode schema-consistent information and render it available for later recall.

However, other research has qualified the effects of schemas on encoding. Although it is true that schema-relevant information consistently shares a memory advantage over schema-irrelevant information (Anderson & Pichert, 1978; Brewer & Treyens, 1981), whether schema-consistent or schema-inconsistent information is better recalled is a topic of some debate. Whereas some studies found better recall of consistent information, several studies (Hastie & Kumar, 1979; Srull, 1981; Wyer & Gordon, 1982) indicated that inconsistent information is better recalled than consistent information.

Indeed, on the surface, these results appear to directly contradict the implications of schema theories; yet a careful examination of these studies reveals that this is not the case. In these studies, participants were often given the goal of integrating all the available information to form an overall impression (often called an impression set). Schema-consistent information fits in well with prior expectancies and thus can be processed quickly and easily. Inconsistent information is particularly salient and requires greater attention and effort to integrate it with the other available information. As a result, a greater number of associative links are formed between schema-inconsistent and other items than between schema-consistent and other items, resulting in better subsequent recall of inconsistent information (cf. Srull, Lichtenstein, & Rothbart, 1985). However, this memory advantage for schema-inconsistent information occurs only when individuals are both motivated (cf. Fiske & Neuberg, 1990) and have sufficient opportunity and cognitive resources (cf. Bargh & Thein, 1985) to engage in these inconsistency-resolution processes (for reviews of this literature, see Stangor & McMillan, 1992; von Hippel, Sekaquaptewa, & Vargas, 1996). Thus, these data further attest to the directive influence of schemas on the encoding of available information.

A second process by which schemas are hypothesized to influence memory occurs at retrieval. Schemas serve as effective retrieval cues for schema-consistent information. For instance, Anderson and Pichert (1978) asked participants to read a description of a home using either the perspective of a burglar or the perspective of a prospective home buyer. After a week's delay, participants were asked to recall the description. In this recall task, information consistent with the participants' given perspective was preferentially recalled. Following this initial recall task, participants were then provided with the alternative perspective and asked to recall the description

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Furthermore, the organized structure of schemas allows one to make inferences about information not recalled (and perhaps not presented), leading to schema-consistent intrusions in memory. Numerous studies (Cantor & Mischel, 1977; Dooling & Christiaansen, 1977; Snyder & Uranowitz, 1978; Spiro, 1980) demonstrate that people misremember not presented but schema-consistent information in memory. Dooling and Christiaansen (1977), for instance, had participants read a passage about a fictitious ruthless dictator named Gerald Martin. Some participants were later told that the character described in the passage (Gerald Martin) was actually Adolf Hitler. In a subsequent recognition test, participants were presented with some questions which were consistent with their schema about Hitler but were not contained in the passage (e.g., he persecuted Jews); participants made a number of such schema-consistent intrusions, incorrectly believing that this information was in the passage. This research suggests that schemas can also operate postencoding, influencing memory for information that was encoded prior to the activation of the schema. Thus, schemas can influence memory at the time of recall, resulting in the selective retrieval of schema-consistent information and the potential importation of schema-based intrusions in memory.

However, these schematic postencoding effects have proven to be far more controversial than schematic effects at encoding. A number of studies attempted to assess whether schematic effects on memory occur at encoding or at retrieval by presenting schematic information either before or after encoding (Rothbart et al., 1979; Wyer, Srull, Gordon, & Hartwick, 1982; Zadny & Gerard, 1974). The logic of these studies is as follows: If schemas exert their effects only at encoding, memory should be biased by one's schemas in before but not in after conditions because schemas must be present at encoding to affect memory. Alternatively, if schemas operate at both encoding and retrieval, schema-consistent biases in memory should be observed in both before and after conditions. These studies typically show that the effects of schematic information presented before encoding are much stronger than the effects of schematic information presented after information is encoded.

Several of these studies (Rothbart et al., 1979; Wyer et al., 1982) found no effects in the after (i.e., postencoding) conditions. Furthermore, the few studies that successfully demonstrated postencoding effects have been questioned on both empirical and methodological grounds. For example, Bartlett's (1932) original work has failed to replicate (Gauld & Stephenson, 1967; Zangwill, 1972) and was criticized as being unrepresentative of normal prose (Mandler & Johnson, 1977). Other studies were criticized for simply demonstrating that later information interferes with memory for earlier information, a phenomenon known as retroactive inhibition effects in recall (Tulving & Psotka, 1971).

Finally, a number of these studies relied exclusively on recognition data.

Unlike recall, recognition tests used a forced-choice procedure in which participants must choose an answer even when they do not know it. When they are uncertain, participants who cannot remember the information may be likely to guess based on their schema, resulting in schema-consistent response biases. This process is best illustrated in a study by Snyder and Uranowitz (1978), who had participants read a passage about a woman named Betty K. and were later told that she was currently living either a heterosexual or lesbian lifestyle. Participants were then given a recognition test over the material contained in the passage. They found that participants distorted their memory of the original information to be in line with their current schema (Betty K.'s current lifestyle). But did these recognition responses really indicate that participants' memory were altered or could they merely reflect schema-consistent guessing or response biases under uncertainty? By employing signal detection analyses of their recognition data (procedures designed to separate true memory from guessing), both Bellezza and Bower (1981) and Clark and Woll (1981) found that the reconstructive memory effects observed by Snyder and Uranowitz (1978) were solely the result of schema-consistent guessing or response biases under uncertainty. Indeed, several reviews of this literature (Alba & Hasher, 1983; Higgins & Bargh, 1987) not only question the inevitability of schematic reconstruction of the past but claim there is insufficient evidence to support the notion that reconstructive or schematic postencoding effects reliably occur.

The goal of this chapter is to provide definitive evidence that postencoding effects can reliably influence reconstructive memory for past information. In particular, we demonstrate how expectancies concerning the stability or change of an attribute or performance over time lead to expectancy-congruent recall of the past. Take, for example, a situation in which a woman is retrospectively asked to report her symptoms during her last period (McFarland, Ross, & DeCourville, 1989). McFarland et al. (1989) conducted a diary study in which women were asked to complete daily questionnaires assessing their symptomology for 4 to 6 weeks. Later, participants were asked to recall their symptoms on a day when they were menstruating or not menstruating (at the time of recall, all participants were in the intermenstrual phase). They found that women's recall of their physical and affective symptoms were biased by their theories of menstrual distress. Women who believed that they suffered from PMS exaggerated the negativity of their symptoms in their recall.

At the same time, we acknowledge that schematic reconstruction is not an inevitable process. Indeed, there are many situations in which individuals demonstrate remarkably accurate recall of the past, even over prolonged periods of time (e.g., Bates, Masling, & Kintsch, 1978; Hasher, Attig, & Alba, 1981; Keenan, MacWhinney, & Mayhew, 1977; McCloskey & Zaragoza, 1985). Thus, it is important to elucidate the conditions under which schematic reconstruction of the past is likely or unlikely to occur. In this chapter, we present a model of the reconstructive memory process that attempts to

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THE ROSS AND CONWAY MODEL

Work by Michael Ross and his colleagues (Conway & Ross, 1984; McFarland et al., 1989; McFarland, Ross, & Giltrow, 1992; Ross, McFarland, & Fletcher, 1981) demonstrated that subjects' recall of the past is often a function of their idiosyncratic expectancies of change. In one experiment, participants were exposed to a persuasive counterattitudinal message that successfully changed their attitudes toward the benefits of toothbrushing (Ross et al., 1981). However, when participants were asked to recall their past attitude toward toothbrushing (i.e., their attitude before they were exposed to the persuasive message), they reported their past attitude to be the same as their current attitude. Participants misrecalled their past attitude despite knowing that the experimenter could check their recall for accuracy (participants had completed an attitude measure before the experimental session). Ross et al. (1981) argue that this result was obtained because participants held an expectancy that attitudes are stable over time and allowed this expectancy to guide their recall of the past. Indeed, Ross (1989) reports that people commonly hold stability expectancies for traits and attitudes (see also Hamilton & Sherman, 1996).

In other circumstances, we hold theories or expectancies of change. For instance, people who participate in self-help or self-improvement courses usually expect that they will improve. Despite the fact that many of these courses result in no objective change or improvement, people report that they are much better off than they were before. Conway and Ross (1984) found that participants in a study-skills improvement course recalled their previous skill level as worse than it really was (even though the course had no measurable effect), presumably because of their reliance on their expectancy of improvement at the time of retrieval. Conversely, individuals holding a expectancy of decline over time should recall the past as better than it actually was, consistent with a theory of decline over time. McFarland et al. (1992) found that elderly individuals believed that some characteristics (e.g., physical strength/agility, energy level, or ability to remember details) decline with age, whereas others (e.g., wisdom or maturity) improve with age. Thus, an elderly individual might recall him- or herself in the past to have been much stronger, with more energy and a better memory, but a fool.

Based on this work, Ross and Conway (1986) proposed a model of personal recall (see Figure 3.1). Imagine you are asked to report your attitude toward abortion 10 years ago. Ross and Conway suggest that individuals answer such questions by means of a two-step process: First, the individual consults his or her present status or standing on the attribute in question. The present, which is more salient and available to us, serves as a benchmark or

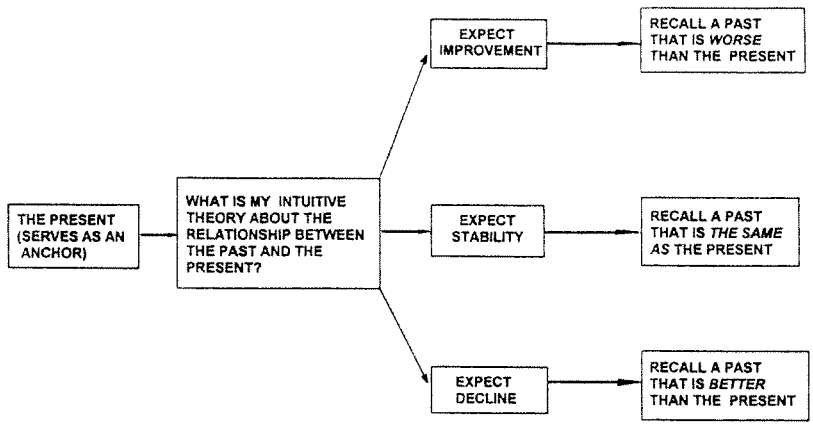

FIGURE 3.1. Schematic of the Ross and Conway (1986) model.

anchor from which the past is inferred. Thus, in the above example, the individual would consider his or her current attitude toward abortion. Second, the individual invokes his or her theory or expectancy of stability or change. The expectancy guides the reconstructive process such that the individual infers an expectancy-congruent past. If, for example, a person believes her attitude toward abortion has not changed much over the past decade, she would recall her past attitude as roughly the same as the present. If she expects that her attitude has changed (e.g., "I've become more liberal in my beliefs"), she might recall her past attitude as different (e.g., more conservative) than the present.

Ross and Conway's (1986) model has considerable intuitive appeal and is supported by a number of studies. However, in these studies, participants' expectancies were never actually manipulated. Thus, Hirt (1990) attempted to provide a more critical test of the model by directly manipulating both participants' expectancies and the "present" (outcome information). In these studies, participants were given information about a hypothetical college student and his past grades in his courses. After a delay, participants were given information inducing expectancies of future academic improvement (the student was now being tutored), decline (the student was losing his tutor), or stability (the student was continuing to be tutored). Finally, participants were given the target's current grades (the outcome information) and were then asked to recall his past grades. Hirt's results strongly supported the Ross and Conway (1986) model: participants' recall of the past scores (which were the same for all) was significantly affected by the outcome information. Participants who received a final grade of 84 recalled a higher past score than participants who received final grades of 78 or 72, indicating that participants were indeed using the outcome information as a benchmark from which they

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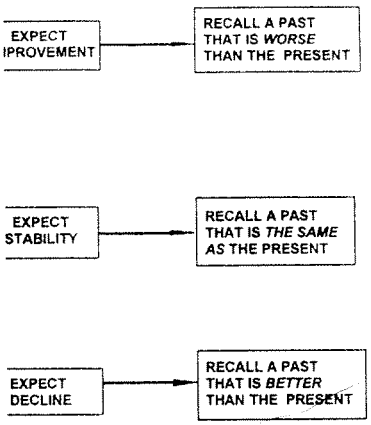

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HIRT'S MODEL OF RECONSTRUCTIVE MEMORY

In addition to providing empirical support for the Ross and Conway model, Hirt's (1990) research extended the model beyond the domain of personal recall to memory for others, suggesting it may have broad applicability. Nonetheless, one might ask what role accuracy plays in this model. According to Ross and Conway, accurate recall of the past occurs as a result of the serendipitous match of expectancy and outcome: If the relationship between past and present happens to be consistent with one's expectancy, then recall of the past using the expectancy should be fairly accurate. However, when the relationship between the past and present is not consistent with an expectancy, the model predicts expectancy-consistent distortion of the past.

Indeed, several observations in Hirt's (1990) data indicated that participants were doing more than simply engaging in an expectancy-based inference (guessing) process. Hirt (1990, Study 2) manipulated the past scores that participants received (and that were to be recalled later) to examine whether participants' recall was sensitive to variations in the original information. Participants were given a past score of either 70, 74, or 78 in the critical target course (Chemistry). All participants were given the same outcome or anchor (a final grade of 80) and one of two expectancies (improvement or no expectancy/control). His findings indicated that participants' recall, given the same outcome and expectancy, was significantly influenced by the manipulation of the prior scores. Participants given an original score of 70 recalled a lower score than participants given an original score of 74 or 78, illustrating that participants were not solely using the outcome and expectancy as a basis for recall. Nonetheless, the recall of participants given the same original scores continued to be affected by their expectancies of change. Expect-improvement participants recalled significantly lower scores than did no-expectancy (control) participants, emphasizing the biasing influence of one's expectancies on memory.[1] Thus, these results suggest that participants were consulting their memory trace of the original information as well as the implications of the expectancy and the outcome at the time of retrieval.

These observations led Hirt to propose his own model of reconstructive memory in which individuals are conceptualized as integrating information from three sources at retrieval: (1) the present (outcome), which serves as an anchor; (2) the expectancy regarding the relationship between the past and the present; and (3) the episodic memory trace of the original information. A critical implication of this model is that accurate recall can occur in two

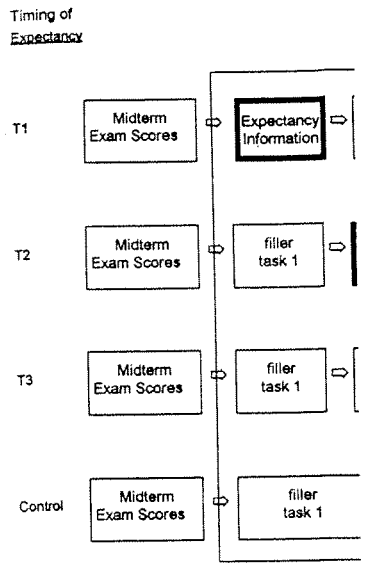
ways. First, recall should be accurate to the degree that the outcome matches one's expectancy. Indeed, in a study similar to Hirt's (1990) research, Hirt, Erickson, and McDonald (1993) provided participants with mixed feedback, half of which was consistent with their induced expectancy and half of which was inconsistent with their expectancy. Their results demonstrated that subjects are relatively accurate in their recall of information consistent with their expectancy but show expectancy-congruent distortion for information inconsistent with their expectancy. Second, recall can be more accurate to the degree that subjects give greater relative weight to the memory trace of the original information and/or reduced weight to the expectancy at retrieval. Thus, the relative weighting that individuals give to the memory trace as opposed to the expectancy also determines the accuracy of recall.

MODERATORS OF THE RELATIVE WEIGHTING OF EXPECTANCY VERSUS MEMORY TRACE

Accessibility

What factors determine the relative weighting given to the expectancy as opposed to the memory trace? Certainly, one important factor is the salience or accessibility of these two sources of information. We would argue that in nearly all cases, the memory trace of the original information is going to be weaker and less accessible than the trace of information presented more recently (the "present"). Under these conditions, the presence of a salient expectancy about the relationship between the past and present provides a ready "heuristic" with which to infer the past. Clearly, this was the case in our previous research (Hirt, 1990). In our paradigm, participants studied the original information and then worked on a set of distractor problems for 20 minutes. After this retention interval, participants received the expectancy manipulation, followed by the outcome information. Participants were then asked to recall the original information. Given that participants received the expectancy and outcome information immediately prior to the recall task, it is no surprise that they gave greater relative weight to the expectancy than to the memory trace at retrieval. However, we reasoned that to the extent that we reduced the differential salience of the expectancy over the memory trace at retrieval, we should see less weight given to the expectancy and correspondingly increased weight given to the memory trace, and thus greater memory accuracy.

Hirt et al. (1993) manipulated the relative salience of the expectancy versus the memory trace by varying the timing at which participants received the expectancy information (see Figure 3.2). In the first condition (T1), participants received the expectancy information immediately after the original scores, prior to the retention interval. In a second condition (T2), participants received the expectancy information halfway through the reten-



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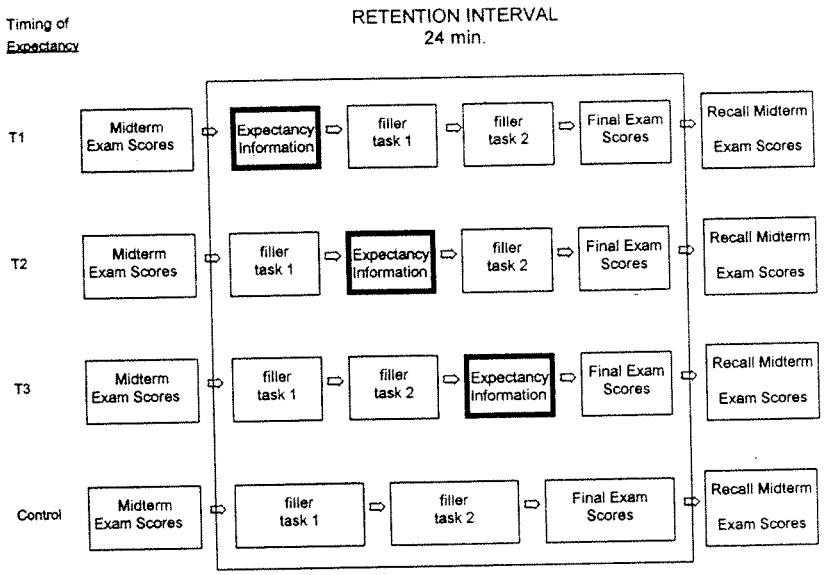

FIGURE 3.2. Schematic of the manipulation of the timing condition (T) of the expectancy information.

tion interval. Finally, in a third condition (T3), participants received the expectancy information following the retention interval and immediately prior to the outcome information and recall task, paralleling our past work. Our predictions were that by varying the timing of the expectancy information, we could reduce its relative salience at retrieval and thereby reduce the relative weight given to the expectancy and increase memory accuracy.

Methodology

In these studies, all participants received outcome information in which half the scores improved and half declined (for a net change of 0). Thus, for each expectancy condition, half the scores were consistent and half inconsistent with their expectations. By this procedure, we could obtain an index of participants' reliance on their expectancy at retrieval by comparing the relative accuracy of their recall of the consistent and inconsistent scores. Specifically, we measured recall accuracy in terms of the absolute difference between a participants' recalled score and the actual score. Greater weight given to the expectancy would result in relatively accurate recall of the consistent scores but expectancy-congruent distortion of the inconsistent scores. Thus, participants expecting improvement should recall the improving scores accurately but distort the declining scores to be lower than they actually were (consistent with their expectancy of net improvement in performance).

Conversely, participants expecting decline should recall the declining scores accurately but distort the improving scores to be higher than they actually were (consistent with their expectancy of net decline in performance). Greater weight given to the memory trace should result in accuracy for both expectancy-consistent *and expectancy-inconsistent* information. Thus, the critical measure is the amount of distortion displayed in the recall of the inconsistent scores.

In addition, we included a recognition task following the recall task. Participants were given a two-alternative forced-choice task for each of the original midterm scores. Following the procedure outlined by Bellezza and Bower (1981), we varied the incorrect alternative (or foil) presented with the correct original score: In half the cases, it was expectancy congruent (e.g., a lower score than the correct score in the expect improvement condition) and in half the cases it was expectancy incongruent (e.g., a higher score than the correct original score in the expect improvement condition). In this way, signal detection analyses could be performed to discriminate true memory from expectancy-congruent guessing or response bias; if participants are simply guessing based on their expectancy, they should display high accuracy when the correct score is paired with an expectancy-incongruent foil but poor accuracy when the correct score is paired with an expectancy-congruent foil. On the other hand, if participants display equally high accuracy when an expectancy-congruent or an expectancy-incongruent foil is paired with the correct score, it indicates true memory for the original score. Thus, via both of these indices, we can assess the relative weight given the expectancy as opposed to the memory trace at retrieval.

The results supported our predictions: Participants in both the T2 and T3 conditions (i.e., conditions in which receipt of the expectancy was delayed) displayed expectancy-congruent distortion of inconsistent scores and relatively accurate recall of the consistent scores, indicating that they gave greater weight to the expectancy at retrieval. Analyses of the recognition data also revealed that T2 and T3 participants showed enhanced expectancy-congruent response bias (i.e., consistently guessing the most expectancy-congruent of the two alternatives) relative to no-expectancy (control) participants, further illustrating their reliance on their expectancy. Interestingly, the performance of T2 and T3 participants did not differ on any of these measures. In contrast, T1 participants (i.e., those who received the expectancy immediately after the original information) showed significantly less expectancy-congruent distortion in their recall of the inconsistent scores and little or no response bias on the recognition items, suggesting that they gave less weight to the expectancy at retrieval. Thus, it appears that the salience of the expectancy at retrieval indeed affects the relative weight given to the expectancy in their recall and recognition performance.

However, comparisons between the performance of T1 and no expectancy (control) participants revealed a surprising set of results. T1 participants showed greater overall recall and recognition accuracy than did the control

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(no-expectancy) participants. Signal detection analyses revealed that T1 participants showed better true memory for the original scores than did the controls, suggesting that they were not only giving less weight to the expectancy but also giving significantly greater weight to the memory trace at retrieval. What might be the source of this enhanced memory? Recall that T1 participants received the expectancy immediately after the original information (and prior to the retention interval). This expectancy information alerted participants to the relevance of the target's academic performance and to the possibility that a change would occur. Thus, it is likely that upon receipt of this expectancy information, participants would be motivated to go back and mentally review or "reprocess" the original scores in light of this expectation (asking themselves, "What were those scores again?"). Because of the temporal proximity of the expectancy to the original scores in the T1 condition, participants were able to successfully reprocess the original information, resulting in a stronger memory trace for later recall. However, participants in the T2 and T3 conditions would be less able to reprocess the original scores because the original information was no longer as salient and accessible by the time they received the expectancy.

This explanation provides a reasonable account for the Hirt et al. (1993) data. Moreover, research by Wyer et al. (1982) corroborates this reprocessing notion. Wyer et al. used the same perspective manipulation (home buyer vs. burglar) as Anderson and Pichert (1978) used. In their study, Wyer et al. (1982) found that supplying participants with a new perspective after the information was initially received led them to reconsider and reprocess the information, resulting in better overall memory for that information. This research suggests that discrediting testimony or other cues presented shortly after information is processed might similarly motivate reconsideration and reprocessing of the original information, the end result being not only disregard for the discredited information but also better overall memory.

Indeed, in a follow-up experiment (Hirt, McDonald, Erickson, & Gruberth, 1997), we tested the strength of the memory trace in our three timing conditions (T1, T2, T3). The experiment followed the same procedure used by Hirt et al. (1993). However, to test the strength of the memory trace more directly, participants did not receive the outcome information. Instead, borrowing from a methodology used by Fazio, Lenn, and Effrein (1983), we gave participants a reaction time task in which they were presented with questions about the original information as well as some filler trials (to provide a baseline index of each individual's response time). The questions were true–false statements and participants were asked to respond as quickly as possible without sacrificing accuracy. Three questions about each original score were presented, one with the correct score (e.g., midterm Chemistry score—75%?) and two foils, one higher (e.g., 79) and one lower (e.g., 71). The results indicated that T1 participants were not only more accurate in their memory for the original scores but also quicker in their responses. These results thus support the notion that these T1 participants have a stronger

memory trace for the original scores, resulting in better overall accuracy at retrieval.

Nature of the Memory Trace

The effects observed in the T1 condition highlight the role that the nature of the memory trace plays in the relative weighting process. Certainly, we would predict that strong memory traces will receive greater weight at retrieval than weaker traces. Imagine a case in which an individual has verbatim memory for the past ("I know for a fact he got an 87 in American History"). In such circumstances, the memory trace receives exclusive weighting and the expectancy and outcome information are weighted zero. However, in most circumstances, memory traces are weak or incomplete or have decayed with time to the point that accuracy (or confidence in accuracy) is substantially reduced.

What factors contribute to the development of strong memory traces? The most obvious answer to this question involves the way the original information is initially encoded. Indeed, a great deal of research manipulated the goals with which individuals encode information. Although a comprehensive review of this work on encoding goals is beyond the scope of this chapter, we focus our discussion on the three most frequently used encoding set manipulations: recall set, impression set, and comprehension set. Our choice in focusing on these encoding sets is based on both theoretical and empirical grounds. A recall set is important because it offers an index of participants' performance when their goal is explicitly to remember the information for later recall. Another useful condition is a comprehension set condition, in which participants are told to merely comprehend the information and to focus on the coherence and grammaticality of the statements (Lichtenstein & Srull, 1987); this condition establishes a baseline of incidental learning when participants' goal is not to focus on the content of the presented information. An impression set (in which participants are told to form an impression of the target) is important given that it is arguably the dominant encoding set operative during social interaction, and based on the vast empirical literature on the memory effects associated with this goal.

The most straightforward prediction that one could make is that individuals under a recall set would give the greatest weight to the memory trace and show the most accurate recall and least amount of expectancy-congruent distortion. Recall sets promote individuals to rehearse and learn the information verbatim (i.e., memorize), resulting in a stronger and more detailed memory trace. Conversely, comprehension set individuals should have a very weak memory trace and be forced to rely heavily on their expectancies to reconstruct the past. Predictions regarding the impression set condition are more difficult. On the one hand, numerous studies in the person memory literature demonstrate superior memory in impression set over recall set conditions (e.g., Hamilton, Katz, & Leirer, 1980; Srull et al., 1985). Specifically,

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given sets of behaviors performed by a target person, impression set participants were able to recall a greater number of these behaviors in a later recall test than were recall set participants. Additional studies (Lichtenstein & Srull, 1987) comparing performance across recall, impression, and comprehension set conditions again found better recall by impression set subjects, though recall in both impression set and recall set conditions was superior to that in comprehension set conditions. Presumably, these effects occur because the memory traces formed under impression set instructions are well organized and coherent, characterized by numerous interconnections among items in memory. Thus, on the basis of this evidence, one might expect the performance of impression set individuals to equal or exceed that of recall set individuals.

On the other hand, individuals given an impression set tend to form global or summary evaluations of the original information. There is literature to suggest that these summary structures are stored independently from the original information on which they were based (Carlston, 1980; Lingle & Ostrom, 1979; Schul & Burnstein, 1985a; Wyer, Srull, & Gordon, 1984). Indeed, these studies show that impression set individuals tend to base later judgments on these summary evaluations rather than accessing the details of the original information. For instance, Carlston (1980) had participants read behavioral descriptions that could be interpreted in multiple ways under an impression set. One such behavior would be a person Paul who helps a friend complete a take-home exam. This behavior could be interpreted as "helpful" or "dishonest." Participants in Carlston's (1980) experiments were asked to make a judgment about either Paul's helpfulness or his dishonesty immediately after reading the behavioral description. After a delay, participants were asked to judge Paul on the other trait dimension. If participants used their impression as a basis for the later trait judgment (rather than the original information), those who judged Paul as helpful should rate Paul more positively (more honest) than participants who earlier rated Paul as dishonest. If participants instead rated Paul on the basis of the original information, they should not be affected by the earlier judgment. Carlston found that impression set participants used their prior impressions as opposed to the actual original information as a basis for subsequent trait judgments.

Moreover, Higgins's work on "changes of standard" (Higgins & Lurie, 1983; Higgins & Stangor, 1988) finds that the recall of subjects given an impression set is strongly affected by changes in the contextual information provided. In Higgins's work, participants typically read about a judge (Judge Jones) and his sentencing decisions for different crimes and are asked to make a judgment about the severity versus the leniency of this particular judge. Participants are also given the sentencing decisions of other judges as a context for making this judgment; however, in these experiments, the sentencing decisions of the other judges are manipulated so that Judge Jones either looks harsh relative to the others or lenient relative to the others. Participants are

later asked to recall the specific sentencing decisions of Judge Jones. Higgins et al. find that participants' recall is strongly biased by their impressions of Judge Jones such that those who judged him as lenient (but given the identical original information) recall shorter sentences than those who judged him as harsh. Thus, the context biased their impressions of Judge Jones, leading participants later to distort their memory of the original information to be consistent with their current impressions. Similarly, in our reconstructive memory paradigm, the expectancy information provides a ready context within which to assimilate one's recall of the past. Thus, based on this literature, we predicted that the performance of impression set individuals should be worse than that of recall set individuals (though still better than that of comprehension set individuals).

Hirt, McDonald, and Erickson (1995) tested these predictions. Participants encoded the original information about the target person under either recall, impression, or comprehension set instructions and then completed a task designed to solidify those encoding instructions. Recall set participants were asked to recall all the information they could from the original information sheet. Impression set participants were asked to give their general impression of the target person. Comprehension set participants rated the original information passage in terms of its grammar and comprehensibility. From that point on, the study followed the standard T3 procedure in which all participants completed a series of filler tasks during the retention interval, received the expectancy and outcome information, and then completed the recall and recognition tasks. The results indicated that recall set participants were quite accurate in both their recall and recognition performance and gave little weight to the expectancy during retrieval. Impression set and comprehension set participants both showed significant expectancy-congruent distortion in their responses, indicating that they were giving considerable weight to the expectancy during retrieval.

The second study (Hirt et al., 1995, Study 2) included a delay condition in which participants came back 2 days later to complete the recall and recognition measures. Importantly, for these delay condition participants, the expectancy and outcome information was also provided after the 2-day interval to equate the salience of these sources of information at retrieval. The results of this study illustrated that the differences between the encoding set conditions were enhanced with delay. Recall set participants continued to show no expectancy-congruent distortion even over the delay, whereas the magnitude of the distortion was significantly greater over the delay for both impression set and comprehension set participants. In fact, the responses of comprehension set participants in the delay condition revealed a pattern of expectancy-based guessing (cf. Ross & Conway, 1986), indicating no contribution of any memory trace to their recall and recognition responses.

These results emphasize the role of the nature of the original memory trace in reconstructive memory. Individuals under recall set instructions formed memory traces that resulted in more accurate memory for the past

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Accuracy Motives

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and reduced the weight given to the expectancy at retrieval. The memory traces of participants under impression and comprehension set instructions were weaker, leading participants to weight the expectancy more heavily and thus show greater expectancy-congruent distortion. Based on these results, it is tempting to conclude that recall sets are likely to consistently result in more accurate reconstructive memory. However, we believe it is important to acknowledge that in this research, we were assessing memory for details (i.e., specific grades). Because recall sets lead to more precise, verbatim encoding of the original information, participants are likely to display better memory for details (see also Cohen & Ebbesen, 1979). However, although there are many situations in which accurate recall of specific details is very important (e.g., eyewitness testimony and academic test taking), in other situations memory for the "gist" of the information is sufficient. In such circumstances, the use of abstracted, trait-based representations of the original information formed under an impression set would facilitate greater organization and interconnections between items in memory, resulting in the successful retrieval of more of the original information (Hamilton et al., 1980).

Thus, the implications of this work for the accuracy of reconstructive memory depends on which definition of "accuracy" one uses. When accuracy is defined in terms of memory for specific details, then a recall set will result in more accurate memory. However, when accuracy is defined in terms of the recall of a greater amount of the available information (or of summary evaluations of that information), then an impression set will result in more accurate memory.

Motivation

To this point, we have focused exclusively on more structural factors that affect the relative weighting of the expectancy versus the memory trace. However, we have neglected the role that motivational factors play in determining which source of information receives greater weighting at retrieval. A number of different motivations may be operative when one attempts to reconstruct the past. Kunda (1990) distinguishes between two major classes of motivational goals: (1) accuracy goals, in which one desires to arrive at an accurate conclusion; and (2) directional goals, in which one desires to arrive at a particular (desired) conclusion. We discuss each of these goals separately, emphasizing their implications for the accuracy of reconstructed memories.

Accuracy Motives

In most tasks we perform, accuracy is not our primary goal. Indeed, the view that individuals are "cognitive misers" (Fiske & Taylor, 1991), limited in their capacity to process information and primarily interested in conserving mental resources, once dominated the field of social psychology. However, more

recently, this view has been replaced with one emphasizing that people are "motivated tacticians" who have multiple cognitive strategies available to them and choose among them based on their motives and goals (Fiske & Taylor, 1991). According to this view, people who are motivated to do so can use more complex, effortful, and effective strategies when processing information, resulting in greater accuracy; however, unmotivated individuals use shortcuts and simplifying tools or heuristics to get a task done more quickly. In our reconstructive memory paradigm, reliance on the expectancy at retrieval can be construed as such a shortcut: A great deal of mental effort is necessary to access the memory trace of the original information, so that it is tempting to simply infer the past based on the outcome and expectancy. However, to the extent that individuals are motivated to be accurate in their recall of the past, they should expend greater mental effort and thus give greater weight to the memory trace at retrieval.

Hirt (1990, Study 3) tested this hypothesis by providing some participants with accuracy motivation immediately prior to the recall task. Accuracy motivation was induced by one of two different means. One group of participants was told that they would receive a monetary incentive for accurate performance (namely, accurate recall of all of the past scores would qualify them for a lottery with a $100 cash prize). Another group of participants was given context reinstatement instructions (cf. Bekerian & Bowers, 1983; Hasher & Griffin, 1978; Tulving & Thomson, 1973). Specifically, these participants were told to try to "picture the original information sheet in their minds" in a manner similar to how an eyewitness might try to mentally "recreate the scene of the crime." The results indicated that both of these accuracy motivation manipulations were successful at reducing the amount of expectancy-congruent distortion in recall. Participants given accuracy motivation gave greater weight to the memory trace at retrieval, resulting in more accurate recall of the past.

On the surface, these findings are not particularly surprising—people are more accurate when they are motivated to be accurate (cf. Aderman & Brehm, 1976; Brockway, Chmielewski, & Cofer, 1974; Gauld & Stephenson, 1967). However, a number of memory studies (Fischhoff, 1975; Loftus, Miller, & Burns, 1978) found that accuracy incentives fail to increase memory accuracy. Indeed, for accuracy goals to work, individuals must be able to gain access to the original trace and must decide to expend the necessary effort to do so. In the present context, participants know that the original information is "in there," so the motivation simply encourages them to work harder to access this information. Conversely, in many of the studies that fail to find effects of accuracy incentives, it is unclear whether participants either had access to the original information and/or believed that their current memory was in fact inaccurate (and that they needed to modify their recall of the event). Nonetheless, this is an area of reconstructive memory that clearly merits further investigation.

Directional Motives

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Directional Motives

Another set of motives can often exert a directive influence on information processing. In many cases, people are motivated to see particular outcomes. For example, when I (E. R. H.) go to my physician for a series of tests done, I am motivated to have the test results come out negative, indicating that I am healthy and have nothing to worry about. Research illustrates how the motivation to see desired outcomes leads to biased information processing strategies. People motivated to maintain certain beliefs were shown to selectively focus on supportive rather than opposing beliefs (Kunda, 1987; Pyszczynski & Greenberg, 1987), to evaluate data inconsistent with a desired conclusion more critically than information consistent with it (Ditto & Lopez, 1992; Fazio & Williams, 1986; Lord, Ross, & Lepper, 1979), and to choose inferential rules (Ginossar & Trope, 1987) and test strategies (Quattrone & Tversky, 1984) that increase the likelihood that evidence in favor of the desired conclusion will be obtained. Importantly, Kunda (1990) points out that people are not simply free to engage in "wishful thinking" and believe whatever they want to believe, independent of any evidence. Instead, she argues, that people "attempt to be rational and construct a justification of their desired conclusion that would persuade the dispassionate observer" (p. 482). Thus, people are compelled to construct an evidentiary base to justify their motivated beliefs.

Reconstruction of the past is one means by which people might justify their desired conclusion. If a student wants to convince him- or herself that studying hard is a waste of time, he or she might selectively recall situations in the past in which he or she did not study and still did quite well. Kunda and her colleagues demonstrated such effects in a clever set of studies (Kunda & Sanitioso, 1989; Sanitioso, Kunda, & Fong, 1990). Participants in their studies were led to believe that either introversion or extraversion was associated with future academic success and then later given an autobiographical memory task. Participants who were led to believe that introversion was desirable were more likely to report memories of past introverted behavior first and reported more introversion-related memories overall than did participants who were led to believe that extraversion was desirable (Sanitioso et al., 1990). By selectively recruiting memories, participants were able to conclude that they in fact had the more desirable trait.

On the surface, one might question whether these results reflect memory or merely strategic self-presentation. That is, are participants really remembering different events when they are motivated to do so or are they simply reporting or confabulating events that portray themselves in the most positive light? This is clearly a difficult issue to answer, particularly in studies of autobiographical memories—after all, one cannot assess the veracity of these memories without independent verification. However, several findings in this literature render a self-presentational explanation of these results unlikely. First, a number of studies show that individuals' memory for the past is not

particularly self-aggrandizing. For instance, Conway and Ross (1994) found that participants in a study skills improvement course recalled their past level of study skills as worse than they actually were, in the service of their expectancy of improvement. Similarly, McFarland et al. (1992) found that older participants who believed that certain attributes declined over time recalled the past as better, making the present look even more bleak. Second, a number of studies (Bem & McConnell, 1970; Conway & Ross, 1984; Goethals & Reckman, 1973) illustrated that these motivated distortions in memory appear even when participants are fully aware that the accuracy of their recall can be checked. Thus, there is solid evidence that these results reflect biased memory search over and above self-presentational concerns.

These studies illustrate the powerful biasing effects of directional motives on memory search processes. However, McDonald and Hirt (1997) hypothesized that expectancy use at retrieval might likewise be a function of motivational goals: namely, people would give greater weight to their expectancy in their reconstruction of the past to the extent that they desired to see their expectancy confirmed. Certainly, in many cases, we are motivated to see our expectancies confirmed. After all, many of the expectancies we hold derive from our wishes and desires (cf. Pyszczynski & Greenberg, 1987; Trope & Liberman, 1996). In these circumstances, when expectancies match our desires, we should be strongly compelled to use our expectancies as a basis of reconstructing the past, resulting in significant expectancy-congruent distortion of the past. However, when expectancies and desires mismatch (e.g., "My team is lousy and is expected to fail but I really want them to win"), we would expect people to give little weight to their expectancies ("We're going to do it!").

McDonald and Hirt (1997) tested their hypotheses using the standard Hirt et al. paradigm. Participants were given either improvement or decline expectancies about the target person's academic performance. In the improvement scenario, participants were told that the target (J. W., a male college student) had recently begun to date another student who was serious about academics. His new girlfriend was having a very positive influence on him, such that he was now putting greater effort into his schoolwork and was gaining greater confidence in his abilities, suggesting continued improvement. In the decline scenario, participants were again told that the target had a new relationship, but in this case his girlfriend was not at all serious about school. She was clearly having a negative influence on him, encouraging him to put less effort into his schoolwork so he could stay out late and party (implying continued decline).

In these studies, however, we also manipulated participants' motivations to see either a positive (improvement) or negative (decline) outcome for the target via a likability manipulation. Participants watched a videotaped interview in which the target person (J. W.) interviewed a fellow student. Ostensibly, participants believed that they were watching the interview to evaluate the interviewer's skills and performance. Three different versions of the interview were created to manipulate participants' liking for the target. In the likable

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arland et al. (1992) found that
n attributes declined over time
it look even more bleak. Second,
; Conway & Ross, 1984; Goethals
otivated distortions in memory
e that the accuracy of their recall
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tional concerns.
ing effects of directional motives
Donald and Hirt (1997) hypothe-
likewise be a function of motiva-
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n expectancies match our desires,
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esires mismatch (e.g., "My team is
t them to win"), we would expect
cies ("We're going to do it!").
r hypotheses using the standard
n either improvement or decline
idemic performance. In the im-
nat the target (J. W., a male college
r student who was serious about
very positive influence on him,
ort into his schoolwork and was
, suggesting continued improve-
ere again told that the target had
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luence on him, encouraging him
ne could stay out late and party

ipulated participants' motivations
egative (decline) outcome for the
ants watched a videotaped inter-
iewed a fellow student. Ostensibly,
ing the interview to evaluate the
different versions of the interview
king for the target. In the likable

condition, the interviewer was very polite and friendly, clearly making an effort to put the interviewee at ease. In the dislikable condition, the interviewer was rude, abrupt, and unfriendly, making for a painfully uncomfortable interaction. In the neutral condition, the interviewer was businesslike and expressed no affect either way. All participants received the same set of original (midterm) scores and the identical set of outcome (final) scores and then completed recall and recognition measures assessing memory for the original information.

We expected that participants would want to see the positive expectancy (improvement) confirmed for a liked target but would want to see the negative expectancy (decline) confirmed for a disliked target. Thus, under conditions in which their expectancy and liking "matched" (expect improvement for a liked target, expect decline for a disliked target), we predicted that participants would be motivated to see their expectancy confirmed and thus give significant weight to their expectancies during retrieval and show expectancy-congruent distortion of the past. Conversely, under conditions in which expectancy and liking "mismatched" (expect improvement for a disliked target, expect decline for a liked target), we predicted that participants would be motivated to discount their expectancy (e.g., "It isn't going to happen—he's too nice a guy to let her ruin his life"), giving little or no weight to the expectancy at retrieval.

Although these predictions appear straightforward, we want to highlight the counterintuitive nature of these predictions. In the "match" conditions, participants are hypothesized to give greater weight to their expectancies, resulting in a pattern of expectancy-congruent distortion. Thus, we predicted that participants would recall *lower* past grades for a liked target (consistent with an expectancy of improvement) and *higher* past grades for a disliked target (consistent with an expectancy of decline). Conventional wisdom would suggest that we would like to see a liked target do well and a disliked target do poorly, all other things being equal. Indeed, when we ran a separate set of subjects who were given the liking manipulation and no outcome information, individuals who liked the target did in fact recall his original scores (which were the same for all participants) as higher overall than individuals who disliked the target. But in our paradigm, participants received outcome information (his final scores) so that their recall of the past is constrained by the present. In this case, the focus is on performance *change* rather than absolute level of performance. Thus, participants who liked the target would be motivated to recall lower past performance, indicative of a positive change; likewise, participants who disliked the target would be motivated to recall higher past performance, indicative of a negative change.

The results of McDonald and Hirt's (1997) experiments found support for their hypotheses. Participants in match conditions showed significant expectancy-congruent distortion in both their recall and recognition responses. Participants in the mismatch conditions, however, displayed little expectancy-congruent distortion in their responses. Mismatch condition

participants appeared to be discounting the expectancy at retrieval and instead revealed a tendency to either (1) distort their recall in a manner consistent with their liking for the target (rather than the expectancy) or (2) engage in more effortful, data-driven retrieval of the original information, resulting in more accurate overall performance.

These results provide strong evidence in support of the notion that people weight their expectancies based on their motivational goals. When the expectancy leads one to recall a desired past, one will be motivated to give it greater weight at retrieval. If the expectancy works against one's motivational desires (and points to an undesired past), one will be motivated to give it little or no weight at retrieval. Moreover, by reconstructing the past in this way, people create justifications that allow them to maintain desired beliefs. Sanitioso et al. (1990) illustrated how biased recruitment of memories can justify desired beliefs about one's level of introversion–extraversion. Similarly, here we see that participants are able to justify their "just world" beliefs (Lerner, 1980) that good things happen to good people and bad things happen to bad people. Moreover, these perceptions of change have important implications for our predictions about the future (cf. Silka, 1989). Participants recalled the likable target as showing improvement over time, a desired outcome that has positive implications for the future; conversely, participants recalled the dislikable target as declining, a desired outcome that has negative implications for the future (e.g., "He is getting what he deserves").

To test these notions, McDonald and Hirt (1997) included measures that asked participants to predict the future of the target's relationship with his girlfriend as well as his academic performance the following school year. Participants in the match conditions predicted J. W.'s relationship was more likely to be maintained and predicted that his academic performance would continue in the expectancy-congruent direction (i.e., improving for the liked target, declining for the disliked target). Moreover, regression analyses indicated that participants' biased recollections of the past partially mediated their predictions of J. W.'s future performance. In other words, the more participants distorted their recall of the past in an expectancy-congruent manner, the more strongly they made expectancy-congruent predictions of the target's future performance. Thus, these data provide empirical support not only for the idea that motivational goals can bias memory reconstruction as well as memory search processes but also for the notion that motivated distortion of the past can serve as justification for desired beliefs.

CONCLUSION

We believe that the research that we have presented in this chapter provides strong evidence that expectancies presented after information is encoded can have strong biasing effects on memory. Although expectancy effects on encoding have been robustly demonstrated, many researchers (Alba &

Hasher, 1983; Higgins & Barg
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Finally, an important but

Hasher, 1983; Higgins & Bargh, 1987) have questioned whether there is sufficient evidence that expectancies introduced after the encoding of the original information can bias memory. Many of the extant studies have been criticized as demonstrating nothing more than retroactive inhibition effects or response biases at retrieval. The present research controlled for these factors and reliably demonstrates that expectancies induced at retrieval can lead to systematic distortion of the past. Moreover, these studies emphasize that expectancy manipulations not only result in the selective retrieval of expectancy-congruent items in memory (cf. Sanitioso et al., 1990) but can also lead to expectancy-congruent distortion of memory of the same information (cf. Vorauer & Ross, 1993). Thus, not only do people expecting a particular outcome selectively recall *different* information, but they may also recall the same information differently—in other words, they may distort it in a manner that confirms their expectancies.

Despite these powerful biasing effects of expectancies, however, we know that people can also be quite accurate in their recall of the past. Moreover, their responses indicate that they are not entirely "theory driven" and oblivious to the actual data. Indeed, the Hirt (1990) model emphasizes the role of the memory trace at retrieval and the fact that the relative weighting given to the memory trace as opposed to the expectancy determines the accuracy of reconstructed memories. This model thus incorporates the potential for either theory-driven or more data-driven processing at retrieval. A number of moderator variables have already been identified that predict when individuals tend to give greater weight to the memory trace as opposed to their expectancy (e.g., the temporal relationship between encoding and the receipt of the expectancy, the perceiver's goals during encoding, incentive for accuracy, and mismatches between motivation and expectancy). We are also exploring other moderator variables that might affect the relative weights given to these factors.

One factor that we have not explored sufficiently is the nature of the expectancy (cf. Olson, Roese, & Zanna, 1996). Expectancies, like memory traces, can vary in strength. In our experiments, we have given participants powerful expectancies that virtually guaranteed that the expected outcome would occur. However, most expectancies that we hold are more probabilistic in nature—stereotypic expectancies about others, expectancies about potential health outcomes or health risks, expectancies about the effectiveness of an intervention or a social program. It remains to be seen whether individuals are sensitive to the probabilistic nature of expectancies or whether they treat them in an "all or nothing" fashion. Evidence from work in hypothesis testing suggests that individuals test even tentative hypotheses using strategies that increase the likelihood of hypothesis confirmation (Devine, Hirt, & Gehrke, 1990; Skov & Sherman, 1986). Thus, it would be important to examine memory effects using a broader range of expectancies that vary in strength and/or likelihood of occurrence.

Finally, an important but unanswered question with this research is the

permanence of these reconstructive memories. Once individuals reconstruct an expectancy-congruent past, does this become their "memory" for the past or is there the potential for individuals to go back and reaccess their memory trace? A number of studies using discrediting manipulations (e.g., Schul & Bernstein, 1985b) found mixed results regarding participants' abilities to ignore discredited or inadmissable evidence. These questions raise the larger issue of the extent to which the reconstructive process occurs on-line as participants receive the information or whether it must be prompted (e.g., by a memory test).

Our earlier research clearly emphasized the extent to which individuals could control the relative weight given to their expectancy as opposed to the memory trace at retrieval. However, our more recent work examining the influence of directional motives on memory (McDonald & Hirt, 1997) suggests to us that motivations and desires may exert a less conscious and more automatic effects on memory. As Kunda (1990) argues, individuals may be strongly biased by their motives, and yet convinced themselves that they are being completely rational and objective in retrieving information from memory. This argument suggests a more insidious kind of influence far more difficult to detect and control.

Indeed, we see our work on reconstructive memory as having important implications for work on false memories. For us, one of the most intriguing aspects of the Roediger and McDermott (1995) work on false memories is the fact that these memories are generated spontaneously and yet are held with such great confidence: Participants are more convinced that these strongly associated (but not presented) words were included on the list—and say that they specifically remember actually seeing or hearing them—than many of the items that were actually included on the list. Prior work on reality monitoring (cf. Johnson & Raye, 1981) also illustrated how people have great difficulty distinguishing real from imagined events. We believe that strongly held expectations may similarly make it difficult for individuals to distinguish actual from simply expected events. The extent to which such "wishful thinking" can result in systematic reconstruction and distortion in memory remains to be determined but is an interesting avenue for future research. Indeed, it is these aspects of reconstructive memory that have engaged researchers and laypersons alike since the time of Bartlett, because the study of memory touches something deep and fundamental about ourselves and our lives. We are continuing our own exploration of these reconstructive memory processes and *expect* the compelling nature of these questions to inspire future research for years to come.

NOTE

1. Interestingly, in the present research, we observed a tendency for participants not given an expectancy to self-generate an expectancy of stability. Moreover, the

recall and recognition responses in
their self-generated expectancies
expectancies were explicitly manip
role that expectations play in guidi

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recall and recognition responses indicated that no-expectancy participants weighted their self-generated expectancies to a similar degree as did participants whose expectancies were explicitly manipulated. These results emphasize the ubiquitous role that expectations play in guiding memorial reconstruction.

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