The most salient characteristic of the psychopath is the propensity to engage in maladaptive and inappropriate behavior of all sorts, including antisocial and criminal actions. Consequently, there is considerable interest—particularly in the field of criminology—in determining what sorts of treatment interventions are likely to be effective in modifying the problematic behavioral tendencies of this difficult population. We suggest that interventions are most likely to meet with success if they are based on an accurate understanding of the cognitive deficits that underlie psychopaths' tendency to engage in maladaptive and illegal acts. Herein, we describe a theoretical framework for conceptualizing psychopaths' information processing deficits (in which the concepts of automatic information processing and implicit cognition play central roles), then discuss implications of this formulation for the design and implementation of treatment interventions.

Although psychopaths superficially appear to be reasonable—even charming—individuals, closer examination typically reveals that they are prone to exceeding poor behavioral judgment. Specifically, psychopaths' most conspicuous characteristic is their propensity to engage in maladaptive and inappropriate behavior of all sorts, including antisocial and criminal actions (e.g., Cleckley, 1976; Grant, 1977). Indeed, although not all psychopaths are criminals (e.g., Cleckley, 1976), much of the current interest in psychopathy is due to its association with violations of legal standards of behavior. For example, psychopaths are significantly more likely than nonpsychopaths to commit serious criminal acts (Hare, 1996), and they reoffend following release at two to five times the rates of their nonpsychopathic counterparts (Hare, 1996; Hemphill, Hare, & Wong, 1998; Kosson, Smith, & Newman, 1990; Quinsey, Rice, & Harris, 1995; Serin, 1996). Hence, there is considerable interest in understanding the causes of psychopaths' penchant for maladaptive behavior, and in formulating effective treatment regimens to curtail this problematic tendency.

One of the most significant influences on the current conceptualization and understanding of psychopathy was provided by the writing of Hervey Cleckley (1976), who emphasized that, although psychopaths are impulsive and exhibit exceedingly poor judgment, their maladaptive behaviors are not due to intellectual deficiencies or irrational thinking. According to Cleckley (1976), “in complex matters of judgment involving ethical, emotional, and other evaluational factors... [the psychopath] shows no evidence of a defect. So long as the test is verbal or otherwise abstract, so long as he is not a direct participant, he shows that he knows his way about.” Nevertheless, “when the test of action comes to him we soon find ample evidence of his deficiency” (p. 346). In other words, the psychopath is able to exercise sound judgment in the abstract, but appears relatively incapable of doing so when engaged in goal-directed action. We consider this to be an integral characteristic of the psychopath: adequate abstract understanding of what constitutes adaptive behavior, but a deficiency in the ability to use this knowledge to guide behavior in actual situations, particularly when engaged in the pursuit of a behavioral goal.

However, although the psychopathy diagnosis (a) has a long history of clinical use (e.g., Cleckley, 1976; Grant, 1977; Millon, 1981); (b) is of substantial practical utility, particularly in the field of criminology; and (c) can be diagnosed with a degree of reliability that is comparable to, or exceeds, diagnoses included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) (e.g., Hare, 1996), psychopathy is not recognized as a distinct diagnostic category within the DSM-IV framework. Rather, those psychopaths who prominently manifest antisocial behavior (as opposed to other sorts of maladaptive or self-defeating propensities) are likely to receive a diagnosis of antisocial personality disorder (APD).

The APD diagnosis is based primarily on behavioral criteria, such as the repeated commission of illegal acts, deceitfulness, aggressiveness, and a disregard for the safety of self or others. Nonetheless, we, like Cleckley (1976), believe that specific information-processing deficiencies, rather than antisocial or criminal behavior, constitute the defining features of psychopathy. In the following sections, we elaborate on this proposition, then discuss implications of psychopaths' information-processing deficits for the design of treatment interventions.
Automatic and Control Information Processing, Response Modulation, and Self-Regulation

In our efforts to elucidate the information-processing abnormalities that are associated with psychopathy, we have made use of the venerable concepts of automatic and control information processing (e.g., Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). Although the denotations and connotations of those terms have varied somewhat among researchers (see, for example, Bargh, 1989; Bargh & Ferguson, 2000; Cohen, Dunbar, & McClelland, 1990), we have found these constructs to be of substantial heuristic value in conceptualizing psychopaths' maladaptive behavior. We view automatic processes as (a) relatively uninfluenced by capacity limitations or concurrent memory load (e.g., Shiffrin & Dumais, 1981) and (b) not requiring conscious control in order to operate (e.g., Schneider & Shiffrin, 1977).

Conversely, capacity limitations are a hallmark of control (or attentional; Shiffrin, 1988) information processing. Specifically, control processing (a) utilizes limited-capacity working memory (e.g., Bargh & Ferguson, 2000) and (b) requires attention (e.g., Shiffrin & Schneider, 1977). Thus, if attention is not allocated to a specific bit of information, the control processing of that information does not occur.

In addition, we have employed the concepts of self-regulation and response modulation to describe the processes that underlie psychopaths' impulsive and self-defeating behavior. Self-regulation is largely a control processing activity (Gilbert, 1989; Kanfer & Gaelick, 1986), and entails evaluating and, if necessary, altering or correcting, goal-directed responses or potential response strategies. Hence, when self-regulatory processes are functioning properly, behavior that is appropriate or adaptive is continued. Conversely, if the response is judged to be inappropriate or maladaptive in light of the current situation, then it is either modified or inhibited and replaced with another response strategy.

Self-regulation is particularly important for the evaluation of dominant or prepotent response tendencies, because a person's response tendencies or biases are, by definition, highly accessible. That is, a response inclination that is associated with a particular situation or cue is likely to be expressed when the relevant stimulus is encountered, unless the response is judged to be inappropriate and is inhibited by self-regulatory control processes. Consequently, in the absence of effective self-regulation, prepotent responses have a high probability of being emitted, even if they are poorly suited to the current situational context.

Self-regulatory processes, then, are control processes that entail the evaluation of the suitability of dominant responses prior to their enactment, as well as the alteration of ongoing, but maladaptive, goal-directed behavior. Response modulation, on the other hand, is an automatic process that is involved in the initiation of controlled self-regulation, promoting the interruption or inhibition of behavior "in response to information arising from internal associations or feedback from the external environment" (Newman & Wallace, 1993, p. 700). Specifically, response modulation consists of brief shifts of attention from the execution of goal-directed behavior to the evaluation of whether or not the behavior or response strategy is, in fact, appropriate given the current situational context (e.g., Patterson & Newman, 1993). That is, the automatic response modulation process mediates the alternation of the attentional focus between the execution of a response and the evaluation of its suitability. Therefore, although the actual evaluative and corrective self-regulatory activities are primarily control processes, the initiation of those control processes often depends on relatively automatic shifts of attention.

Finally, we describe certain stimuli or information as being secondary to a person's current response strategy. This term is intended to denote environmental cues, or internal representations and associations, that are not of primary significance with respect to the current response strategy and so are not the focus of attentional or control processing. Nonetheless, the utilization of secondary information often is necessary for evaluating the suitability of a goal-directed response (i.e., for adaptive self-regulation), particularly if the information indicates that the response strategy is inappropriate or is not producing the desired result. For example, a person who is attempting to initiate a relationship with an attractive individual would benefit considerably by attending to nonverbal cues indicating that the current approach or strategy is creating a negative impression, and so should be modified or altered.

In addition, secondary information is, by definition, information that is not currently the focus of attention. Therefore, attention must be reallocated to the processing of that information in order for it to be utilized to further controlled self-regulation. Moreover, as just discussed, this redirection of attention often depends upon the automatic shifting of attention from the execution of a response to its evaluation. Thus, self-regulatory control processes frequently are dependent on the automatic direction of attention to secondary information, which may be essential for evaluating the suitability of both prepotent response strategies and ongoing goal-directed behavior.

Conclusions Regarding Psychopaths' Deficit

As we explicate next, it is apparent from both clinical and experimental observations that psychopaths' impulsive, ill-conceived, and self-defeating behavior is attributable
largely to the fact that they experience considerable difficulty in evaluating and modifying their behavior when engaged in the pursuit of a behavioral goal (e.g., Gorenstein & Newman, 1989; Patterson & Newman, 1993). That is, psychopaths' poor judgment, and their consequent propensity for maladaptive behavior, can be conceptualized as reflecting an impairment of self-regulatory control processes (e.g., Wallace, Schmitt, Vitale, & Newman, 2000; Wallace, Vitale, & Newman, 1999). That impairment (a) increases the probability that prepotent or dominant responses will not be adequately evaluated prior to their execution, and so will be manifested regardless of their suitability (or lack thereof), and (b) decreases the probability of evaluating and correcting ongoing goal-directed responses in light of situational constraints that may arise.

Psychopathy and Implicit Memory

Prepotent or dominant response inclinations may be conceptualized as reflecting the actions of automatic or implicit cognitive processes (e.g., Wallace & Newman, 1997). Specifically, internal representations of actions that previously have been associated with particular situational contexts or cues are highly accessible when similar situations or cues are subsequently encountered. This process is conceptualized as a form of implicit cognition that involves implicit memory processes (e.g., Stacy, 1997; Stacy, Ames, Sussman, & Dent, 1996), in that it is dependent upon the strength of associations in memory between specific stimuli and courses of action that are related to them, which are automatically activated when the relevant stimuli are encountered.

Because behaviors with strong associations to particular situations are readily accessible, they have a high probability of being initiated in those situations. Thus, responses having strong implicit memory associations are prepotent or dominant in the situations that are associated with them. Similarly, actions (e.g., drinking alcohol) that have been associated with specific desired outcomes (e.g., feeling relaxed) are likely to "come to mind" automatically when the outcome is again desired. Therefore, behavioral predispositions (i.e., dominant or prepotent response strategies) may be considered to reflect the action of implicit memory processes.

The preceding discussion suggests that psychopathy is associated with an increased influence of implicit cognition, particularly implicit memory processes. This is because (a) psychopaths are impaired in their ability to engage in controlled self-regulation, (b) impaired self-regulation increases the probability that prepotent or dominant responses will be initiated, regardless of their suitability to the current situational context, and (c) dominant response inclinations reflect the influence of implicit memory processes. Thus, psychopaths' impaired self-regulation increases the influence of implicit cognition (i.e., implicit memory processes), in that prepotent (but maladaptive) response tendencies or biases have a higher probability of being expressed without adequate evaluation.

Parenthetically, this formulation is consistent with the proposition that a specific type of maladaptive behavior, such as criminality, does not constitute the defining feature of psychopathy: Problematic behavioral predispositions of all sorts have a relatively high probability of being expressed due to psychopaths' self-regulatory deficit. Furthermore, due to individual differences in learning histories and innate temperament, the idiosyncratic response inclinations that characterize any given psychopath may entail behaviors that are maladaptive (e.g., financial irresponsibility, interpersonal abrasiveness, sexual promiscuity), but not necessarily unlawful. Therefore, although all psychopaths are prone to behave in maladaptive ways due to their impairment of self-regulation, not all psychopaths are criminals.

Psychopathy and the Utilization of Secondary Information

We have suggested that psychopaths are deficient in their ability to engage in self-regulatory control processes. However, this formulation then raises the question of what might cause psychopaths to experience difficulty in evaluating prepotent response strategies or in modifying goal-directed behavior.

Recent experimental investigations of psychopaths' impaired ability to regulate goal-directed behavior (for reviews, see Newman, 1998; Newman & Lorenz, 2002; Wallace et al., 1999, 2000) suggest that psychopaths do not automatically allocate attention to information that is secondary to their current response strategies as efficiently as do nonpsychopaths. Hence, psychopaths suffer an impairment in their ability to utilize secondary information.

For example, in one recent study (Lorenz & Newman, 2002) participants performed a lexical decision task in which they identified—as rapidly as possible—letter strings as either words or nonwords. The word stimuli were of either positive, negative, or neutral emotional valence, and previous research (e.g., Challis & Krane, 1988) has shown that emotion words are identified more rapidly than neutral words. This facilitation is considered to reflect the influence of the automatic or implicit affective associations of the emotion words, which, when activated, speed the identification of the stimulus as being a word (Lorenz & Newman, 2002).

1 In accord with Cleckley's conceptualization of psychopathy, the research of Newman and colleagues has focused primarily on psychopaths who manifest relatively low levels of trait anxiety (see Schmitt & Newman, 1999).
In addition, the letter stimuli were presented in blocks of trials, and, after each trial block, participants switched the hand that they used to respond to the stimuli. This manipulation followed from other studies (e.g., Beren-stein, Newman, Wallace, & Luh, 2000; Kosson, 1998) suggesting that psychopaths have particular difficulty when a task places substantial demands on left hemisphere information-processing faculties.

Finally, after completing the lexical decision task, participants used a rating scale to appraise the affective significance (i.e., positive, negative, or neutral) of the word stimuli. This permitted an examination of the extent to which the emotional connotations of the words were accessible to psychopaths using control, rather than automatic, information processing.

As predicted, psychopaths manifested less response facilitation for the emotion words than did nonpsychopaths when responding with their right hands (which presumably entailed a greater dependence on left hemisphere information processing). However, psychopaths were as able as nonpsychopaths to utilize the implicit affective associations of the emotion words (i.e., evidenced similar levels of facilitation) when responding with their left hands (which entailed greater involvement of the right cerebral hemisphere).

These results are consistent with the hypothesis that psychopaths manifest impairments in the utilization of automatic or implicit associations or information, especially when that information is of a secondary nature. Furthermore, similar results have been obtained using affectively neutral secondary associations or information (Lorenz & Newman, 2002; Newman, Schmitt, & Voss, 1997), indicating that the deficiency in using secondary information is not limited to implicit associations involving emotional connotations.

It is also noteworthy that the deficient use of secondary information appeared to be specific to circumstances that primarily utilized left hemisphere information processing resources (i.e., when participants were required to respond with their right hands). This result is likely to have significant implications for understanding the biological basis of psychopaths’ self-regulatory deficit, and certainly will merit further experimental investigation.

Last, psychopaths and nonpsychopaths did not differ in their ability to rate the affective significance of the word stimuli. That is, their ability to utilize the emotional connotations of the emotion words in an intentional or controlled manner was not impaired. Thus, this experiment highlights the fact that psychopaths do not evidence significant impairments in processing information when that information is central to their current goal or response strategy. Specifically, it appears that psychopaths’ information processing capabilities are comparable to those of nonpsychopaths when the task does not require the use of automatic processes to direct or allocate attention to the processing of secondary stimuli or information (see also Arnett, Howland, Smith, & Newman, 1993; Newman & Kosson, 1986; Newman, Patterson, Howland, & Nichols, 1990; Newman, Patterson, & Kosson, 1987). Rather, psychopaths’ deficit is evident when the task requires attention to be redirected automatically from the current attentional focus to the processing of secondary information.

Furthermore, because psychopaths do not automatically allocate attention to secondary stimuli as efficiently as do nonpsychopaths, that information often is unavailable to support controlled self-regulation (i.e., to evaluate prepotent response strategies or goal-directed behavior). That is, psychopaths have substantial difficulty in revising response strategies in light of information that is inconsistent with those strategies, because attention is not efficiently allocated to the processing of that information.

In summary, psychopaths manifest a deficit in the ability to allocate attention automatically to information that is secondary to ongoing goal-directed behavior or prepotent response strategies (e.g., implicit associations that have accrued to a particular stimulus). This deficit, in turn, diminishes the awareness and processing of that information. However, secondary information may be essential for evaluating ongoing behavior or prepotent responses, particularly if that information indicates that the response strategy is inappropriate or is not producing the desired result. The consequence of this deficit is that psychopaths are impaired in their ability to engage in the controlled evaluation and correction (i.e., regulation) of their goal-directed behavior or dominant response inclinations, which, in turn, predisposes them to act in impulsive and self-defeating ways.

Finally, this work also highlights the proposition that psychopaths’ deficit may derive the influence of certain implicit cognitive processes. That is, psychopaths do not automatically allocate attention to secondary stimuli (e.g., automatic or implicit associations of environmental stimuli or cues) as efficiently as do nonpsychopaths when engaged in the pursuit of a behavioral goal. In consequence, those implicit associations are less readily utilized (i.e., the influence of this sort of implicit cognition is diminished). Thus, although at a superficial level psychopaths manifest an increased influence of implicit cognition (i.e., implicit memory processes) by virtue of the increased probability of expressing dominant or prepotent response tendencies, at a more fundamental level it is evident that psychopaths’ impaired self-regulation is associated with a deficit in implicit cognitive processes (i.e., automatic processing of secondary information).

Hence, psychopathy may be considered to reflect both an increase and a decrease in the influence of implicit cognition. Specifically, psychopaths’ deficit in utilizing
secondary information (e.g., automatic or implicit associations of environmental cues) contributes to impaired self-regulation, because implicit associations or information may be relevant for the evaluation of goal-directed responses. Furthermore, the impaired ability to regulate prepotent response tendencies increases the influence of implicit memory processes. Therefore, in psychopaths, a decrease in the influence of one sort of implicit cognitive process causes an increase in the influence of another.

**Psychosocial Interventions for the Treatment of Psychopathy**

Before proceeding, we wish to emphasize that we do not view the present formulation as the final descriptive statement of the underlying deficit that causes psychopaths' inefficient use of secondary information. Specifically, recent evidence (e.g., psychopaths' particular difficulties involving the use of left hemisphere information processing capabilities) suggests that psychopaths' impairment in automatically allocating attention to secondary information is the result of a more fundamental deficit involving automatic information processing or implicit cognition. We fully expect that advances in cognitive neuroscience (e.g., Botvinick, Braver, Barch, Carter, & Cohen, 2001; Posner & DiGirolamo, 1998) will make it possible to specify with increasing precision the psychological and biological processes that are involved in the etiology of psychopathy.

However, regardless of the specific abnormality that is determined to underlie psychopaths' inefficient use of secondary information, an obvious goal of a treatment regimen is to decrease the adverse impact of this inefficiency upon their ability to engage in the regulation (i.e., evaluation and correction) of prepotent response options. Hence, treatment may be conceptualized as promoting an increase in psychopaths' ability to engage in the regulation of maladaptive response tendencies by developing ways of compensating for their impaired ability to utilize secondary information.

We acknowledge that psychopaths constitute one of the most challenging populations for clinicians. Nevertheless, we believe that effective treatment definitely is a feasible goal (see Salckin, 2002; Serin & Kuriychuk, 1994). Indeed, several eminent researchers and clinicians have proposed promising strategies for treating psychopaths (e.g., Beck, Freeman, & Associates, 1990; Doren, 1987; Lykken, 1995). As we will discuss in the subsequent sections, our current theoretical understanding suggests a treatment regimen consisting of an integration of standard conditioning procedures with facets of the work of several of those researchers.

We first examine the importance of instilling in psychopaths a motivation to participate in the therapy process, as well as methods for doing so. Next, a conditioning regimen is described that involves training psychopaths to (a) detect problematic situations or cues, (b) pause when those stimuli are detected, and (c) evaluate their response options and select an appropriate alternative (i.e., engage in self-regulatory control processing). As will be discussed in more detail below, this training enables psychopaths to compensate for their inefficient utilization of secondary information in several ways, including strengthening the call for processing associated with problematic situations and cues (which increases the ability of those stimuli to attract attention) and increasing the accessibility of adaptive response options (which decreases the extent to which maladaptive alternatives are prepotent or dominant). Finally, we consider the use of cognitive interventions in the treatment of psychopathy.

**Motivation**

A primary difficulty in treating psychopathy is that psychosocial treatment interventions, particularly those of the cognitive and behavioral varieties, require the expenditure of considerable effort, and often subjective discomfort as well, on the part of the patient. Therefore, a prerequisite to any cognitive or behavioral treatment program is the presence of motivation on the part of the patient to be an active participant (e.g., Burns & Nolen-Hoeksema, 1991).

However, psychopaths are notoriously unmotivated to engage in the treatment process, due largely to a lack of recognition on their part of any need for them to change. (It is true that psychopaths may "go through the motions" of treatment to attain extrinsic rewards, such as privileges or parole, but this sort of motivation generally does not produce either the requisite expenditure of effort or lasting benefits.) Given the frequent problems that psychopaths' behavior causes for themselves and others, the failure to perceive a need for change may appear quite inexplicable, or may be attributed to factors such as "a bad attitude" or "resistance."

A somewhat more useful perspective is that the lack of a perceived need to change is due largely to psychopaths' tendency to make external attributions—especially, to blame others—for difficulties that they have encountered in their lives (Hare, 1970; Ingram, 1990). It is likely that this attributional style is associated with their general deficit in the utilization of secondary cues. In particular, psychopaths are relatively unlikely to shift attention away from salient environmental stimuli (e.g., Newman & Lorenz, 2002). Hence, they focus more on external circumstances than upon themselves when forming attributions for negative life events.

From this perspective it follows that, for psychopaths to be genuine participants in the treatment process, they must come to the realization that it is in their best interests
certain changes in their behavioral styles (Beck et al., 1990; Doren, 1987). However, this realization requires that they revise their attributions for the lack of success of their preferred response strategies.

Our approach to altering psychopaths’ erroneous external attributions, and to instilling a motivation to make substantive changes in their response inclinations, is to demonstrate to them (a) the presence of the deficit in the use of secondary information, and (b) that this deficit has an adverse effect on their ability to achieve desired goals by virtue of the impulsive, ill-conceived, and self-defeating actions that result.

One useful framework for conceptualizing this phase of treatment is provided by motivational interviewing (MI; Miller & Rollnick, 1991; Rollnick & Miller, 1995). First, patients’ motivation to participate in treatment is enhanced when they perceive a discrepancy between their current life situation and their desired life goals, because this recognition creates motivation to eliminate that discrepancy. Treatment is then presented as a process that will aid the patient in correcting the perceived discrepancy between their actual circumstances and their goals (Beck et al., 1990; Doren, 1987). Simply discussing with patients their aspirations provides an opportunity for them to consider the disparities between those goals and their current life circumstances.

Once psychopaths have recognized a discrepancy between actual circumstances and desired life goals, this knowledge may be extended to a more specific understanding of the information-processing deficit that is responsible for much of the difficulty that they have encountered. One way of revealing the deficit involves the use of experiential, computer-based exercises (“video games”) that directly engage patients, and demonstrate both (a) psychopaths’ inefficient use of secondary information or cues, and (b) that their impulsive, nonreflective response style may have counterproductive consequences (e.g., they are relatively unsuccessful in performing the video games). Those exercises could be based on one or more of the experimental paradigms that have been shown to expose psychopaths’ self-regulatory deficits (see Newman, 1998; Newman & Lorenz, 2002; Wallace et al., 1999, 2000).

The computer-based exercises are used in conjunction with discussions of how the inefficient use of secondary information might adversely affect the patient’s efforts to attain desired goals. Those discussions involve speaking first in general or hypothetical terms about the sorts of problems that a person suffering from this deficit might expect to encounter. It is likely that patients will recognize some of those hypothetical problems as resembling difficulties that they actually have experienced, which provides a relatively nonconfrontational avenue from which to approach the topic of how their information-processing deficit has adversely affected them. This intervention is designed to move psychopaths away from a perspective involving the unquestioning blame of others for misfortunes and toward a nonjudgmental examination of the contributions of their information-processing deficiencies and response inclinations.

However, as MI emphasizes, it is crucial to avoid the use of confrontational tactics in an attempt to force patients to acknowledge either a diagnostic label or a particular deficit. For persons in general, and certainly for psychopaths, this sort of approach is likely to result in a defensive, adversarial stance (Miller, Benefield, & Tognan, 1993; Patterson & Forgatch, 1985). Therefore, the interventions used in this phase of the therapy process must shift the focus away from a stigmatizing or blaming perspective (e.g., involving the interpretation of psychopaths’ maladaptive behavior as due primarily to personal or character defects) to a view that psychopaths’ failure to regulate behavior in an appropriate manner is due to a deficiency in utilizing secondary information, over which, at present, they have little control.

As just discussed, motivation to participate in therapy requires an understanding by psychopaths that they suffer from an information-processing deficit involving the utilization of secondary information, which undermines their pursuit of desired life goals. A second requisite is that patients develop some hope that the deficit can be overcome (Miller & Rollnick, 1991). It is at this point in therapy that the focus begins to shift to possible intervention strategies. Discussion of techniques that psychopaths may use to attain desired goals, emphasizing the rationales for those techniques, promotes a collaborative, optimistic therapeutic atmosphere. To the extent that patients feel both (a) that they have an impairment that impedes the attainment of desired goals, but (b) that successful intervention is possible, they will be more likely to experience genuine motivation to participate in the therapy process.

Behavioral Interventions

Although instilling motivation is a prerequisite to successful treatment, it does not constitute the treatment itself. This is because motivation (“will power”) usually is not, in and of itself, sufficient to produce substantial behavioral changes. Without direction in terms of how to utilize or focus their motivation and efforts, the deficiency in utilizing secondary cues will continue to exert an adverse influence despite psychopaths’ resolve to change. As one psychopath observed: “I always know damn well I shouldn’t do these things, that they’re the same as what brought me to grief before. I haven’t forgotten anything. It’s just that when the time comes I don’t think of anything else. I don’t think of anything but what
I want now” (Grant, 1977, p. 60). This individual clearly is expressing a desire to act differently, but is unable to do so through the use of “will power” alone.

Pausing and self-regulation. Perhaps the most fundamental intervention to promote self-regulation in psychopaths involves the use of basic conditioning procedures to teach psychopaths to hesitate or pause briefly before proceeding with a goal-directed response strategy. This constitutes one of the most direct methods of compensating for the psychopaths’ impairments because it provides increased time to engage in control processing, thereby decreasing the reliance upon deficient automatic processes to utilize secondary information. Hence, the probability is enhanced that relevant secondary information will be utilized to evaluate response options.

In fact, it has been demonstrated experimentally that the longer a person pauses before acting, the greater is the likelihood that secondary information will be utilized to affect behavior in an adaptive manner (e.g., Newman et al., 1990). More specifically, experimental manipulations that induce psychopaths to pause and process secondary information have been shown to eliminate their deficits in task performance (Arnett et al., 1993; Newman et al., 1987).

Initiating the pausing response. The ability to pause before proceeding with a goal-directed response requires that problematic situations, or cues associated with undesirable outcomes, initiate or trigger the pausing response. One relatively straightforward method of increasing the probability that pertinent situations or cues will initiate the pausing response entails, first, assisting each individual in determining the sorts of stimuli or stimulus contexts that are likely to be associated with maladaptive behavioral choices and undesirable outcomes.

Because the sorts of situations that are problematic for a particular individual are somewhat idiosyncratic (e.g., the availability of alcohol for a person who has had particular problems associated with intoxication, an unattended car for a person who has frequently stolen automobiles), the list of situations must be individualized. Creating a retrospective record of situations that were associated with negative or aversive outcomes and creating a current diary of instances of self-regulatory failures constitute methods of identifying those situations that are likely to be problematic for each individual (Beck et al., 1990).

Nevertheless, it is important to bear in mind that, if the timing of this intervention with respect to the overall therapy process is not appropriate, focusing on patients’ past and present failures may promote an adversarial stance by making them feel blamed or belittled. Hence, it is of critical importance not to attempt to create an inventory of self-regulatory failures until a reasonably collaborative therapy relationship has been established.

After generating a list of target situations, patients are encouraged to identify the elements of the situations that are most salient to them. Training patients to pause when those salient stimuli are detected is likely to be more efficient than attempting to train them to detect aspects of the situation that may be of relatively low subjective prominence. Note that the salient stimuli associated with a problematic situation may include internal states (e.g., affective reactions to the situation), as well as external features of the situation itself. In consequence, we recommend training psychopaths to detect the onset of certain internal states, so that these, too, can initiate the pausing response.

For example, although psychopaths are not characterized by abnormally high levels of affect intensity, targeting strong affect—especially anger or frustration—is likely to be of some value. This is because, as the intensity of emotional responses increases, the efficacy of self-regulation decreases (e.g., Newman & Lorenz, 2002; Newman & Wallace, 1993). Specifically, heightened emotional intensity often causes a decreased ability to utilize secondary cues and information to evaluate and correct ongoing responses or goal-directed response strategies. This process is especially problematic for psychopaths, because it exacerbates their preexisting deficit in the utilization of secondary information.

Hence, when experiencing strong affect, it usually is adaptive for persons in general (and for psychopaths in particular) to pause and consider response options before embarking on a course of action. For example, an individual who has a history of assaultive behavior associated with anger dyscontrol would benefit from training to pause and consider alternative responses when the intensity of anger is beginning to escalate.

Other examples of possible target states include urges associated with desirable (but maladaptive) behavioral goals (e.g., alcohol or drug consumption). Also, as noted in the discussion of implicit memory, thoughts of desired outcomes (e.g., feeling relaxed) may have strong associations with maladaptive response options (e.g., drinking alcohol). Thus, pausing when an outcome associated with a maladaptive response comes to mind is likely to increase the probability of selecting a more adaptive response alternative.

Once a catalog of problematic situations and (internal or external) cues has been compiled, the patient practices (a) identifying or detecting examples of those designated target stimuli, and (b) pausing when they are detected. This training could involve a number of techniques, including role-playing and the use of a signal detection paradigm in which still or video images are presented, some of which are exemplars of the target stimuli.

In addition, the use of appropriate incentives for detecting target stimuli augments the efficiency of the conditioning procedures by increasing psychopaths’ engagement.
with the training. This increase in efficiency occurs because psychopaths' processing of stimuli that are central or primary to their current behavioral goal is not impaired. Hence, if it is important to the patient to perform well on the training tasks, the relevant stimuli will be the primary focus of attention and will be processed efficiently. As with other aspects of the treatment regimen, the selection of appropriate incentives is based on the characteristics of each individual patient. For instance, incarcerated psychopaths are likely to be motivated by monetary rewards or other tangible incentives. On the other hand, a nonincarcerated patient of relatively high socio-economic status may respond more favorably to an amiable challenge to perform well on the task.

Providing psychopaths with extensive training in the detection of problematic situations or cues directly compensates for their relatively inefficient allocation of attention to secondary information by increasing the strength of the call for processing associated with the problematic stimuli (i.e., the tendency of those stimuli to attract attention). This is because repetitive information processing involving a particular stimulus yields an increased strength of the call for processing that is associated with that stimulus (e.g., Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977). That is, the more frequently that a stimulus is the object of information processing activities during training, the stronger is the associated call for processing when it subsequently is encountered. As the strength of the call for processing associated with a particular stimulus increases, the probability that psychopaths' information processing resources will be allocated to the stimulus also increases, despite the relative inefficiency of their automatic attention allocation processes.

Furthermore, as training progresses (i.e., with increasing numbers of pairings of the target stimuli and the pausing response), the strength of the associations between the internal representations of those stimuli and the pausing response increases. This development, in turn, increases the probability that the patient will pause when the problematic situations or cues are encountered.

Engaging in self-regulation. When patients have learned to (a) detect or recognize problematic situations and cues and (b) pause when those target stimuli are detected, the treatment focus shifts to developing the ability to engage in self-regulatory control processing (i.e., the evaluation of the suitability of various response options and the subsequent selection of an adaptive alternative). This involves an extension of the previous training, in that, after pausing, the patient engages in the requisite evaluative and response selection activities. Evaluating and selecting responses may be done either covertly, with only the final response selection being verbalized, or by verbalizing the underlying thought processes as well as the response that ultimately is selected.

In structuring the practice sessions, target situations should be arranged in a hierarchy of difficulty (e.g., on the basis of the patient's personal history and current opinions). The less difficult or problematic situations are then practiced first to promote the experiencing of initial success in mastering the evaluation and selection processes (R. C. Serin, personal communication, March 20, 2002). In addition, during this phase of treatment the vignettes or role-play techniques that are used to facilitate the acquisition of self-regulatory skills also should be utilized to assess a patient's level of skill acquisition (R. C. Serin, personal communication, March 20, 2002). Again, to increase a patient's engagement with the training regimen (and so their processing of the relevant stimuli), incentives that are appropriate to each patient should be provided for the appropriate evaluation of, and selection among, response alternatives.

A necessary component of training psychopaths to evaluate and select responses is the development of a repertoire of adaptive response alternatives that can be used when problematic situations or cues are encountered. Consequently, a menu of potential responses is collaboratively generated. Again, repetition or rehearsal is the key to enabling successful use of adaptive response alternatives: Repeated activation of internal representations of the response options increases their accessibility, so the probability is enhanced that those will be considered when selecting a response strategy. For instance, if a person is offered drugs by a coworker, the probability of successful refusal is greater if he or she has rehearsed in advance several ways in which the offer might be declined.

This intervention strategy constitutes, in effect, retraining relevant implicit memory processes; that is, new associations in memory are developed between problematic situations or cues and adaptive response options. As those new associations increase in strength, competition between old, maladaptive response inclinations and new responses increases. The consequent decrease in the extent to which maladaptive responses are prepotent or dominant increases the likelihood that they will be adaptively regulated. In consequence, the probability that the maladaptive responses will be automatically expressed also is reduced.

Furthermore, increasing the accessibility of adaptive response options may alter the specific stimuli that are of primary and secondary significance for the patient in each target situation. In particular, stimuli that were secondary in terms of the old, maladaptive response inclinations may have primary status with respect to the newer, more adaptive response options. For example, if a patient's original default option for obtaining sexual gratification involved the use of intimidation or force, the affective responses of the other person, negative or otherwise, are unlikely to be a primary concern. In other words,
those affective reactions are likely to be secondary with respect to the dominant response strategy, and so will be inefficiently processed and utilized to guide behavior. If, on the other hand, the patient develops a response repertoire that includes attempting to induce the other person to entertain positive, if not outright amorous, feelings, then that person’s affect will constitute primary information with respect to this behavioral strategy. In this manner, psychopaths’ deficit in using secondary information is circumvented, because important contextual cues that were secondary to the previous, maladaptive response inclinations become a primary focus of attention, and so are available to support self-regulatory information processing.

Finally, to maximize the probability that treatment gains are maintained over time, the optimal treatment regimen entails periodic retraining sessions that occur after the patient’s “graduation.” Those sessions provide an opportunity to reactivate the associations between previously identified problematic situations or cues and the pausing response, and between pausing and self-regulatory control processes. In addition, new target cues or situations, and corresponding menus of adaptive response alternatives, can be added on the basis of the patient’s changing life circumstances. Consequently, periodic retraining increases the likelihood that adaptive response options will continue to be selected when problematic situations are encountered.

Proactive self-regulation. The aims of the conditioning regimen that we have described are to increase (a) the call for processing associated with problematic situations and cues, (b) the strength of the associations or connections between internal representations of those designated target stimuli and the pausing response, (c) the accessibility of adaptive response options, and (d) the strength of the associations between the pausing response and self-regulatory control processes (in particular, evaluating the suitability of various response options, and selecting adaptive alternatives). With increasing amounts of practice or repetition, the probability is enhanced that self-regulatory control processing will occur in the presence of designated target stimuli, thus decreasing the probability that the patient will act in a maladaptive manner.

However, due to psychopaths’ profound lack of responsibility to secondary information when engaged in goal-directed action, the likelihood of effective self-regulation is dramatically reduced once they are actively pursuing a behavioral goal. Specifically, even with considerable training, target stimuli may not precipitate pausing once a goal-directed response strategy has been initiated, particularly if those stimuli are secondary with respect to the ongoing response (e.g., Newman, Wallace, Schmitt, & Arnett, 1997, Experiment 2).

We conclude that interventions aimed at promoting self-regulation of ongoing maladaptive response inclinations are likely to be of limited benefit to psychopaths. Hence, the treatment program that we espouse is largely proactive in nature. That is, it has the overriding goal of curtailing the initiation of goal-directed behaviors that are maladaptive in the current situational context, which reduces psychopaths’ need to employ processes in which they manifest deficits (e.g., allocating attention automatically to secondary information) to correct ongoing, but inappropriate, responses.

One example of this treatment strategy involves pausing when a problematic situation is encountered, then making a deliberate (i.e., controlled) decision simply to avoid the situation. The advantages of this behavioral option may be understood using the concepts of protracted and decisional self-control (Kanfer & Gaelick, 1986). Decisional self-control involves making a single choice or decision that effectively avoids exposure to a problematic situation, whereas protracted self-control necessitates relatively continuous resistance to the temptation to engage in an attractive, but maladaptive, response alternative. For instance, a person might make a conscious decision not to associate with individuals who engage in high-risk behaviors, such as burglary or theft (decisional self-control). This course of action would be considerably more effective and less effortful than attempting to avoid participating in questionable actions while consort with those persons (e.g., while they are making plans to rob a convenience store), which requires protracted self-control.

It should be apparent that the proactive strategy of pausing before entering a problematic situation, then engaging in decisional self-control to avoid the situation entirely, is substantially less effortful, and carries a higher probability of averting maladaptive actions, than does protracted self-control. This is because protracted self-control requires the relatively continuous utilization of self-regulatory control processes, including attending to secondary information (e.g., the potential adverse consequences of engaging in an attractive, but maladaptive, course of action), whereas decisional self-control does not.

Cognitive Therapy

The reader may have noted that the treatment recommendations discussed to this point have emphasized behavioral interventions, and that concepts that usually are associated with the cognitive model of psychopathology, such as maladaptive schemas and automatic thoughts (e.g., Beck, 1976), have received little consideration in our discussions of psychopathy. The absence of the cognitive model from the preceding discussions might be regarded as especially remarkable given that (a) psychopaths who habitually engage in antisocial actions often meet diagnostic criteria for APD, and (b) the antisocial behavior associated with APD is considered to result from
the presence of dysfunctional schemas and beliefs (e.g., Beck et al., 1990; Young, 1994). The sorts of antisocial beliefs that characterize APD include “wanting something or wanting to avoid something justifies my actions” (Beck et al., 1990, p. 154) and “people are there to be taken” (Beck et al., 1990, p. 26).

Why, then, are antisocial beliefs not accorded a more prominent role in our model of psychopathy? First, not all psychopaths exhibit the antisocial beliefs or attitudes (Cleckley, 1976), such as those associated with APD, and those sorts of beliefs are present in many persons who are not psychopaths. In other words, antisocial schemas are not pathognomonic with respect to psychopathy.

Second, from our perspective all psychopaths do suffer from a specific information-processing deficiency that results in the inefficient use of secondary information. Stated another way, psychopaths’ fundamental deficit involves an information-processing deficiency (an abnormal cognitive process), rather than abnormal cognitive contents, such as specific antisocial schemas or beliefs (see Hollon & Garber, 1988).

Nonetheless, cognitive therapy interventions are likely to be of considerable benefit to those psychopaths who prominently manifest antisocial beliefs or attitudes, because modifying those beliefs will decrease the probability of choosing antisocial, self-defeating goals and goal-directed responses. One way of conceptualizing the development of a more prosocial set of response inclinations is as a gradual movement away from a focus on immediate gratification, regardless of the consequences for others, to a longer range view of the patient’s self-interest that includes consideration of the interests of others (Beck et al., 1990). Promoting this broader view of self-interest involves discussing (a) life goals that the patient has identified as being important to him or her, and (b) how the pursuit of immediate gratification may impede the attainment of those goals (Beck et al., 1990). These treatment objectives might be pursued retrospectively, by analyzing past problems that the patient has encountered, as well as how the self-centered pursuit of immediate gratification has contributed to those problems.

On the other hand, an alternative approach involves the prospective evaluation of behavioral strategies that the patient could use in future situations (e.g., pursuing immediate gratification vs. using more suitable response options). This intervention strategy promotes a shift to a longer-term perspective, because the identification of adaptive responses entails evaluating not only the probable outcomes of various response alternatives, but also the extent to which those outcomes are either consistent or inconsistent with the patient’s long-term self-interest. A benefit of this prospective technique is that discussing factors that may lead to future success or failure in achieving desired goals is less likely to cause the patient to feel blamed or belittled than would the dissection of past mistakes or misdeeds.

One important result of examining ways of effectively attaining important goals (i.e., of promoting an awareness of factors that further the attainment of those longer range goals) is that patients begin to understand that disregarding the adverse impact of their actions on others often is counterproductive in terms of their own self-interest. That is, patients come to the realization that an increased consideration of others’ interests often will advance their own long-term aims (Beck et al., 1990). For example, the advantages of compromising with others, rather than using confrontational or coercive tactics, are likely to become apparent (the former is likely to promote cooperation, whereas the latter may provoke active opposition). As a result, the patient’s prepotent response inclinations shift from the pursuit of immediate gratification, regardless of the cost to others, to a more prosocial set of response tendencies that take into account the reactions of, or effects upon, other persons. This strengthening of prosocial response inclinations decreases the extent to which antisocial tendencies are dominant or prepotent. Thus, the probability that antisocial responses will be evaluated and replaced with more adaptive alternatives (i.e., regulated) is increased.

**Conclusion**

On the basis of the current body of experimental results, we suggest that psychopaths are less able than non-psychopaths to utilize automatic processes to allocate attention to the processing of secondary cues or information (such as implicit associations of environmental stimuli). This deficit causes a decreased ability to make use of secondary information, which, in turn, results in impairments of self-regulatory control processes. For example, prepotent response tendencies, which are associated with implicit memory processes, are more likely to be expressed regardless of their suitability to the current situational context. Therefore, psychopaths may be conceived as manifesting an implicit cognition deficit (i.e., in the automatic processing of secondary associations or information), which causes an increased influence of another sort of implicit cognition (i.e., implicit memory processes associated with dominant response inclinations).

From this perspective it follows that an effective treatment program for psychopathy consists of enabling psychopaths to compensate in various ways for their deficient use of secondary information, thus promoting adaptive self-regulation. We described a conditioning regimen that entails training psychopaths to pause when target situations or cues are detected, and then engage in controlled self-regulation (i.e., evaluating response options...
and selecting an appropriate behavioral alternative). With increasing amounts of repetition or practice, the call for processing associated with problematic situations and cues is strengthened, and the pausing and self-regulatory responses become more accessible. These developments enhance the likelihood that self-regulatory control processing will occur in the presence of cues that are associated with maladaptive response tendencies.

In addition, generating and practicing a new repertoire of adaptive response options decreases the extent to which maladaptive response tendencies are prepotent or dominant, which may be conceived as having a substantial positive impact on psychopaths’ implicit memory processes. That is, maladaptive response tendencies are superseded as the associations between potentially problematic situations and prosocial behavioral strategies are strengthened. As the strength of competing adaptive responses increases, the likelihood that maladaptive inclinations will be effectively regulated is also enhanced, thus decreasing the probability that the maladaptive tendencies will be expressed behaviorally.

Furthermore, developing new response alternatives also promotes a favorable alteration in the specific stimuli that are of primary and secondary significance in those situations. In particular, by changing the responses that are dominant, important information that was secondary to the maladaptive response inclinations may become of primary significance. This development, in turn, increases the likelihood that the information will be utilized to support self-regulation, because its processing does not require the automatic allocation of attention to secondary information.

We also concluded that a proactive approach of promoting the evaluation and correction of maladaptive response inclinations before the patient proceeds with an inappropriate goal-directed response will be more effective than attempts to regulate ongoing maladaptive behavior. This conclusion follows from the observation that psychopaths are relatively unresponsive to secondary information when they are engaged in goal-directed action, even following a significant amount of training.

Finally, cognitive therapy alone is not likely to constitute an optimal treatment regimen for psychopathy, because a deficient cognitive process (which causes the inefficient use of secondary information), rather than specific cognitive contents (e.g., antisocial beliefs or attitudes), is central to the impairments manifested by psychopaths (for more extensive discussions, see Wallace et al., 1999, 2000). Cognitive interventions are, however, indicated to strengthen psychopaths’ prosocial response inclinations by promoting the movement away from the pursuit of immediate gratification to a more balanced view of their own self-interest that includes the consideration of the interests of others (Beck et al., 1990). Therefore, cognitive therapy certainly is a useful component of an integrated treatment program for psychopathy.

References


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