Evidence from both experimental laboratory studies and clinical observation supports the behavioral principle that immediate (compared with delayed) consequences are most influential in shaping future actions. This presents the theoretical possibility of conflicts of consequences (e.g., short-term positive vs. long-term negative). As one example, resistance to completing therapeutic homework assignments that instruct clients to approach feared situations may result in short-term positive outcomes, such as freedom from negative emotional experience (emotional avoidance), but is dysfunctional over time. Thus, temporal conflicts of consequences is one theoretical source of resistance in clinical treatment. In this article, the authors articulate how the activation of the metacognitive level theoretically mediates conflicts between short-term (immediate) and long-term (delayed) consequences, thereby facilitating therapeutic change and reducing resistance. This synthesis unifies principles of behaviorism and contemporary clinical cognitive theory.

Processes of Clinical Change and Resistance
A Theoretical Synthesis

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A central axiom of behavior modification is that the consequences of a behavioral event influence the occurrences of similar future actions. Skinner (1981), among other behaviorists, presented convincing experimental evidence that behavior is selected by its outcomes. One aspect of contingencies of reinforcement, temporal consequences conflicts (e.g., short-term negative vs. long-term positive outcomes),
relates theoretically to clinical change and resistance. This article elaborates on this concept.

Studies have consistently found a relationship between learning rates and the time that elapses between an action and its consequences. Specifically, responses that result in immediate reinforcement are shaped more rapidly than those that result in delayed outcomes. As elaborated below, studies by Mowrer and Ullman (1945), Renner (1964), and Shybut (1968) considered the issue of temporal variation in the association between behavior and its consequences. Shybut proposed clinical implications of temporal consequences discord. However, little has been written by clinical cognitive theorists on the question of how such learning takes place.

Eifert, Forsyth, and Schauss (1993) noted that in other sciences, “accuracy and achievements of earlier theories are maintained and further developed in the new theory” (p. 109). Because reinforcement principles and derivative conflicts of consequences are basic to clinical behavioral science, they must be included in any complete psychological analysis. In this article, we apply clinical cognitive theory to resolve the “neurotic paradox,” or temporal conflicts of consequences. In doing so, we provide a theoretical synthesis of behavioral and cognitive conceptualizations of clinical change and resistance.

RELATIONSHIPS BETWEEN BEHAVIOR AND OUTCOME

Whaley (1978) distinguished four logical relationships between behavior and its outcomes:

1. Persevering when one should (correct).
2. Persevering when one should not (incorrect).
3. Quitting when one should (correct).
4. Quitting when one should not (incorrect).

Although the long-term outcomes of actions are not always readily evident, they do nonetheless exist, and, accordingly, actions may be meaningfully labeled as correct or incorrect in terms of maximizing effects over the long term. As shown in Table 1, such outcomes can
be applied to help understand positive change and resistance phenomena in clinical practice. Cognitive theory axioms Number 5 and Number 10 (Alford & Beck, 1997, pp. 16-17) further elucidate this formulation:

**Axiom Number 5:** Although meanings are constructed by the person rather than being preexisting components of reality, they are correct or incorrect in relation to a given context or goal. When cognitive distortion or bias occurs, meanings are dysfunctional or maladaptive (in terms of systems activation).

**Axiom Number 10:** Schemas evolved to facilitate adaptation of the person to the environment and are in this sense teleonomic structures. Thus, a given psychological state (constituted by the activation of systems) is neither adaptive nor maladaptive in itself, but only in relation to or in the context of the large social/physical environment in which the person resides.

Inasmuch as effective environmental (contextual) circumstances are not always present to signal adaptive behavior, it is not invariably evident whether it would be better to persist in specific therapeutic actions that are not presently rewarding. To many clients, it may be unclear whether it would be beneficial to persist in therapeutic activities that do not provide immediate reinforcers. As a result, some clients may discontinue therapy or fail to complete homework assignments if positive outcomes are delayed. It may be that clients decline to persevere when perseverance would be rewarded. Inversely, a client may continue in dysfunctional conduct, thereby wasting valuable resources and procuring no positive outcome. The following review supports this possibility.

### EMPIRICAL STUDIES OF CONSEQUENCES CONFLICTS

Kimble (1961) referred to many animal studies and five separate lines of evidence that show that “responses spatially or temporally near reinforcement are learned more quickly than responses remote from reinforcement” (p. 140). Similarly, human laboratory studies have found that when reward is postponed, learning is retarded compared to when reinforcement is not delayed (Salzman, 1951). Thus,
the behavioral theory that the immediate consequences of behavior exercise more control on the probability of the occurrence of future similar responses has been supported both in experimental and clinical situations.

Cognitive theories advance similar conclusions. As one example, Bolles (1972) explicated the law of prior expectancy, which stated that organisms predict relationships between behavior and that behavior’s end result. These preceding expectancies compel restraints on adaptive learning, especially when reinforcement events (positive outcomes or consequences) are deferred in the presence of responses or cues that signal such consequences (Bolles, 1972, p. 405). Furthermore, studies confirm that dimensions of behavior other than rate of learning are dependent on this temporal effect, including shorter response latencies following acquisition trials in rats given immediate (versus delayed) reinforcement (e.g., Calef, Haupt, & Choban, 1994).

The central position of the timing of consequences in clinical behavior problems has been discussed previously by Goldfried and Davison (1976, p. 26), who designate “the so-called neurotic paradox,” which refers to behaviors having immediate positive consequences but long-term negative ones. By receiving an immediate reinforcement or reward for actions that lead to negative long-term consequences, a “behavior problem” develops because immediate

### TABLE 1

<table>
<thead>
<tr>
<th>Logical Relationships Between Behavior and Outcomes</th>
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<tbody>
<tr>
<td>1. Persevering when one should (Positive Change)</td>
</tr>
<tr>
<td>A behavior exemplified by completing homework assignments and attending sessions to obtain long-term positive consequences. Such perseverance is brought under the effective control of remote consequences through the mediating influence of the metacognitive mode.</td>
</tr>
<tr>
<td>2. Persevering when one should not (Resistance)</td>
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<tr>
<td>A behavior exemplified by continuing to act in a manner that is dysfunctional over the long term but immediately rewarding.</td>
</tr>
<tr>
<td>3. Quitting when one should (Positive Change)</td>
</tr>
<tr>
<td>A behavior exemplified by giving up dysfunctional habits despite short-term aversive consequences.</td>
</tr>
<tr>
<td>4. Quitting when one should not (Resistance)</td>
</tr>
<tr>
<td>A behavior exemplified by refusing to complete homework assignments, missing sessions, or otherwise undermining treatment that would, if completed, result in positive long-term consequences.</td>
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consequences are generally more powerful in shaping behavior. In the same manner, failing to obtain an immediate reward following an activity that has significant long-term positive consequences results in the failure of that adaptive behavior to persist in the person’s behavioral repertoire (Malott, 1980). This conflict between short-term and long-term consequences is involved theoretically in many significant psychological and psychiatric disorders including obesity, alcoholism and drug addiction, impulse control disorders, and numerous other psychopathological conditions.

Experimental data supports the formulation above. Renner (1964) cites Mowrer and Ullman (1945) as the first to prove conclusively that the timing of consequences is related to “non-integrative behavior,” or “behavior which has (long term) consequences which are usually more punishing than rewarding” (p. 87). In their study, 21 laboratory black rats were placed on a restrained diet that reduced their body weight by 15%. After maze training to run to food at the sound of a buzzer, a “rule” specified that they were not to touch the food for 3 seconds after it appeared in the food cup. If the rule was violated within this 3-second time period, then a 2-second shock was delivered from the floor of the training mechanism. Three equal groups were randomly selected from the 21 rats in the experiment: a 3-second group, a 6-second group, and a 12-second group. The groups differed only in terms of how quickly the shock was carried out following violation of the 3-second rule. The first group was punished immediately after touching the food within the 3-second time period, a second group was shocked 3 seconds after touching the food during the taboo period, and a third group was shocked 9 seconds following the infraction. Potential responses were normal, waiting 3 seconds and then eating; neurotic, not eating at all to avoid punishment; and delinquent, eating within the 3-second period at the price of receiving the electric shock.

This experiment showed that as time to negative consequences increased, normal (adaptive) behaviors decreased. Mowrer and Ullman (1945) described their observations as follows: “The capacity of the rat to compare and balance the good and bad consequences of an act is very dependent upon the temporal order and timing of these consequences” (p. 76). The authors concluded that “if an immediate con-
sequence is slightly rewarding, it may outweigh a greater but more remote punishing consequence. And equally, if an immediate consequence is slightly punishing, it may outweigh a greater but more remote rewarding consequence” (p. 87).

The conceptual significance of this experimental finding for theories of clinical behavior disorders has been (and remains) underestimated: “The growing number of behavior therapists who deal with impulsiveness rarely mention this model or specifically attribute impulsiveness to the discounting of delayed reward” (Ainslie, 1975, p. 469). A few researchers have given some attention to this, including in such studies as those by Mischel (1961, 1974) and Shybut (1968). Their findings are supportive of the theory that psychological disorders are related to the failure to resolve conflict between short- and long-term consequences. The central findings of their studies are that there is better psychological adjustment in those persons who have adaptively resolved the short-term/long-term conflict. Specifically, those participants who were found to behave to obtain larger but more long-term consequences, rather than less desirable (smaller) short-term consequences, showed greater adjustment. Participants were requested to choose among alternatives in realistic situations to measure their ability to maximize reinforcement over time. Preference for larger but delayed rewards was associated with higher scores on social responsibility, resistance to temptation, personal adjustment, intelligence, and achievement orientation (Mischel, 1961, 1974).

The study by Shybut (1968) tested the long-term versus short-term conflicts theory by evaluating patients with a variety of psychological and psychiatric problems. Participants included 30 normal individuals and 45 seriously disordered inpatients in a Veterans Administration hospital setting. Shybut measured disposition to delay gratification by having the participants select between immediate small reinforcement and larger reinforcement to be provided after the elapse of a period of time. He found the three groups to differ significantly. Consistent with the theory, the more extremely disordered participants chose the immediately available, but less desirable, reinforcers.

These experimental and clinical studies are consistent with the theoretical position that conflict between short-term and long-term con-
sequences of behavior may lead to clinical disorders. To act in a manner that maximizes outcomes of behavior over the long term, behavior and outcome must be mediated in some way because immediate reinforcement for goal-directed actions is not always available (Mischel, 1974, p. 288). Our central thesis is that this principle is especially applicable to the goals developed between therapist and client in clinical practice.

**COGNITIVE INTERCESSION OF CONSEQUENCES**

The studies reviewed above support the thesis that temporal conflicts of consequences may be psychopathogenic for the development of psychological disorders. In this section, we turn our attention to clinical cognitive theory which provides the necessary theoretical explanations to explain how consequences conflicts are resolved. A central theoretical construct of cognitive theory is the *schema*, the structure through which the human organism assigns meaning to circumstances, and processes information relevant to evolved strategies for adaptation to changing environments. Psychological adaptation is achieved through this “meaning-making” function of cognition. What is pertinent to behavior modification theory is that the meaning of *meaning* encompasses the constructed relation between a behavior emitted within a given context and the function of that action in reaching a therapeutic goal. Cognitive theory axioms Number 1 and Number 2 (Alford & Beck, 1997, p. 15) explicate this formulation:

**Axiom 1:** The central pathway to psychological functioning or adaptation is the meaning-making structures of cognition, termed schemas. Meaning refers to the person’s interpretation of a given context and the relationship of that context to self.

**Axiom 2:** The function of meaning assignment (at both automatic and deliberative levels) is to control the various psychological systems (e.g., behavioral, emotional, attentional, and memory). Thus, meaning activates strategies for adaptation.

Cognition as an evolved adaptational structure controls or directs behavior to attain positive consequences, both over the short term
and the long term. Clinical cognitive theory provides an account of behavior-reinforcement and associative relationships consistent with contemporary research (cf. Bouton, 1994; Powers, 1992). Although meanings are constructed by the person rather than preexisting aspects of reality, they are relatively accurate or inaccurate in relation to a given context and a person’s goals (cf. Searle, 1995). This corresponds to relational components of radical behavioral theory such as Whaley’s (1978) persisting when one should (correct), persisting when one should not (incorrect), quitting when one should (correct), and quitting when one should not (incorrect). When individuals engage in faulty cognitive constructions (cognitive distortions), behavior may occur in ways that lead to long-term negative outcomes.

The history of the development of clinical psychological theorizing indicates an evolution from (a) conditioning to (b) “verbal mediational” to (c) cognitive theories to explain complex clinical phenomena. Cognitive theory may also explain the mediation of short-term versus long-term consequences conflicts. The active position of the organism is an inherent part of both cognitive theory and Skinner’s notion of the operant. However, the level of analysis of cognitive theory encompasses both contextual and phenomenological dimensions. In describing developments in classical conditioning, Bouton (1994) analyzed how context provides meaning for Pavlovian cues by the reduction of ambiguity. This leads to more differentiated, adaptive responding. Memories of previous trials of cued responding in diverse contexts guide the differentiated responding. Bouton’s findings support cognitive theory in that, when behaviors change, responses are not unlearned, rather, they are under the control of higher cortical processes (such as memories of context) rather than “S-R,” reflexive processes. Thus, information processing is antecedent to strategies for adaptive responding.

THREE MODES OF COGNITION

Cognitive theory describes the function of cognition in the development, maintenance, treatment, and prevention of clinical disorders. Cognition involves the entire range of variables implicated in
the processing of information and meaning that, in the present context, refers to consciousness of relationships between behavior and consequences.

Clinical cognitive theory incorporates principles of human conscious experience as explanatory constructs (e.g., Beck, 1976). Unity, according to Searle (1993), is a key characteristic of human consciousness. Consciousness appears as one unified experience. He suggests that this aspect of consciousness is identical to that described by Kant as “the transcendental unity of apperception,” and to what contemporary neurobiology calls “the binding problem.” Important in the present context is that the unity of consciousness implies an intrinsic temporal element, that is, that “the organization of our consciousness extends over more than simple instants. So, for example, if I begin speaking a sentence, I have to maintain in some sense at least an iconic memory of the beginning of the sentence so that I know what I am saying by the time I get to the end of the sentence” (Searle, 1993, p. 314).

Cognitive theory stipulates three cognitive systems (or levels): (a) the preconscious, unintentional, automatic level, (b) the conscious level, and (c) the metacognitive level. Although the notion of distancing has been a central concept within cognitive clinical theory for some time (e.g., Beck, 1976, pp. 242-245), the relationship between this clinical construct and basic cognitive science has not previously been explicated. Distancing is an active, regulatory process that involves the activation of the metacognitive level of functioning. Flavell (1984) has defined the term metacognitive as any knowledge or cognitive activity that takes as its object, or regulates, any aspect of any cognitive enterprise. Similarly, Sternberg (1994) identifies metacomponents as one of three kinds of information-processing components of memory-analytic abilities. These are defined as “higher-order thought processes involved in planning what one is going to do, monitoring it while one is doing it, and evaluating it after it is done. . . . Examples of metacomponents are recognizing that one has a problem in the first place, defining what the problem is, setting up a strategy to solve that problem, monitoring one’s strategy as one is seeking to implement it, and evaluating the success of the strategy after one has completed implementing it” (p. 221). It is interesting that
each of these steps is explicitly included in the clinical practice of cognitive therapy. For example, the standard protocol for cognitive therapy of depression includes the identification of negative attitudes, the pinpointing of the most urgent and accessible problem, the development of homework strategies, the monitoring (recording) of homework strategies between therapy sessions, and the review of problems and accomplishments since the previous session (Beck, Rush, Shaw, & Emery, 1979, pp. 409-411).

In cognitive theory, the metacognitive level (a) selects, (b) evaluates, and (c) monitors the further development of schemas for particular situations, tasks, or problems. It is the cognitive level that regulates the lower cognitive levels. Thus, in addition to the automatic (or preconscious) level, cognitive theory posits the conscious level, wherein a person can report cognitive content. Furthermore, the metacognitive level allows the person in cognitive therapy to report processing operations and errors (e.g., arbitrary inference, personalization), as well as cognitive content.

Multiple levels of functioning have likewise been suggested by neobehavioral learning theorists (Amsel, 1989). In discussing this issue, Amsel suggests that there appears to be at least two levels that have been given the following different names: “non-cognitive versus cognitive; S-R versus cognitive; procedural versus declarative; procedural versus propositional (semantic and episodic); habit systems versus memory systems” (p. 84). In a critique of these models, he argues that they do not lead to the consideration or examination of transitions between levels, nor to recognition of the possibility of simultaneous operation of both levels.

However, cognitive theory was influenced by Freud’s concept of the hierarchical structuring of cognition into primary and secondary processes. In this manner, cognitive theory bridges the gap between the two levels of analysis. That is, cognitive theory incorporates both the unconscious level of functioning that has been the primary focus of conditioning, and also the “higher” levels (conscious and metacognitive levels) that have been of particular interest to most cognitivists.
Epstein (1994) elucidates the cognitive clinical perspective on the cognitive systems. He differentiates two cognitive systems: the experiential system (ES), which is based on associationistic connections, and the rational system (RS), which is based on cause-and-effect connections. The ES is associated with short-term consequences, engages in more rapid processing, and is experienced passively and preconsciously. The RS is associated with more long-term consequences, is characterized by slower processing and more delayed action, and is experienced actively and consciously. The RS is a conscious, more discriminating, analytic mode and can correct the primitive (ES) mode (S. Epstein, personal communication, October 12, 1994). Therefore, the coordination of these two cognitive systems may theoretically account for the resolution of short-term versus long-term consequences conflicts.

The above formulation is consistent with and provides empirical support for clinical cognitive theory (Epstein, Lipson, Holstein, & Huh, 1992). As presented previously, there are three levels of information processing within the cognitive system. These include the automatic, the conscious, and the metacognitive levels. (One pragmatic way to distinguish between the conscious and the metacognitive levels is in terms of active versus passive monitoring of conscious experience. The term metacognitive is used to convey the active, deliberative control function of conscious awareness.) The automatic level corresponds roughly to the ES and the metacognitive level to the RS. The metacognitive level involves “thinking about thinking” and is of most relevance in the present context because it is the level responsible for learning about and attending to delayed consequences.

In clinical cognitive theory, metacognition results from the operation of the conscious control system, a system that has evolved to override primal thinking, affect, and motivation. This system is responsible for setting and attaining long-term goals, and for problem solving. Moreover, the metacognitive level—unlike the automatic reflexes and impulses associated with the emotional and behavioral systems—allows the individual to form conscious intentions, including of course the achievement of long-term goals. In goal attainment, the activation...
and control of motivational and behavioral systems is implemented through the conscious control system. In achieving remote (in time) goals, this system resolves conflicts by simply overriding the control of short-term consequences. This is accomplished through such strategies as ignoring unpleasant affect associated with sustained goal-directed behavior (e.g., mild fatigue) and rational responding to negative automatic thoughts (e.g., fear of failure). Such override is logically necessary whenever the automatic systems are programmed to respond to aversive (or positive) short-term consequences by selecting behavior inconsistent with the long-term intended goals.

A problem for continuing experimental research is how the correction of cognition (product) through reevaluation (metacognition) leads to improvement. One explanation is that the experiential cognitive system (the automatic cognitive level) operates more reflexively and is intended to deal with certain general features of the environment (e.g., danger). Human biological adaptation is largely dependent on automatic (unconscious) processes. We are generally unaware of—and have little control over—most physiological responses to significant changes such as temperature and other stressors. However, psychological and social adaptation is often enhanced by conscious cognitive operations, especially metacognitive processes. Again, the notion of distancing is equivalent to activation of the metacognitive level.

The metacognitive level operates to provide “fine tuning” for the experiential cognitive system. Thus, the rational system would be activated in those situations where feedback indicates the experiential cognitive system to be dysfunctional. When for whatever reason or reasons the rational system is not properly activated or functions inadequately, the cognitive therapist, in conducting cognitive therapy, provides assistance in its activation. Thus, the cognitive systems interact adaptively in cognitive therapy of psychological disorders.

CONCLUSIONS

Several aspects of cognitive theory and metatheory have been described that provide a theoretical account of the resolution of temporal consequences conflicts. Among these characteristics, cognitive
theory accounts for human adaptation not only in attention to environmental consequences, but it also explicates cognitive mediation and the operation of distinct cognitive systems. The brain of Homo sapiens has apparently evolved enough adaptability to provide not only for planning, selecting appropriate memories, and so forth, but also for overriding the more primitive cognitive-affective-behavioral patterns when these are perceived to be maladaptive. Thus, although learning can take place on the substrate of primitive patterns (as shown in the experimental manipulations of learning and behavioral theorists), we also can learn at a higher level that is far more refined and, in many cases, more functional than the primitive operations designed for meeting emergency situations. This provides a theoretical explanation for the resolution of reinforcement (or consequences) conflicts that can be associated with resistance to clinical treatment.

REFERENCES


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