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Resistance to change, expectancies, and dimensions of personality in psychoactive substance use disorders: A construct validity study of the Concerns About Change Scale

Goodyear, Brian Stanley, Ph.D.

University of Hawaii, 1990
RESISTANCE TO CHANGE, EXPECTANCIES, AND DIMENSIONS OF PERSONALITY IN PSYCHOACTIVE SUBSTANCE USE DISORDERS:

A CONSTRUCT VALIDITY STUDY OF THE CONCERNS ABOUT CHANGE SCALE

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN PSYCHOLOGY

AUGUST 1990

By

Brian Stanley Goodyear

Dissertation Committee:

Kelly M. Vitousek, Chair
Elaine M. Heiby
Walter Niiokawa
Daniel D. Elaine
John Michel
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The concepts of positive and negative reinforcement were employed to link the personality dimensions of Extraversion and Neuroticism with expectancies about the effects of psychoactive substance use and resistance to change. The Eysenck Personality Questionnaire (EPQ), the Alcohol Expectancy Questionnaire (AEQ), the Concerns About Change Scale (CCS), the Beck Depression Inventory (BDI), the Crowne-Marlowe Social Desirability Scale (SDES), and an addiction severity questionnaire (ASQ), were administered to 48 residents of publicly funded substance abuse treatment programs.

Positive and negative reinforcement dimensions were created for the AEQ (AEQ-P and AEQ-N) and the CCS (CCS-P and CCS-N) using an expert rating procedure. Subjects were divided into alcohol and stimulant groups based on reported drug of choice.

It was hypothesized that CCS-P would be predicted by EPQ-E and AEQ-P, and CCS-N by EPQ-N and AEQ-N. These hypotheses did not receive significant support; results indicated that BDI was the best predictor of both CCS-P and CCS-N, followed by age and SDES. These results were interpreted in terms of a response set in which a general tendency to endorse concerns about change is correlated positively with level of reported depression, and negatively with socially desirable responding and age.
It was also hypothesized that the alcohol group would score higher than the stimulant group on EPQ-N, AEQ-N, and CCS-N, and lower on EPQ-E, AEQ-P, and CCS-P. The results partially supported these hypotheses. The alcohol group differed significantly from the stimulant group in terms of AEQ-N and EPQ-E. The stimulant group scored higher than the alcohol group on both dimensions of the CCS. These results were interpreted in terms of the response set noted above.

Of the CCS subscales, 12 (Problem Provides Reason for Avoidance of Responsibility) and 5 (Concern About Maturity) yielded the highest mean scores in both groups. This finding was interpreted as an indication that this population tends to be composed primarily of individuals who perceive themselves as lacking adaptive skills, and who are consequently concerned about their ability to assume adult responsibilities. In conclusion, a link was hypothesized between this population and the response set noted above.
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CHAPTER I
INTRODUCTION

This research project was designed to examine the relationships among measures of three important psychological concepts — resistance to change, expectancies, and dimensions of personality. It was hypothesized that significant relationships exist among these concepts based on individual differences in the relative strengths of the mechanisms of positive and negative reinforcement in the motivation of behavior. These relationships were examined in the context of a population of individuals receiving treatment for psychoactive substance use disorders. There were reasons, as will later be indicated, to believe that this would be a particularly suitable population for examining these relationships.

In addition, within this general population, the research project compared a group of individuals receiving treatment for alcohol use disorders with a group of individuals receiving treatment for stimulant (cocaine or crystal methamphetamine) use disorders in terms of resistance to change, expectancies, and dimensions of personality. Again, as will later be indicated, there were reasons to believe that these groups would differ significantly on these three variables.

The concept of resistance has enjoyed a lengthy, but very controversial existence in the field of clinical psychology. Its
history is almost as long as the history of psychotherapy itself. The origins of the concept can be found in the early work of Freud (Breuer & Freud, 1893-1895; Freud, 1896), and it has become a central component of psychodynamic clinical theory. Resistance was one of many psychodynamic concepts which came under fire from behaviorists in the ongoing conflict between the two perspectives. It was criticized for being difficult to operationalize, for necessitating an unacceptably high level of inference, and for often serving as a way of rationalizing therapist error (Wolpe & Lazarus, 1968). Thus, for many years, behaviorists and others who rejected psychodynamic theory tended to ignore the concept. In recent years, however, the concept has begun to receive a significant amount of attention, much of it more positive, from certain behavioral and cognitive-behavioral theorists (Goldfried, 1982; Lazarus & Fay, 1982; Meichenbaum & Gilmore, 1982; Turkat & Meyer, 1982), and also from a number of family systems theorists (Anderson & Stewart, 1983). An increasing number of clinical theorists have recognized in many clients a resistance to the change of maladaptive behavior patterns which cannot easily be explained solely in terms of therapist error.

Along with this renewed interest in resistance, and in keeping with a more empirical orientation, attempts have been made to operationalize the concept. In the context of a cognitive-behavioral theoretical framework, Bemis (1986) developed the
Concerns About Change Scale (CCS), a self-report instrument intended to measure a number of important motivational factors that underlie people's resistance to the change of a variety of seemingly maladaptive behavior patterns. The CCS appears to be a potentially useful instrument in a variety of clinical and research settings where resistance to change is a phenomenon of interest. At its present stage of development, however, the psychometric properties of the scale are not yet well established. One of the purposes of the current study was to further elaborate a theoretical framework, broadly cognitive-behavioral in orientation, within which the construct validity of the scale could be examined.

The development of such a theoretical framework first of all involves the explication of a new conceptualization of resistance which has the potential of extending the scope of the concept beyond the psychotherapeutic situation, and incorporating it into a more general theory of resistance to change, encompassing factors which serve to inhibit change outside of clinical situations as well as within them.

The development of a theoretical framework also involves a consideration of the relationship between this new conceptualization and certain more firmly established concepts. One of these concepts is expectancies. The framework first hypothesizes a relationship between the motivations underlying resistance to change of a particular type of maladaptive behavior, psychoactive substance use,
and expectancies about the reinforcement contingencies of that behavior. The recent growth of cognitive-behavioral theory has brought with it a growing appreciation of the important role that expectancies of reinforcement often play in determining patterns of behavior (Bandura, 1986). In relation to psychoactive substance use, it has been shown that expectancies about the reinforcing effects of substances influence patterns of consumption, abuse, and relapse (Brown, Christiansen, & Goldman, 1987; Marlatt, 1978; 1985). It seems reasonable to assume that a close relationship would exist between an individual's expectancies about the effects of psychoactive substance use and resistance to change in the pattern of use, even after the use has clearly become problematic for the individual.

It also seems reasonable to assume that both expectancies and resistance may show a significant relationship to certain basic dimensions of personality. Over the years, the concept of personality has enjoyed perhaps an even more controversial history than that of resistance. Attempts to articulate a theoretical framework for describing personality types go back at least as far as classical times in the work of Hippocrates (ca. 460-370 B.C.) and Galen (A.D. 130-200) on the four bodily humors (Zilboorg & Henry, 1941). Like resistance, the concept of personality came in for a good deal of criticism from many behaviorists. Theorists such as Mischel (1968) criticized it on the grounds that it implied a
cross-situational consistency in behavior which was not supported by empirical research. The debate over the relative importance of person and situation variables in the determination of behavior has essentially been resolved by the recognition that some form of interactionist position (Endler & Magnusson, 1976) is most appropriate. In this view, both person and situation variables influence behavior, with the relative importance of the two varying from situation to situation, and most likely from person to person. With the general acceptance of an interactionist position by all but the most radical of behaviorists (e.g., Skinner, 1987), the way was cleared for a renewal of interest in the concept of personality that parallels the renewal of interest in the concept of resistance. Thus, a number of current behavioral theories (e.g., Staats, 1975) explicitly incorporate some conceptualization of personality.

One of the major contributions of more traditional behavioral theories has been the demonstration that a good deal of human behavior is powerfully influenced by the simple mechanisms of positive and negative reinforcement (e.g., Skinner, 1953; 1974). More recently, cognitive modifications of behavioral theory have indicated that behavior is often determined more by expectancies about reinforcement contingencies than by the simple effects of the reinforcement contingencies themselves (e.g., Bandura, 1986). Nevertheless, in a cognitive-behavioral framework, the mechanisms of reinforcement, although operating through the mediating effects of
expectancies, remain powerful determinants of behavior. It would seem logical that such powerful mechanisms would be related in some way to certain basic dimensions of personality. Because of behaviorism's traditional tendency to reject dimensional conceptualizations of personality, however, these mechanisms of reinforcement have rarely been explicitly linked to a dimensional theory of personality. For the purposes of this study, and in keeping with a broadly cognitive-behavioral orientation, it is proposed that the mechanisms of positive and negative reinforcement, operating through the mediating effects of expectancies, may be fundamentally linked to certain basic personality dimensions.

Two dimensions that have consistently been identified as basic components of personality, both in factor analytic and other studies, and which, it is suggested, bear significant relationships to the mechanisms of positive and negative reinforcement respectively, are Extraversion and Neuroticism (H.J. Eysenck, 1947). The theoretical model employed in this paper proposes that the motivations underlying resistance to change of the often severely maladaptive behavior involved in psychoactive substance use disorders are, in part, a function of expectancies about the effects of psychoactive substance use, which are, in turn, partly a function of the relative strengths of these basic personality dimensions.

The three major concepts which are incorporated into this theoretical model — resistance, expectancies, and dimensions of
personality — were operationalized using the Concerns About Change Scale (Bemis, 1986), the Alcohol Expectancy Questionnaire (AEQ; Goldman, Brown, & Christiansen, in press), and the Eysenck Personality Questionnaire (H.J. Eysenck & S.B.G. Eysenck, 1975) respectively. Based on this theoretical framework, hypotheses were generated regarding the expected relationships between these instruments.

It was also hypothesized that comparisons between groups based on differences in choice of drug of abuse would reveal significant differences between groups on each of these three major variables. Currently in Hawaii, the most commonly reported drugs of choice among individuals seeking treatment for psychoactive substance use disorders are, alcohol, which is usually classified as a depressant drug, and the stimulants cocaine and crystal methamphetamine (L. Williams, personal communication, February 19, 1990). Both alcohol and the stimulant drugs have been shown to affect the brain mechanisms of positive reinforcement, although the effect of the latter may be more powerful (Wise, 1988). Alcohol also strongly affects the brain mechanisms of negative reinforcement, whereas the effects of the stimulant drugs tend not to be as strong (Wise, 1988). These differences in the psychopharmacology of alcohol and the stimulants raise the possibility that differences in drug of choice may be associated with differences in the relative strengths
of the basic personality dimensions, and, in turn, with differences in both expectancies and motivations underlying resistance to change.
CHAPTER II
THEORETICAL FRAMEWORK
Perspectives on Resistance

Psychodynamic perspectives.

The conceptualization of resistance that is developed in this paper is essentially a cognitive-behavioral one. It is evident, however, that a review of existing perspectives on this topic must begin with psychodynamic formulations in which the concept of resistance has its origins. Although the concept of resistance does not figure prominently in the basic formulations of psychodynamic metapsychology, it has become a critical component of psychodynamic clinical theory. Resistance was initially observed by Freud in the context of clinical interaction with his patients. He conceptualized resistance as the way that some patients protected themselves from facing the pain associated with the recognition of unbearable ideas (Breuer & Freud, 1893-1895; Freud, 1896). The concept has since been elaborated by Freud himself (Freud, 1905; 1914; 1926), and a host of other psychodynamic theorists (e.g., Fenichel, 1945; A. Freud, 1946; Greenson, 1967; Hartmann, 1958; Langs, 1981; Reich, 1949; Sandler, Dare, & Holder, 1973).

Traditionally, resistance has been viewed as something that occurs within the patient, and, in the context of therapy, has often been used synonymously with the term "defense" (Blatt & Erlich, 1982). In other words, resistance is the manifestation of defense
mechanisms (A. Freud, 1946) within the context of clinical interaction. As a manifestation of defense, resistance still tends to be conceived primarily as an ego function, although Freud himself (1926) described five types of resistance, three of which were described as ego resistances (repression, transference and secondary gain), one as id resistance (repetition compulsion), and one as superego resistance (guilt and the need for punishment).

Early formulations of resistance based on Freud’s (1900) topographical model of the mind tended to view resistance largely as a conscious process. It was during this time that the term acquired a somewhat pejorative connotation, indicating expressions of negativism and opposition in the patient (Strean, 1985). With the development by Freud (1923; 1926) of the structural model of the mind, resistance increasingly became understood as a process that was largely unconscious, and that was at least to some degree adaptive as a means of managing intrapsychic conflicts. Thus, the theoretical basis for the pejorative connotation was removed, and most modern psychodynamic theorists clearly eschew such connotations. In practice, however, the pejorative connotation has not completely disappeared. To the extent that psychodynamic theories continue to view resistance as something that occurs within the patient, there is always the danger of placing the responsibility for lack of therapeutic success on the patient’s resistance when the actual responsibility may lie elsewhere.
Psychodynamic theorists have not been insensitive to this problem. For example, Basch (1982), while not denying the existence of resistance, has noted that much of what is called resistance in psychotherapy is an artifact. He goes on to state that the term is frequently used as a "euphemism for the therapist's frustration" (p. 22).

Despite the tendency of psychodynamic theories to emphasize a view of resistance as something that occurs within the patient, there has long been a recognition that resistance does not occur in a vacuum. Schlesinger (1982, p. 26) states that "resistance is defense expressed in the transference" (i.e., in the context of the relationship between patient and therapist). Similar views can be traced back even to the early conceptualizations of resistance based on the topographical model of the mind (Dewald, 1982a). More recently, certain branches of psychodynamic theory such as object relations theory have further emphasized the fact that resistance occurs in the context of the therapeutic relationship. Blatt and Erlich (1982, p. 71) state that resistance is the "natural consequence of the transaction between the patient's characteristic modes of relatedness and the analyst's therapeutic style and skill", and emphasize the role of the therapist in determining whether resistance is increased or reduced.

Despite these many elaborations, however, the essence of the psychodynamic perspective on resistance remains basically
unchanged. To summarize the psychodynamic view, the term resistance refers primarily to the largely unconscious processes in which a person engages in order to keep out of his or her awareness thoughts, wishes, impulses, fantasies, etc. which would cause the person anxiety and distress if they were to enter awareness. The psychodynamic view also regards conflict between motives as the primary basis for resistance. As Wachtel (1982, p. xix) has suggested: "Resistance is not something that periodically comes up to disrupt the therapy. It is the track of the patient's conflict about changing, the way in which the sincere desire to change confronts the fears, misconceptions, and prior adaptive strategies that make change difficult". The importance of the concept in psychodynamic clinical theory can scarcely be overemphasized; to a great extent therapy is identifying and in some way dealing with the resistance. It has, for example, been observed by one psychodynamic theorist that "without resistance there would be no need for therapy" (Schlesinger, 1982; p.246).

Behavioral and cognitive-behavioral perspectives.

The psychodynamic conceptualization of resistance has been severely criticized by a number of behavioral theorists (e.g., Wolpe & Lazarus, 1968). As defined by most psychodynamic theorists, the term is extremely difficult to operationalize and measure. Virtually any observable behavior may be interpreted as resistance depending on the circumstances under which it occurs. In fact,
Dewald (1982a, p. 57) specifically states that "Any form of behavior may at times be used in the service of resistance". Thus the specification of what constitutes resistance in any given case depends to a great extent on the subjective view of the therapist. In addition, many of the defense mechanisms (A. Freud, 1946) and other processes through which the resistance is presumed to be expressed are not observable at all, and require a degree of inference which most behaviorally oriented theorists are unwilling to make. Furthermore, as noted above, by defining resistance as an intrapsychic variable, the psychodynamic conceptualization may promote a tendency to lay the blame or responsibility for therapeutic failure at the feet of the patient rather than the therapist. Wolpe and Lazarus (1968), for these reasons, argued that resistance, as defined by psychodynamic theorists, does not exist. They suggested that resistance is more appropriately seen as an elaborate rationalization of incompetence, or at least an inability to bring about change, on the part of the therapist.

Despite early rejection of the concept by a number of behaviorists, however, the term has not disappeared. Not only is it alive and well in the psychodynamic literature, but it is being seen with increasing regularity in the writings of behavioral and cognitive-behavioral theorists (see for example, Goldfried, 1982; Lazarus & Fay, 1982; Meichenbaum & Gilmore, 1982; Turkat & Meyer, 1982). This may be partly due to the growing influence of cognitive
psychology. There is an increasing acceptance by all but a small and apparently dwindling number of the most radical of the behaviorists (e.g., Skinner, 1987) that clinically useful explanations of human behavior must often take into account cognitive variables which are not easily amenable to direct observation, and which may even operate at an unconscious level. Moreover, many of the more cognitively oriented behaviorists have come to accept that science inevitably involves some level of inference (Mahoney, 1974). This has opened the door for the consideration of concepts that were not considered valid realms of scientific inquiry by earlier behaviorists who were inclined toward a more narrowly positivist philosophy of science.

The increasing use and acceptance of the term may not, however, be solely attributable to the influence of cognitive psychology. As the initial enthusiasm for behavioral interventions has become tempered by harsh clinical reality, there has been a growing recognition by behaviorally oriented clinicians that therapist competence does not always guarantee success (Goldfried, 1982). Despite the best efforts of therapists of more than adequate competence, as judged by prevailing standards of the profession, change that the patient claims to desire frequently does not occur. As Goldfried (1982, p. 95) puts it, "the clarity of the clinician's thinking was not always matched by the client's desire or ability to comply with the intervention procedures". In addition, empirical
evidence has emerged that suggests that therapy outcome depends on both patient and therapist factors. Research reviewed by Garfield (1971), for example, suggests that a good portion of outcome variance in therapy is attributable to patient, not therapist factors. In certain areas, for example substance abuse treatment, the evidence to date suggests that patient factors account for a great deal more of the variance in outcome than do treatment factors (Nathan, 1986). Even Arnold Lazarus, who has been an outspoken opponent of psychodynamic views of resistance (Wolpe & Lazarus, 1968), has come to utilize the term and to acknowledge that some forms of resistance are a function of the patient’s individual characteristics (Lazarus & Fay, 1982).

Many behavioral theorists, while recognizing that resistant behavior does occur, have favored the use of the terms non-compliance or non-adherence rather than resistance (e.g., Meichenbaum & Turk, 1987). These terms reflect the behavioral view that it is the responsibility of the therapist to give the client directions or behavioral prescriptions. Their use has thus been easily extended into the area of behavioral medicine, encompassing the study of compliance or non-compliance with medical treatment regimens (Haynes, Taylor & Sackett, 1979), and it is within this area that much of the recent work on non-compliance has been conducted. A number of theoretical formulations have been applied to the phenomenon of non-compliance. An operant behavioral approach
has been proposed by Melamed and Siegel (1980). More cognitively oriented approaches which have been applied to non-compliance include the health belief model (Rosenstock, 1966; Becker, 1974; Becker & Maiman, 1975) and the conflict theory model of decision making (Janis & Mann, 1977). More recently, Heiby and Carlson (1986) have proposed the Health Compliance model, which integrates external antecedent and consequent variables and internal variables in the explanation of health compliance behavior. The relevance of such theories to the concept of resistance depends on the relationship between the terms non-compliance and resistance.

Some potential advantages of the terms non-compliance or non-adherence are, first, that they do not carry many of the connotations of the psychodynamic conceptualization of resistance, and, second, that they may be somewhat easier to operationalize. Gordis (1976) has suggested conceptualizing adherence as the point below which the desired preventive or therapeutic result is unlikely to be achieved. The problem with such a definition is that it is often not known how much of the behavior recommended by the therapist must be performed by the patient in order to achieve the desired outcome. Moreover, it is also often not known whether the successful outcome would have occurred even if the directions had been followed in their entirety. Non-compliance or non-adherence is thus probably most simply defined as any failure on the part of the patient to follow a prescription, directive or assignment of the
therapist. Such a definition does not require consideration of whether the non-compliance did or did not contribute to treatment outcome. On the other hand, it does allow for the possibility that non-compliance can occur in treatment even when the desired outcome is ultimately achieved. Despite these advantages, however, these new terms do not resolve many of the problems that surround the concept of resistance, and may introduce problems of their own.

First, although they avoid connotations of unconscious mental processes which may not be well supported by empirical evidence, they are essentially descriptive terms. They are not clearly linked to a particular theory of non-compliant behavior, and thus, in themselves, tell us very little about why patients would not comply with the instructions of a therapist or physician. This focus on the description of observable behavior is consistent with the traditional behavioral orientation. Many behaviorally oriented theorists, however, particularly those with a cognitive-behavioral orientation, are coming to recognize the importance of understanding the motivations behind particular behaviors. For example, Goldfried (1982) makes an important distinction between the form of resistant behavior and the reason for the behavior, and notes that simple knowledge of the form may provide little information about the reasons. He goes on to provide a list of what he considers to be clinically relevant determinants of resistant behavior. Similarly, Meichenbaum & Turk (1987, p. 51) have presented a table of reasons
why patients may not adhere to treatment. From this perspective, non-compliance or non-adherence can be thought of as descriptive terms pertaining to the form of resistant behavior, specifically to a failure to follow directions. In contrast, the term resistance, it is suggested, should be conceptualized with reference to an analysis of the motivational patterns which underlie the behavior. Treatment failure in a case which involves non-compliance with therapeutic directives can then be described, on the one hand, in terms of the overt behavioral manifestations of non-compliance, or, on the other, in terms of the ineffectiveness of the interventions in bringing about change in the motivational patterns which underlie the continuation of the maladaptive behavior. The latter, of course, requires an explicit consideration of those motivational patterns. It is at this level of analysis that the term resistance can be applied.

The second problem with these new terms is that, in the same way that the term resistance at one time acquired pejorative connotations, they too may support a tendency to blame the patient for lack of therapeutic success. Compliance or non-compliance is again something that the patient either does or does not do. There is really no reason to assume that a patient labelled as "non-compliant" will be seen any more positively by clinicians than one labelled as "resistant".
Finally, and perhaps most importantly, non-compliance or non-adherence are, by definition, phenomena that occur fundamentally in a context of social influence (Schacht, 1984). As such, these terms cannot adequately address the possibility that the factors which inhibit change in therapy may sometimes be the same factors that have inhibited change outside of therapy when compliance with a therapist’s directions was not an issue. In contrast, the concept of resistance can refer either to resistance to being influenced or to resistance to change in a more general sense (Anderson & Stewart, 1983). Resistance to change may thus occur in situations where social influence is not a significant issue. This distinction is a very important one in the context of an attempt to develop a comprehensive theory of change and resistance to change. In such a context, the critical question is: Why do individuals often have difficulty changing patterns of behavior that appear to be so obviously maladaptive or dysfunctional? The scope of this question should not be limited to the therapeutic situation. For example, a person may have recognized a particular behavior such as excessive drinking as maladaptive or problematic, and made numerous unsuccessful attempts to change that behavior without ever having been involved in treatment. The person may then enter treatment and again experience a lack of success in changing the behavior. In such a case, it is obviously useful to consider what was ineffective about the treatment process. It is suggested that this can best be
done with reference to the motivational structure of the person, which may remain essentially the same during treatment, when the issue of resistance to social influence by a clinician may be present, as it was prior to treatment, when this influence was absent. It is in relation to this critical issue that the terms resistance and non-compliance do not overlap. In principle, the behavioral perspective can easily accommodate the notion that similar factors may serve to inhibit change within the therapeutic situation and outside of it, yet the terms that have been chosen tend to preclude consideration of that similarity.

The recent more explicit use of the term resistance by many behaviorally oriented theorists may represent a recognition that the terms non-compliance and resistance are not synonymous, and that the concept of resistance is worthy of consideration in its own right. However, as behavioral theorists have been critical of traditional psychodynamic notions of resistance, so psychodynamic theorists have, in turn, been critical of behavioral and cognitive-behavioral perspectives on resistance. Dewald (1982b), in reviewing several such perspectives, notes that none of them offered "a comprehensive, internally consistent, clinically applicable conceptual understanding of what resistance means, how and why it has been developed, and what are its implications in the overall mental life of the patient" (p.216).
This weakness in behavioral and cognitive-behavioral perspectives has also been acknowledged by the cognitive theorist Liotti (1987). He offers, as a counterproposal to the conceptual framework of psychoanalytic metapsychology, an internally consistent cognitive perspective on resistance based on what he calls a constructivist-structural hierarchical theoretical framework. The essence of this view is that resistance in psychotherapy is merely a particular case of resistance to change in general. This more general resistance to change is conceptualized as the tendency toward the preservation of meaning structures (Fransella, 1985; Mahoney, 1985). The achievement of meaning is seen by Liotti as a primary basic aim of mental functioning. Once a particular meaning structure has been developed, it is resistant to change unless the evidence to support that change is convincing. This is a normal process, not something unique to the therapy situation, in which assimilation is more likely to occur than accommodation. Cognitive structures are resistant to change because they are the templates against which incoming information is matched; this matching process tends to preserve existing structures. Liotti's view emphasizes the hierarchical organization of these cognitive structures, which function as behavioral control systems. Lower order structures are more specific, less abstract, and less critical to the coherence of the organism, and are thus relatively more amenable to change. Higher order structures, however, function as "core organizing
principles" (Meichenbaum & Gilmore, 1984) which provide coherence, consistency and continuity to experience, and are quite resistant to change. These higher order structures may take forms such as self-schemata or structures of personal identity (Mahoney, 1985), or perhaps role-relationship models (Horowitz, 1988), and are apparently based on years of accumulated experience in important interpersonal relationships (Bowlby, 1985).

Psychodynamic theorists have often emphasized the internal consistency of their perspective as one of the bases for the superiority of that perspective (Dewald, 1982b). Liotti's attempt to explicate an internally consistent theory from a cognitive perspective is thus a significant development in the evolution of cognitive theory. Furthermore, by drawing on the work of theorists such as Bowlby (1985), it is consistent with the growing integration of cognitive theory with certain elements of psychodynamic theory in such a way as to emphasize the powerful effects of early interpersonal relationship experiences, and the critical importance in both the content and process of cognition of the views of self and others that develop as a result of that experience (Horowitz, 1988).

It is important, however, to recognize the potential drawbacks of an emphasis on the internal consistency of a particular theory. First, it must be noted that internal consistency does not in any way guarantee correspondence with reality. Second, the implications
of Godel's theorem suggest that the internal consistency of a theory may limit the comprehensiveness of that theory (Lincoln & Guba, 1985). This has, in part, to do with the fact that a theory, because it exists only in symbolic form, is a closed system, whereas the reality it is attempting to describe and explain is an open system. As Lincoln and Guba go on to emphasize, one implication is that a phenomenon can never be fully understood from a single perspective. Multiple perspectives are always possible, and the value of a particular perspective depends on the question being asked. For example, Liotti's cognitive perspective, although internally consistent, relies excessively on the notion that resistance is a function of the tendency to preserve existing meaning structures, and does not explicitly include an analysis of resistance in terms of conflicting motivations. Such an analysis, it is suggested, can provide a potentially useful way of conceptualizing resistance from a clinical point of view. This is not to argue that internal consistency is unimportant, but to caution against excessive emphasis on internal consistency. A particular advantage of this cognitive perspective is that it does provide a conceptualization of resistance that is not limited to the therapeutic situation. Resistance in therapy can be explained in terms of a more general theory of human psychological functioning.
Family systems perspectives.

Family systems theorists have also been quite critical of the traditional psychodynamic conceptualization of resistance. This is not surprising because, like the clinical applications of behaviorism, family systems theory developed in part as a reaction to the perceived ineffectiveness of psychodynamically based interventions with many patients (Nichols, 1984). Theorists such as Dell (1982) and de Shazer (1982) have, like some behaviorists, argued against the use of the term. De Shazer (1982), for example, suggests that what appears as resistance is actually the family’s "unique way of cooperating". While such views have generated some support, even within the family therapy field the concept of resistance has certainly not disappeared. As Anderson and Stewart (1983) have noted, even though perspectives such as de Shazer’s may be useful in that they direct us away from simply dismissing difficult families or patients as unmotivated, describing persistently resistant behavior on the part of the patient as "uniquely cooperative" somehow does not do justice to the experience from the therapist’s point of view.

Although the majority of family systems theorists have not completely rejected the concept of resistance, they have generally rejected the view that resistance is something that occurs within the patient in favor of an interactional view. For example, Anderson and Stewart (1983, p. 24) define resistance as "all those
behaviors in the therapeutic system which interact to prevent the therapeutic system from achieving the family’s goals for therapy". In a similar fashion, Hoffman (1981, p. 348) describes resistance as "the place where the therapist and client or family intersect. Resistance is merely an artifact of that time and place". From this perspective, as in some psychodynamic views, resistance is to be expected in any therapeutic situation, and even welcomed as a focal point around which interventions can be developed (de Shazer, 1982). Moreover, the therapist is expected to be skillful enough to devise interventions which in some way circumvent the resistance (Haley, 1976). The advantage of such views is that they emphasize the nature of the interaction between the therapist and patient as an important factor in either promoting or inhibiting resistance in the therapeutic situation, and clearly place a high degree of responsibility for therapeutic success on the therapist. One of the drawbacks of such views is similar to that associated with psychodynamic views of resistance. There is an obvious difficulty in operationalizing a concept that is defined in such a broad manner that, depending on the context, virtually any interaction between therapist and patient may be seen as a manifestation of resistance. Another drawback is similar to that associated with behavioral perspectives on non-compliance. By focusing on the therapeutic system as the locus of resistance, it is easy to lose sight of the fact that in some cases the factors inhibiting change in the
therapeutic situation may be the very same factors which inhibit it outside of therapy.

In summary, despite some proposals to reject the term, there appears to be a growing consensus across a range of theoretical perspectives that something akin to what has been called resistance does exist, even if, as Anderson and Stewart (1983) suggest, it is sometimes found to be living under an assumed name. Mahoney (1985) may be accurate in stating that at the present time "the reality of resistance appears to be less controversial than its meaning" (p.32). It appears, in fact, to be one of those terms that refuses to go away; one might almost say that it has resisted our best attempts to make it disappear. Such terms are, it is suggested, inherently worthy of our attention; obviously they strike a responsive chord in many people despite major definitional problems that may exist. The challenge at hand is to develop a conceptualization of resistance that avoids the drawbacks of earlier views, and that allows for the meaningful operationalization of the concept.

**Toward a new conceptualization of resistance.**

Despite a growing consensus within the field of psychotherapy as to its existence, it is still unclear as to how resistance is most appropriately conceptualized. One of the questions that must be considered in exploring possible definitions is: can it be defined in such a way that operationalization of the concept is
possible, even if only with some difficulty, without destroying the meaningfulness of the term? In addition, a number of important issues must be addressed before an appropriate conceptualization can be developed.

The first issue has to do with the situations in which resistance occurs. Resistance has in the past been conceptualized by the majority of theorists who utilize the term as something that occurs within the therapeutic situation. It may be more useful, however, to conceptualize it as a phenomenon that can occur in any situation. In the vast majority of cases, resistance to the change of a maladaptive behavior is something that occurs not just in the context of therapy, but across a whole range of situations. The inability to stop smoking despite a desire to do so, for example, is not restricted to a particular situation. It is pervasive, and its very pervasiveness is what makes it an intractable problem.

A second important issue involves the locus of resistance. If resistance occurs only in one situation, such as therapy, it can be attributed to either patient factors, therapist factors, patient-therapist interaction factors, situation factors (e.g., the nature of the setting in which therapy occurs), or to some combination of these. Traditional conceptualizations of the term, which have tended to view resistance as something which occurs in the context of therapy, focus largely on patient factors, and have often been criticized for their neglect of other factors. If,
however, resistance is conceptualized as something that can occur in any situation, rather than just in the context of therapy, and that typically occurs across a variety of different situations, it is more reasonable to define it largely in terms of factors that reside within the person. This is not intended to imply, however, that situational factors have no influence on the strength or the form that resistance may take.

A third issue involves the question of what is being resisted. The traditional psychodynamic conceptualization of resistance as occurring with reference to the emergence into awareness of unacceptable thoughts and impulses is actually a rather limited definition of the term. It may be more appropriate to define the term much more broadly in order to encompass the whole range of phenomena that may be of clinical and theoretical interest. Both broad and narrow conceptualizations are evident in Anderson and Stewart’s (1983) distinction between resistance to change and resistance to being influenced.

Resistance to being influenced is, like traditional psychodynamic views of resistance, also a relatively narrow conceptualization of the term. It is potentially present in any interpersonal situation, and is obviously always potentially present in a therapy situation. It is on this type of resistance (or non-compliance) that many behavioral and family systems theorists have focused. It also may frequently be present outside of therapy,
as, for example, when a person feels pressured to change by significant others. Reactance theory (Brehm, 1972) represents one possible explanation of resistance to being influenced. In this view, people may sometimes do the opposite of what has been suggested to them as a way of maintaining a sense of self-determination. We may at times be frustrated by this type of resistance as therapists; however, as human beings we should be profoundly grateful for it, because without it we would all have long ago succumbed to some form of totalitarian rule.

Resistance to change is a much broader conceptualization, which, it is suggested, subsumes resistance to being influenced. Resistance to change is potentially pervasive across the whole range of situations that people may encounter, including non-interpersonal situations. Resistance to change does not begin at the same time as the first therapy session. Most individuals entering therapy bring with them some pre-existing degree of resistance to the change of a pattern of maladaptive behavior.

A fourth important issue concerns whether resistance to change takes place at a conscious or unconscious level. This requires a brief detour. General systems theory (von Bertalanffy, 1969; Laszlo, 1972) holds that any open system which exists over a period of time exhibits two distinct and, at times, seemingly contradictory tendencies. On the one hand, change of an evolutionary or continuous nature is constant as the system interacts with its
environment; moreover, discontinuous or revolutionary change may occur under certain conditions (see for example, Prigogine & Stengers, 1984). On the other hand, despite this constant process of change, the system maintains a certain stability or coherence over time. These conflicting tendencies have been referred to respectively as morphogenesis (change) and morphostasis or homeostasis (stability) (see for example, Dell, 1982). The tendency toward morphostasis or homeostasis can be exemplified at the physiological level by the mechanism of temperature regulation in the human body. As the external temperature changes, the body sets into motion processes which function to maintain a stable internal temperature. This type of mechanism can be conceptualized as a form of resistance to change. An alternative view is that it is not so much a resistance to change per se as an active attempt to maintain the stability or integrity of the system in the face of a changing environment.

Continuous or evolutionary change of a system can be conceived as the process of maintaining a dynamic equilibrium as the result of the interaction of factors internal to the system with factors external to the system. In this process, the system, to the extent that it survives, continuously changes by moving from one viable state to another, while maintaining a stability that can be thought of as the "identity" of the system. Dell (1982) has suggested that systems "do not resist the environment: they either survive or they
do not"; in other words, if they change from one viable state to
another they survive, but if they change from a viable state to a
non-viable state they do not. Dell, however, fails to recognize
that an equally valid perspective is that systems, to the extent
that their resources allow them to do so, resist their own demise.
To some extent they "go with the flow" in evolving from one viable
state to another, but they often appear to actively resist change
from a viable to a non-viable state; consider, for example, the
activity of most living organisms when faced with a life-threatening
situation. It is important to emphasize that this particular clash
of perspectives is not readily amenable to resolution on the basis
of empirical evidence. It is, in a sense, analogous to the old
question of whether the glass is half-full or half-empty; it is
purely a matter of perspective. The critical question is not which
is right or which is wrong, but which perspective is most useful or
adaptive in any given situation.

Up until now the discussion has focused on systems in general.
At an abstract level, the principles of change can be summarized as
follows:

1) A system will change in some way when there is pressure (or,
in psychological terminology, motivation) from internal and/or
external factors to do so. In practice, multiple forms of
pressure are always present, so change of some form is a
constant process.
2) The process of change is such that, to the extent that it is capable of doing so, a system will change from one viable state to another viable state. This places constraints on the type of change that may occur.

3) Any given system has properties or resources, acquired on the basis of both phylogenetic and ontogenetic evolution, that enable it, in the presence of certain pressures, to move to new viable states and also to resist the move toward non-viable states. The system thus appears, up to a point, to "know" which states are viable and which are not.

4) A system does not necessarily, however, have "knowledge" of all potentially viable states. It may, therefore, under certain circumstances, resist a move to a potentially viable state because it does not "know" that a particular new state is a viable one.

If we move to a consideration of human beings as systems which follow these same general principles of change, we are forced to take into account, in assessing the properties and resources that the human system has at its disposal, the advanced cognitive abilities of the human species. Humans not only "know" in the way that less highly evolved systems do, but they are aware that they "know"; one could say that they "know that they know". This ability for self-awareness, together with the ability to think and reason in highly developed formal symbolic languages, may be critical factors
in distinguishing change processes in humans from those in less evolved systems.

Although they provide us with many advantages, these unique abilities of the human species may, in some circumstances, be a mixed blessing. "Unconscious" resistance toward potentially viable states that are not "known" to be viable characterizes all stable systems. In the case of humans, our advanced cognitive capacities allow us to make conscious certain internal processes which cannot be conscious to less highly evolved systems. We have the ability to reflect on and develop some awareness of the motivations behind our behavior, and are able, at least in part, to become conscious of the conflicting motivations which may result in resistance to change of a behavior which has become maladaptive. This conscious awareness gives us something which less highly evolved systems lack: the potential to exert some degree of self-control over such processes. This is a great asset, but it is not magic. At times, we may fail to change a maladaptive behavior because we do not always exercise that potential. Exercising that potential may require a concerted effort over an extended period of time, and we are not always willing to make that effort. On the other hand, awareness should not necessarily be equated with ability to change. Consciousness may sometimes be a source of real distress, because it may provide us with disturbing knowledge of our own motivations, but it does not necessarily give us the power to change them.
In addition, consciousness may create an additional problem by adding a second layer of resistance, at the conscious level. This can occur because of the fact that we "know" in a way that lesser evolved systems cannot know; we "know" how things should be. We have consciously held beliefs and values, not only about who we are and what we can and cannot do, but also about what we should and should not do. Despite the fact that these beliefs and values are often founded on less than convincing evidence, we cling to them and defend them, sometimes being willing to pay with our lives in the process. For example, a person may consciously choose not to change some pattern of behavior because such a change would conflict with a firmly held belief or value, or because of unwillingness to give up some form of reinforcement that the behavior provides. A rather different example might be when a person "knows" that awareness is equated with ability to change, when in fact it may not be so equated, and thus come to believe that change should be possible virtually at the drop of a hat. This latter example may help to explain not only why some people have difficulty changing patterns of behavior that they "know" are maladaptive, but also why they may become so frustrated, guilty, embarrassed or depressed by their inability to implement the changes that they "know" they should be able to make. Thus, for humans, resistance to change toward potentially viable new states of being can be conscious as well as unconscious. We are capable of making changes that would be
impossible for less highly evolved systems, but, because of our elaborate belief and value systems, we are also capable of becoming attached to existing ways of being and doing in ways that would be impossible for less highly evolved systems.

Resistance to change can, in humans, thus be either unconscious or conscious. Much of the working of the human central nervous system is not accessible to conscious awareness, but it constitutes an important part of the properties and resources that the individual person has at his or her disposal, and that determine both the possibilities for change and the resistance to other types of change. On the other hand, a person may desire a certain type of change, but also have considerable conscious awareness of some of the reasons why he or she is unable or unwilling to change. This view of resistance as occurring at both unconscious and conscious levels has significant implications when one considers the feasibility of meaningful measurement of the concept.

A fifth issue that must be considered is whether resistance to change is best viewed as resistance to changing an existing state of being, or as resistance to the adoption of a new state of being. Once again, it is ultimately not a question of which is right or wrong, but a difference in perspective. If, however, it appears that a person is for some reason particularly attached to some existing state of being, in the way that only humans can be so attached, and is thus resistant to movement toward virtually any new
state, then the resistance is likely to be more powerful than if the person is merely resisting the change to a particular new state.

To summarize thus far, resistance is most appropriately conceptualized as resistance to change in general. It thus encompasses resistance to change which occurs outside of the context of therapy as well as resistance that occurs within therapy. For the purposes of the current study, resistance is considered as referring to those factors within the person (including the person's perceptions, appraisals, attributions and expectations related to external factors) that function to inhibit change and perpetuate existing patterns of maladaptive behavior in all situations, not just in therapy. A more comprehensive theory of change would, of course, have to take into account factors operating within the environment as well as within the person, and also the interaction between them. It would also have to take into account factors operating to promote change as well as to resist it. Such a comprehensive theory is, however, beyond the scope of this paper.

It is assumed that all factors serving to inhibit change operate through the final common pathway of the individual's motivational patterns, and that resistance can usefully be examined in terms of conflicting motivations. Resistance occurs when conscious and/or unconscious motivations to continue a maladaptive behavior are strong enough to at least partially counteract a conscious desire to change that behavior. Many of these motivations
are potentially accessible to conscious awareness, although awareness of them does not necessarily equate with ability to change. The fact that many of the motivations are accessible to conscious awareness allows for the meaningful operationalization and measurement of resistance to change by means of a self-report instrument.

A final important issue involves a consideration of the nature of the motivations behind the phenomenon of resistance. There are potentially an infinite number of specific reasons why an individual might be motivated to resist change. It seems reasonable to assume, however, that these specific reasons might be grouped into a relatively small number of broad factors. When viewed from the perspective of reinforcement theory, motivation for behavior can be thought of primarily in terms of two broad general tendencies: the pursuit of stimuli which produce pleasurable experience and the avoidance of stimuli which produce painful or aversive experience, as reflected in the mechanisms of positive and negative reinforcement respectively. It seems reasonable to assume that these same general patterns of motivation exert a powerful influence on resistance to change, and that specific reasons for resistance could be categorized in terms of one or the other of these two general motivational tendencies.
Perspectives on Expectancies

The theoretical model which is developed in this paper is based first on the assumption that the specific motivations which underlie the resistance to change, as conceptualized in the previous section, of maladaptive behavior such as psychoactive substance use are closely related to expectancies regarding the reinforcement contingencies of that behavior. Traditional behavioral theories, in keeping with their focus on directly observable phenomena, have emphasized the importance of the simple mechanisms of positive and negative reinforcement in the determination of behavior both in animals and humans (Skinner, 1953; 1974). Cognitive modifications of reinforcement theory, however, have proposed that motivations for behavior operate not so much through the objective consequences of behavior, as traditional theory suggested, but more through subjective expectancies about reinforcement outcome (Bandura, 1986). In humans, as with resistance to change, expectancies may operate outside of conscious awareness, but often they are accessible to consciousness, and can quite effectively be assessed by means of self-report instruments.

A considerable amount of work has been conducted within a cognitive-behavioral framework in recent years by a number of different researchers (e.g., Brown, Goldman, Inn, & Anderson, 1980; Connors, O’Farrell, Cutter, & Thompson, 1986; Leigh, 1987; Southwick, Steele, Marlatt, & Lindell, 1981) on expectancies related
to the effects of alcohol use. In general, this research indicates a highly consistent relationship between alcohol expectancies, on the one hand, and alcohol consumption, alcohol abuse, and behavior while drinking on the other (Brown, Christiansen, & Goldman, 1987). In addition, research on the phenomenon of relapse (e.g., Marlatt, 1985) suggests that, in individuals who are attempting to change some form of addictive behavior such as alcohol and drug abuse or compulsive gambling, a relationship exists between relapse and expectancies about the reinforcement contingencies of the behavior.

From a cognitive-behavioral perspective, it would seem logical that, in general, there should be a significant relationship between expectancies about the reinforcement contingencies of a particular behavior and the motivations for resistance to change of that behavior. For the purposes of this study, it was specifically hypothesized that a significant relationship would exist between the motivations underlying resistance to change of a particular type of maladaptive behavior, psychoactive substance use, and expectancies about the reinforcement contingencies of that behavior.

Perspectives on Personality

Personality and the principles of reinforcement.

The theoretical framework developed in this paper goes beyond the relationship between resistance to change and expectancies alone, and proposes that significant relationships exist between the
motivations underlying resistance to change of a maladaptive behavior such as psychoactive substance use, expectancies about the reinforcement contingencies of that behavior, and certain basic dimensions of personality. Briefly stated, the model proposes that resistance to change is, in part, a function of expectancies, which are, in turn, partly a function of basic personality dimensions.

Behavioral theorists have traditionally not devoted a great deal of attention to the study of personality from a dimensional perspective. They have, in fact, often been quite critical of dimensional or trait approaches to personality on the grounds that behavior is largely a function of situational variables rather than personality traits (Mischel, 1969; 1973). Nevertheless, it is possible to conceive of at least one major dimension of personality based very simply on behavioral principles of reinforcement. If one assumes that there are individual differences in the relative importance of positive and negative reinforcement in the determination of behavior, then it is possible to construct a continuum on which individuals can be placed, with one pole representing a tendency for behavior to be motivated primarily by the seeking of positive reinforcement, and the other pole representing a tendency for behavior to be motivated primarily by the avoidance of aversive stimuli.

Alternatively, if one regards the tendency to seek positive reinforcement as being at least to some degree independent of the
tendency to avoid aversive stimuli, it is possible to construct a
two-dimensional model of personality, rating individuals as high or
low on each of these two dimensions. There is some empirical
evidence that this two-dimensional model may be more appropriate
than a simple one-dimensional model. For example, Wise (1988), on
the basis of a review of a considerable body of animal and human
research into the reinforcing effects of psychoactive drugs, has
proposed that the brain mechanisms of positive and negative
reinforcement are anatomically and functionally distinct. This
would seem to support their incorporation into a dimensional model
of personality as two distinct dimensions rather than as poles on a
single continuum. Such dimensions, while distinct, may not,
however, be completely orthogonal. For example, in regard to the
effects of psychoactive substances, Wise (1988) has shown that a
substance may often affect the brain mechanisms of both positive and
negative reinforcement.

Jeffrey Gray (1970, 1972, 1973, 1981) is perhaps the only
personality theorist who has explicitly attempted to link the
mechanisms of positive and negative reinforcement to basic
dimensions of personality. He has done this in the form of a
two-dimensional framework which constitutes a modification of Hans
Eysenck's (1967) dimensional theory of personality. In contrast,
however, to Eysenck's work, which has produced a series of three
instruments designed to measure his proposed personality dimensions,
no instruments have been developed that are based specifically on
Gray's model. The work of these two theorists is highly relevant to
the theoretical framework proposed in this paper, and more will be
said about their work shortly.

Although Gray's work is quite well known in the United Kingdom,
it has received relatively little attention in the United States.
Perhaps this seemingly obvious omission can be explained by American
behaviorism's traditional emphasis on observable, situation specific
determinants of behavior, and its consequent tendency to downplay,
or even to reject, the role of trait-like dimensions of personality
(e.g., Skinner, 1953; 1974). This relative lack of attention to the
possible association between personality dimensions and the
mechanisms of reinforcement is unfortunate. There have been many
attempts to develop instruments to measure personality in terms of a
small number of basic dimensions. In the absence, however, of a
well-articulated theory explicitly linking mechanisms of
reinforcement to the personality dimensions measured by these
instruments, it is by no means self-evident which of the dimensions
that have been proposed by various personality theorists are most
appropriate for incorporation into the type of framework proposed in
this paper. The remainder of this section briefly reviews the
historical background of dimensional theories of personality, and
makes a case for the selection of Eysenck's dimensions of
Extraversion and Neuroticism as the most appropriate candidates for inclusion in such a framework.

Classical views of personality.

It has long been hypothesized that despite the obvious complexity of the human personality, there are sufficient similarities in personality style between individuals that there must exist a relatively limited number of basic personality types.

The first clearly formulated typology of personality can be found in the work of Hippocrates (ca. 460-370 B.C.) and Galen (A.D. 130-200), whose theories of personality were based on their understanding of biological constitution or temperament (Zilboorg & Henry, 1941). In this classical system, personality was viewed as a function of the relative amounts that an individual possessed of the four bodily humors, blood, black bile, yellow bile, and phlegm.

Four personality types were proposed: Sanguine, Melancholic, Choleric, and Phlegmatic, corresponding respectively to an excess of each of these four humors. This early conceptualization of personality had great influence over many centuries. Although later writers came to reject the specific proposition that the four humors were responsible for these personality types, the wisdom of these early scholars in identifying commonly appearing personality types was widely recognized. As late as the 18th century, Immanuel Kant attempted to elaborate this traditional typology utilizing Galen's terminology (Zilboorg & Henry, 1941).
In the 19th century, it was recognized that categorical schemes such as Galen’s and Kant’s were not able to adequately describe the variety that could be found in personality style. Thus, dimensional views of personality began to appear. In these models a limited number of dimensions or continua are proposed, and variability in personality style can be accounted for in terms of degrees of variation on these dimensions. A number of theorists adopted such a view, including Wundt (1903), the father of experimental psychology, who proposed a two-dimensional model yielding four extreme personality types which roughly corresponded to Galen’s four types.

The influence of the classical views and the early attempts to develop dimensional approaches to the study of personality is evident in the work of Jung (1923) who proposed a model of personality organized around the two fundamental attitude types of Introversion and Extraversion, and further suggested that these tend to be associated with different forms of neurosis: Introversion with psychasthenia and Extraversion with hysteria.

Eysenck’s and Gray’s theories.

A number of more modern personality theorists have attempted to develop dimensional models of personality on an empirical basis, applying factor analytic techniques to self-report inventories and behavioral observation schedules in order to identify basic dimensions of personality. One of the foremost of these is Hans Jurgen Eysenck (1947). Like others before him, Eysenck recognized
the essential wisdom in the classical typologies, and incorporated it initially into a descriptive model of personality featuring the two dimensions of Extraversion (E) and Neuroticism (N). A third dimension, Psychoticism (P), which is not of great relevance to the theoretical framework developed in this paper, was later added to this model (H.J. Eysenck, 1967). Using factor analytic techniques and a variety of experimental approaches, Eysenck has supported his theory with an impressive body of empirical work (H.J. Eysenck, 1967). Eysenck has gone beyond a simple descriptive model of personality and attempted to develop an explanatory theory which specifies certain brain mechanisms underlying the dimensions of Extraversion and Neuroticism. Eysenck's theory has gone through two major stages of development (H.J. Eysenck & M.W. Eysenck, 1985). The first stage was referred to as the inhibition theory (H.J. Eysenck, 1957). As a result of evidence that this theory was inadequate in some respects, it was modified somewhat, and the modified version became known as the arousal theory (H.J. Eysenck, 1967). In the arousal theory, Eysenck proposed that, based on activity in the ascending reticular activating system, there are individual differences in the level of cortical arousal, and thus in the speed and firmness with which individuals build up conditioned responses. These differences are reflected in the Extraversion dimension. In addition, he proposes that there are individual differences in activity in the visceral brain, and thus in the
activation of the autonomic nervous system. These differences are reflected in the Neuroticism dimension. The two dimensions are regarded by Eysenck as orthogonal, and research that he has conducted with the instruments designed to measure these dimensions generally supports that hypothesis (H.J. Eysenck, 1967). Eysenck has acknowledged, however, that the brain systems underlying cortical arousal and autonomic activation may be at least indirectly linked (H.J. Eysenck & M.W. Eysenck, 1985). This would seem to call into question either the orthogonality of the two dimensions or the validity of the proposed mechanisms underlying the two dimensions.

Gray (1970, 1972, 1973, 1981) has proposed an important modification of Eysenck’s theory which can be used to resolve the above question. Gray’s theory addresses the same two-dimensional space formed by Eysenck’s orthogonal personality dimensions of Extraversion and Neuroticism. It differs from Eysenck’s theory, however, in rotating the two dimensions 45 degrees within that space. Gray’s dimensions are related to systems in the brain responsive to punishment or frustrative nonreward on the one hand, and to reward or nondelivery of anticipated punishment on the other. Gray has given these dimensions the names Anxiety and Impulsivity respectively. It is not clear that these names are entirely appropriate, but clearly the two dimensions reflect the mechanisms of positive (Impulsivity) and negative (Anxiety) reinforcement. Anatomically, these systems are identified as
including the septo-hippocampal system, together with its monoaminergic afferents from the brain stem and projections to the frontal lobe (Anxiety), and the medial forebrain bundle and the lateral hypothalamus (Impulsivity). Gray makes reference to an impressive body of animal, and, to a lesser extent, human neuropsychological research to support his theory.

Eysenck has responded to Gray by suggesting that, at a descriptive level, the Anxiety dimension should more accurately be placed much closer to his Neuroticism dimension, while the Impulsivity dimension should similarly be placed much closer to his Extraversion dimension (H.J. Eysenck & M.W. Eysenck, 1985). It would seem to follow from this line of thinking that Eysenck’s measures of Neuroticism and Extraversion would also constitute reasonably valid measures of Gray’s dimensions of Anxiety and Impulsivity.

The essential details of the portion of the theoretical framework relating to dimensions of personality can now be sketched out. If, on the one hand, Eysenck is right about the placement of Gray’s two dimensions vis-a-vis his own dimensions, so that their two descriptive models almost overlap, but, on the other hand, Gray is right about the brain mechanisms underlying those dimensions, Eysenck’s measures can then be viewed in terms of the mechanisms of positive and negative reinforcement. Although Eysenck’s own theory is not formulated directly in terms of reinforcement contingencies,
it follows from the above line of reasoning that the dimensions of Extraversion and Neuroticism may be conceptualized as being reflective of differential responsiveness to the two types of reinforcement, with Extraversion generally being associated more with susceptibility to the influence of positive reinforcement, and Neuroticism more with susceptibility to the influence of negative reinforcement. Thus, Eysenck’s descriptive model of personality, while couched in somewhat different terms, seems to have some degree of compatibility with the author’s proposed theoretical model. Moreover, the instruments that it has spawned, the Maudsley Personality Inventory (MPI; H.J. Eysenck, 1959), the Eysenck Personality Inventory (EPI; H.J. Eysenck & S.B.G. Eysenck, 1965), and the more recent Eysenck Personality Questionnaire (EPQ; H.J. Eysenck & S.B.G. Eysenck, 1975), thus appear as potentially appropriate candidates for the operationalization of the personality dimensions proposed in the model.

The pervasiveness of Extraversion and Neuroticism.

It is important to note, at this point, the importance in current personality theory of the two dimensions of Extraversion and Neuroticism. The linking of these two dimensions to the mechanisms of positive and negative reinforcement may represent an important theoretical development. Dimensions which at least roughly correspond to these basic dimensions of Eysenck’s theory have been identified in the work of a wide range of studies on personality.
In a recent review of the literature in this area, Henderson (1982) labelled the dimensions of Extraversion and Neuroticism as "super factors" because of their pervasive appearance in a wide variety of factor analytic studies carried out by numerous different researchers. A few examples will suffice to highlight the pervasiveness of these dimensions.

Like Eysenck, Raymond Cattell has relied extensively on factor analytic techniques to establish dimensions of personality. On the one hand, his work has produced quite a large number of factors, as evidenced in his widely used 16 PF personality inventory (Cattell, Eber, & Tatsuoka, 1970). On the other hand, higher order analysis tends to reduce these to a relatively small number of more basic factors, thus producing a typology that closely resembles that of Eysenck, although the terminology that Cattell has used is rather different. Eysenck has noted that Cattell's second order factors of Extrovia and Anxiety are clearly recognizable as Extraversion and Neuroticism respectively (H.J. Eysenck & M.W. Eysenck, 1985).

Additional factor analytic work has been done by Costa and McCrae (1978, 1980), who initially developed a model of personality composed of three main domains, Neuroticism (N), Extraversion (E), and Openness (O). Evidence that there were significant gaps in this three-dimensional model later led them to supplement this model with two additional domains, Agreeableness (A) and Conscientiousness (C). The latter two dimensions are not so well developed,
conceptually or operationally, as the original NEO dimensions. There is, however, considerable empirical support for what has been called the Five-Factor Model, and a review of the relevant literature has recently been completed by Digman (1990). The E and N dimensions of this model, as conceptualized by Costa and McCrae (1985), are slightly different from Eysenck's in terms of the component factors; nevertheless, the overlap of their theory with the work of Eysenck is evident in the similarity of the terminology that they employ. H.J. Eysenck and M.W. Eysenck (1985) have reviewed research comparing the two schemes to show their essential similarity with respect to the dimensions of Extraversion and Neuroticism.

Recent behavioral genetic studies (e.g., Buss & Plomin, 1984) have also made extensive use of personality dimensions which bear a great similarity to those of Eysenck. On the basis of their studies, Buss and Plomin have proposed that Sociability and Emotionality, which they explicitly relate to Extraversion and Neuroticism respectively, along with Activity level, are the most heritable components of personality (Plomin, 1989).

The two dimensions of Extraversion and Neuroticism as conceptualized by Eysenck, or very similar constructs, are thus repeatedly found in work on the basic dimensions of human personality. These dimensions have been identified mainly through factor analytic techniques. While factor analysis can identify
important dimensions of personality at the descriptive level, however, it cannot identify the brain mechanisms that underlie those dimensions. At best it can merely suggest possible causal mechanisms. In the long run, therefore, it will be important to more clearly relate dimensions of personality that have been identified through factor analysis to neurobiological functioning. This is a relatively new area, but it warrants a brief review.

Neurobiology and personality.

It has long been supposed that if basic dimensions to personality can be identified, they must be represented in specific neurobiological mechanisms or processes in the brain. The classical theorists attempted to link personality to physical variables in terms of the four humors, and more recent theorists such as Eysenck have hypothesized about the role of brain mechanisms such as the reticular activating system. In the past, however, the technology was not advanced enough to allow for any major developments in this area. This has begun to change. The great advances in neurobiology in recent years have begun to yield some insights into the possible connection between specific brain processes and patterns or styles of behavior.

On the basis of a very thorough review of relevant research Wise (1988) concluded that, while neither positive or negative reinforcement can be reduced to singular neural mechanisms, the evidence clearly suggests that the brain mechanisms of positive and
negative reinforcement can be regarded as functionally and anatomically distinct. This has obvious implications for the proposed theoretical model. While it is not clear that these two mechanisms are completely orthogonal, it would certainly seem appropriate that a dimensional model of personality which is predicated on the critical importance of these mechanisms in the determination of behavior should reflect them in terms of two separate and distinct dimensions. The amalgam of Eysenck’s descriptive model and Gray’s explanatory model which constitutes the proposed theoretical framework thus seems quite compatible with these neurobiological findings.

The work of Cloninger (1987) represents another attempt to relate recent findings in the area of neurobiology to personality style. He emphasizes a point that has already been made regarding factor analysis. Although factor analytic studies have quite consistently produced the finding that a small number of major dimensions account for most of the variance in a wide variety of self-report inventories and observer rating schedules, they are unable to specify what these dimensions represent in terms of their underlying causal structure. He goes on to suggest that findings from the rapidly advancing study of the neurobiology of motivation and learning may throw some light on the nature of these basic dimensions. He has developed a Tridimensional model of personality including the dimensions novelty seeking, harm avoidance, and reward
dependence, and relates these dimensions to brain systems associated with the activity of the monoamines dopamine, serotonin, and norepinephrine respectively. This represents one of the first attempts to relate personality dimensions directly to the operation of specific neurotransmitters. Given the already apparent complexity of neurotransmitter activity in the brain, it is likely that this particular model will prove to be oversimplified, but it is still represents a pioneering piece of work. Novelty seeking and harm avoidance would seem to reflect the relative strengths of positive and negative reinforcement respectively, and thus, in line with our theoretical framework, may also be measured by Eysenck's dimensions of Extraversion and Neuroticism. Reward dependence is hypothesized to involve variation in behavioral maintenance or the resistance to extinction of previously reinforced behavior. It thus apparently has something to do with conditionability, which would seem to make it also, in Eysenck's terms, in some way akin to Extraversion.

In summary, the work of a number of important theorists in the areas of traditional personality research and neurobiology converges on the conclusion that there are a limited number of important basic dimensions to personality, perhaps as few as two or three. Furthermore, while there is some disagreement about what those dimensions should be called, there is obviously considerable overlap between the different conceptual models. Eysenck's descriptive
model stands out as being particularly well supported by the empirical evidence of factor analytic studies, and his terminology of Extraversion and Neuroticism is widely employed. Moreover, when Gray’s modification of Eysenck’s explanatory model is combined with Eysenck’s descriptive model, the result, as previously indicated, is a theoretical framework which clearly relates the personality dimensions of Extraversion and Neuroticism to individual differences in susceptibility to influence by the mechanisms of positive and negative reinforcement respectively. This theoretical framework appears to be quite compatible with newly emerging models of the neurobiology of reinforcement.

For the purpose of this research project, therefore, the assumption was made that Eysenck’s dimensions of Neuroticism and Extraversion, as operationalized by the questionnaires that he has developed, are the most appropriate candidates for inclusion in the theoretical model as basic dimensions of personality which are closely linked to the mechanisms of positive and negative reinforcement.

Resistance, Expectancies, and Personality: A Theoretical Model

At a conceptual level, one of the main purposes of the research project was to explore the relationships between the concepts of resistance, expectancies, and personality. The notion that
resistance is intimately related to personality style is not a new idea. It is at least implicit, and sometimes explicit in much of psychodynamic clinical theory. Recently, for example, Strupp and Binder (1984; p.184) have observed that "Resistance is part and parcel of the patient's characteristic mode of relating". It seems reasonable to assume that a relationship must hold between specific motivations for resistance to change and specific dimensions of personality. Consistent, however, with contemporary notions about the role of cognitive variables such as expectancies (Bandura, 1986), it also seems reasonable to propose that the influence of personality on resistance operates through the mediating effects of expectancies.

In general terms, the theoretical model proposes that the specific motivations underlying resistance to change of a maladaptive behavior such as psychoactive substance use are, in part, a function of expectancies regarding the specific reinforcement contingencies of that behavior, and that those expectancies are, in turn, partly a function of the relative strengths of the basic personality dimensions of Extraversion and Neuroticism.

This proposed theoretical model assumes that the personality dimensions of Extraversion and Neuroticism reflect individual differences in the relative strengths of positive and negative reinforcement contingencies respectively in the general motivation
of behavior. Once again, however, it must be noted that recent cognitive modifications of traditional reinforcement theory have shown that expectancies about reinforcement contingencies are often more powerful determinants of behavior than actual outcomes (Bandura, 1986). The influence of personality dimensions on motivations for behavior is thus assumed to be mediated by expectancies both at the general and the specific levels.

In general terms, resistance, expectancies, and personality dimensions were conceived as being linked in the following ways. First, it was hypothesized that individuals who are high in Neuroticism tend to be motivated to resist change of a maladaptive behavior such as psychoactive substance use primarily because they are likely to have expectancies that the behavior will continue to provide negative reinforcement (because the behavior results in some form of relief from, or avoidance of, aversive experience). Second, it was hypothesized that individuals who are high in Extraversion tend to be motivated to resist change of the maladaptive behavior primarily because they are likely to have expectancies that the behavior will continue to provide positive reinforcement (because the behavior results in some form of rewarding experience).

More specifically, it was first hypothesized that scores on the personality dimension of Extraversion would be predictive of scores on a dimension reflecting expectancies of the positively reinforcing effects of psychoactive substance use, and that scores on the
dimension of Neuroticism would be predictive of scores on a dimension reflecting expectancies of negatively reinforcing effects of that behavior.

In turn, it was hypothesized that scores on dimensions reflecting expectancies of positive and negative reinforcement would be predictive of scores on dimensions reflecting positive and negative reinforcement based patterns of motivation for resistance respectively. If an individual primarily expects a certain behavior such as psychoactive substance use to produce effects that can broadly be construed as positively reinforcing, such as increased feelings of power, then the motivations underlying resistance to the change of that behavior are likely to reflect a tendency to attempt to maintain that source of positive reinforcement. Similarly, if the individual primarily expects effects that can be broadly construed as negatively reinforcing, such as relief of tension, then the motivations for resistance are likely to reflect a tendency to attempt to maintain that source of negative reinforcement.

The Population of Interest

Psychoactive substance use disorders.

The relationship between the concepts of resistance, expectancies, and personality was examined within the context of a population of individuals seeking to change a particular form of maladaptive behavior: psychoactive substance use that has become
problematic, and that meets the diagnostic criteria for Psychoactive Substance Dependence as defined in the Diagnostic and Statistical Manual, Third Edition - Revised (DSM III-R; American Psychiatric Association, 1987).

There are several reasons for selecting this population. First, Psychoactive Substance Use Disorders are extremely common problems. Precise figures are difficult to obtain, in part because of the lack of consensus on the definition of terms. Nevertheless, it seems likely that these problems may affect as many as 20 million Americans. Epidemiological data that are now over 20 years old (Cahalan, 1970) indicated that around 9 million Americans could be classified as problem drinkers (roughly encompassing the DSM III-R categories of Alcohol Abuse and Dependence). Extrapolating from those figures on the basis of increases in both population and per capita consumption of alcohol (Niven, 1984), it is likely that the number of problem drinkers now totals in the region of 12 million. In addition to alcohol, there are numerous illegal psychoactive substances that are commonly used, including marijuana, stimulants such as cocaine and methamphetamine, heroin and other opioids, depressants such as barbiturates and inhalants, and hallucinogens. Furthermore, a number of prescription drugs, particularly anxiolytics such as the benzodiazepines, and pain-killers such as Demerol, Codeine, and Oxycodeone, are commonly abused. Together, the
maladaptive use of these substances may make Psychoactive Substance Use Disorders the foremost behavioral problem in the United States.

The second reason for choosing this population is that Psychoactive Substance Use Disorders are often chronic and intractable problems. The phenomenon of "denial" is well known in almost all clinical settings in which these disorders are encountered, and is often regarded as one of the primary symptoms of the problem (Royce, 1981). The author recalls an almost stereotypical example of denial in an interview with a patient in a detoxification unit. The patient was a former businessman with a graduate level education who was, at the time of the interview, homeless, indigent, and alienated from his family as a result of his drinking. Despite this accumulation of problems and multiple admissions to the detoxification unit, this man still reported that he did not think that it was really his drinking that had caused him all his problems.

In addition to the denial that is so often found in individuals who are actively using psychoactive substances, relapse after a period of abstinence is extremely common, even among individuals who sincerely want to quit. The work of Marlatt and his associates (Marlatt, 1985) has shown that relapse is by far the most frequent outcome in the treatment of these disorders. On the average, it appears that about 75% of all individuals seeking treatment for Psychoactive Substance Use Disorders will experience one or more
relapses. Thus, there are several reasons to believe that resistance to change is a particularly powerful phenomenon in this population. From the perspectives of both treatment and prevention, it is important to develop a better understanding of the factors which make this often grossly maladaptive behavior so resistant to change.

The third reason for choosing this population is a theoretical one. Recent research, particularly in relation to alcohol use, but presumably generalizable to other psychoactive substances, has begun to indicate that there are two prototypical patterns of excessive use: one that is motivated primarily by the seeking of positive reinforcement, and another that is motivated primarily by the desire to avoid or block out negative affective experience (Cloninger, 1987).

Jellinek (1960) was one of the first theorists to attempt to distinguish between different subtypes of alcoholism. Although he identified a total of five subtypes, he emphasized the distinction between individuals who showed persistent alcohol seeking behavior ("inability to abstain entirely") and individuals who were able to abstain, often for quite long periods of time, but were unable to control their consumption once they started drinking ("loss of control").

A similar distinction is made by Cloninger (1987) who, on the basis of considerable empirical work, has described two distinct
groups of individuals with alcohol related problems. Type 1 includes individuals who, in Cloninger’s terms, are high in harm avoidance and reward dependence. They are prone to develop loss of control over their drinking, often after a relatively lengthy period of heavy, but largely non-problematic drinking. Type 2 includes individuals who, in Cloninger’s terms, are high in novelty seeking. Their drinking is often associated, from a relatively early age, with impulsive, sensation-seeking, and sometimes, frankly antisocial behavior. Cloninger emphasizes that these subtypes should not be regarded as discrete disease entities, and that many individuals show features of both types. This would be expected if the dimensions that he describes are, at least to some degree, independent of each other.

A factor analytic study by Farber, Khavari, & Douglass (1980) involving a large sample of drinkers provides additional support to the notion that alcohol use is motivated by two broad factors. Their study indicated that the reasons given by respondents for drinking could be classified into two major factors reflecting positive and negative reinforcement.

Further support for the notion of two prototypical patterns of use comes from the work of Wise (1988). Based primarily on research into the effects of opiates, Wise has attempted to describe the neurobiology of addiction in terms of two basic factors. One factor relates to the initial psychomotor stimulant effect which is common
to most drugs of abuse, and which, he believes, reflects the
activation of neural mechanisms of positive reinforcement. The
second factor relates to the pain and distress suppression effect
that is common to many, though not all, drugs of abuse, particularly
narcotics and depressants such as alcohol. This, he believes,
reflects the activation of neural mechanisms of negative
reinforcement. As noted in an earlier section, Wise reviews
considerable evidence to suggest that these neural mechanisms of
positive and negative reinforcement are anatomically and
functionally distinct. In his view addiction may be a function of
the operation of either or both of these factors. In outlining his
model, he does not devote any attention to individual differences in
the relative strengths of these two factors, but it would seem
plausible that individual differences might result in different
patterns such as those Cloninger (1987) has described.

Cox and Klinger (1988) have examined addictive behavior from a
motivational standpoint rather than a neurobiological one, but they
arrive at essentially the same conclusion: addictive behavior is
motivated primarily either by the expectation that it will provide
positive affective experience or by the expectation that it will
suppress negative affective experience. They emphasize that the
motivation to use psychoactive substances is closely tied to
people's incentives in other life areas, and to the relative power
of various incentives, including psychoactive substances, in bringing about affective changes.

Finally, research on expectancies about the effects of alcohol clearly demonstrates a relationship between expectancies and patterns of consumption and abuse (Brown, et al., 1987). Individuals use psychoactive substances because they expect them to provide reinforcing effects. For the purpose of this study, it is proposed that the expectancies assessed by Brown and her colleagues can be roughly subdivided into expectancies of positive and negative reinforcement.

There are thus reasons to believe that individuals seeking treatment for Psychoactive Substance Use Disorders constitute a population that is particularly likely to exhibit resistance to change, and to show variation in the motivations for that resistance, with one pattern of resistance related to expectancies regarding the positive reinforcement that use of the substance provides, and another pattern related to expectancies regarding the negatively reinforcing properties of the substance. Furthermore, it seems likely that this variation may be closely related to certain basic dimensions of personality. Thus, on the basis of considerable existing theoretical and empirical work, there are reasons to believe that the theoretical model proposed in this paper is particularly suited to this population.
There is, in addition, reason to believe that different drugs differentially affect the neural mechanisms of positive and negative reinforcement. As noted above, depressant drugs such as alcohol seem to affect both, with the initial impact on the former giving way quite quickly to powerful effects on the latter. Alcohol abusers tend to emphasize negatively reinforcing effects such as tension reduction when reporting their reasons for drinking (Farber, et al., 1980). On the other hand, stimulants such as cocaine and methamphetamine appear to operate primarily on the mechanisms of positive reinforcement (Wise, 1988), and are not commonly used for such purposes as tension reduction.

On the basis of these differences in effects, it is hypothesized that differences in choice of drug of abuse will be associated with differences in the relative strengths of the personality dimensions of Extraversion and Neuroticism, and thus, in turn, with differences in expectancies and patterns of resistance to change. Currently in Hawaii, the most commonly reported drugs of choice among individuals seeking treatment for psychoactive substance abuse and dependence are alcohol, which, as indicated above, is usually classified primarily as a depressant drug, and the stimulants cocaine and crystal methamphetamine (Williams, 1990). The study will, therefore, examine the relationship between drug of choice and the relative strengths of the basic personality
dimensions, expectancies, and motivations underlying resistance to change.

Existing research with this population that specifically employs the instruments that are used in this study is generally not of direct relevance to the particular issues addressed herein, but it merits brief consideration. A number of studies have examined the personality dimensions of Extraversion and Neuroticism in alcoholic populations, and one study has examined the relationship between factors of the AEQ and dimensions of personality.

There are no clear cut findings about the association of Extraversion and alcoholism. A few studies have indicated that alcoholics are less extraverted than normals (Hurlbert, Gade, & Fuqua, 1982; Tamai & Young, 1983), but at least one study suggests the opposite (Rangaswami, 1983), while another shows a positive relationship between habitual alcohol consumption and two sub-factors of Extraversion (Jackson & Matthews, 1988). In other studies, some alcoholics appear to be relatively extraverted, whereas others appear to be more introverted (Gade & Hurlbert, 1985; Hurlbert, Gade, & Fuqua, 1984). There is no compelling theoretical reason to suggest that, in terms of premorbid functioning, alcoholics as a group should differ significantly from normals in either direction on a measure of Extraversion. Schuckit (1983) was unable, on the basis of Extraversion scores, to distinguish young men considered to be at high risk for the development of alcoholism from
a matched control group of young men at low risk. One might, however, predict that the personality deterioration often associated with long-term alcohol abuse might tend to result in some depression of Extraversion scores. It may be this tendency which is being detected in the Hurlbert et al. (1982) and the Tarnai and Young (1983) studies, but even here, the evidence is equivocal at best. The theoretical model employed in this study does not assume any relationship between Extraversion and alcohol abuse or alcoholism. On the contrary, it assumes that both high and low scorers on this dimension may suffer from problems related to alcohol use, and proposes only that scores on the dimension of Extraversion will be related to scores on factors reflecting expectancies of positive reinforcement and to scores on factors reflecting positive reinforcement based motivations for resistance to change of the problem behavior.

In the case of Neuroticism, studies quite consistently show that alcoholics tend to have elevated scores on the Neuroticism dimension (Gomez, 1984; Hurlbert, et al., 1982; Mullen, Gurling, Oppenheim, & Murray, 1986; Rangaswami, 1983, Sandahl, Lindberg, & Bergman, 1987). Again, there is no compelling theoretical reason to assume significant differences between the premorbid characteristics of alcoholics as a group and normal controls on the Neuroticism dimension. Research tends to support the proposition that the high Neuroticism scores found in alcoholics are the result of alcoholism
rather than a predisposing factor. For example, a twin study (Mullen, et al., 1986) and a study of young men at high and low risk for the development of alcoholism (Schuckit, 1983) both arrive at the same conclusion. As in the case of Extraversion, the theoretical model employed in this study does not assume any relationship between Neuroticism and alcohol abuse or alcoholism. Once again, it assumes that both high and low scorers on this dimension may suffer from problems related to alcohol use, and proposes only that scores on the dimension of Neuroticism will be related to scores on factors reflecting expectancies of negative reinforcement and to scores on factors reflecting negative reinforcement based motivations for resistance to change of the problem behavior. It should be noted at this point that this position, in conjunction with the consistent findings of elevated Neuroticism scores in alcoholics, has important implications regarding the potential changes that may occur in both the types of expectancies and the motivations for resistance to change over the progressive course of alcohol use disorders. It would seem likely that both expectancies and resistance to change would tend to become more and more centered around negative reinforcement as the disorder progresses. In support of this line of reasoning, Farber et al. (1980) showed that alcoholics had a strong tendency to report negative reinforcement based reasons for their drinking.
A study designed to examine the relationship between alcohol expectancies and personality dimensions was conducted by Brown and Munson (1987). The personality dimensions employed in this study were introversion-extraversion (originally invia-exvia) and anxiety as measured by the 16PF (Cattell, et al., 1970). These dimensions are similar, but not quite identical, to Eysenck's dimensions of Extraversion and Neuroticism. Moreover, Brown and Munson's study was conducted on a population of college students rather than a clinical population, and it employed a multivariate analysis of variance design rather than a regression analysis which seems more appropriate given the continuous nature of the variables employed. Thus, it is not completely clear to what extent their findings are relevant to the current study. Their results seem partly supportive of and partly at odds with the theoretical framework proposed in this paper. Higher anxiety scores were associated with higher expectancy scores for all factors, rather than specifically with those factors which appear to represent negative reinforcement. Extraverted individuals expected both more physical and social pleasure (assumed here to be primarily a positive reinforcement factor) and more relaxation-tension reduction (assumed here to be primarily a negative reinforcement factor) than introverted individuals. Extraverted individuals also expected less arousal-power (assumed here to be primarily a positive reinforcement factor).
In general, it seems safe to say that the relationship between personality dimensions and alcohol expectancies warrants further research. Apart from Brown and Munson's study, there is only one other study which has examined this relationship (Leonard & Blane, 1988), and it does not employ measures of Extraversion and Neuroticism. The present study focused specifically on the personality dimensions of Extraversion and Neuroticism, as measured by the Eysenck Personality Questionnaire (EPQ; H.J. Eysenck & S.B.G. Eysenck, 1975), viewing them as reflecting individual differences in susceptibility to the influence of positive and negative reinforcement respectively. It explored the relationship between these dimensions and alcohol expectancies, as measured by the Alcohol Expectancy Questionnaire (AEQ; Goldman, et al., in press), and motivations for resistance to change as measured by the Concerns About Change Scale (CACS; Bemis, 1986).

Hypotheses

In the present study, the Eysenck Personality Questionnaire, the Alcohol Expectancy Questionnaire, and the Concerns About Change Scale were administered to a group of individuals in treatment for Psychoactive Substance Use Disorders. Subjects were divided into two groups: the first group included individuals who reported that their drug of choice was alcohol, and the second group included
individuals who reported that their drug of choice was either cocaine or crystal methamphetamine.

Two major sets of hypotheses were derived from the theoretical framework. The first set of hypotheses pertained to all subjects in the study, regardless of their drug of choice. The following hypotheses were made:

1) Scores on the Extraversion dimension of the EPQ (EPQ-E) would be predictive of scores on a dimension of the AEQ which reflects expectancies of positive reinforcement from psychoactive substance use (AEQ-P), which, in turn, would be predictive of scores on a dimension of the CCS which reflects resistance to change that is motivated primarily by a desire to maintain a behavior that functions as a form of positive reinforcement (CCS-P).

2) Scores on the Neuroticism dimension of the EPQ (EPQ-N) would be predictive of scores on a dimension of the AEQ which reflects expectancies of negative reinforcement from psychoactive substance use (AEQ-N), which, in turn, would be predictive of scores on a dimension of the CCS which reflects resistance to change that is motivated primarily by a desire to maintain a behavior that functions as a form of negative reinforcement (CCS-N).

The second set of hypotheses pertained to comparisons between the group of subjects reporting alcohol as their drug of choice and the
group of subjects reporting either cocaine or crystal methamphetamine as their drug of choice. It was hypothesized that:

3) Subjects who reported that their drug of choice was alcohol would score significantly higher on EPQ-N, AEQ-N, and CCS-N than subjects who reported that their drug of choice was cocaine or crystal methamphetamine.

4) Conversely, subjects who reported that their drug of choice was cocaine or crystal methamphetamine would score significantly higher on EPQ-Ε, AEQ-Ρ, and CCS-Ρ than subjects who reported that their drug of choice was alcohol.
CHAPTER III

METHOD

Subjects

The subjects were 48 adult males who were in treatment at Sand Island Treatment Facility, Hawaii Addiction Center, or the Salvation Army Addiction Treatment Facility. These are all licensed substance abuse treatment facilities located in the Honolulu area, and staffed by State of Hawaii certified Substance Abuse Counselors and Program Administrators. These institutions derive the bulk of their funding through purchase of service contracts with the State of Hawaii. They tend to cater to a clientele that is composed primarily of individuals who have experienced quite serious problems with psychoactive substance use, and whose financial status is such that they are unable to pay for their own treatment. Thus, this tends to be, in general, a rather dysfunctional population. While, in the principal investigator’s experience, individuals with major psychotic disorders and serious organic impairment are rarely found in this population, personality disorders are quite common, and mild to moderate levels of depression are often present.

Subjects were initially identified as being potentially appropriate for inclusion in the study by treatment program staff, who had been thoroughly briefed regarding inclusion criteria. Clients who could not clearly identify either alcohol or stimulants as their drug of choice were screened out. It was not necessary to
Table 1

DSM III-R Diagnostic Criteria for
Psychoactive Substance Dependence

A. At least three of the following:

1. substance often taken in larger amounts or over a longer period than the person intended
2. persistent desire or one or more unsuccessful efforts to cut down or control substance use
3. a great deal of time spent in activities necessary to get the substance (e.g., theft), taking the substance (e.g., chain smoking), or recovering from its effects
4. frequent intoxication or withdrawal symptoms when expected to fulfill major role obligations at work, school, or home (e.g., does not go to work because hung over, goes to school or work "high", intoxicated while taking care of his or her children), or when substance use is physically hazardous (e.g., drives when intoxicated)
5. important social, occupational, or recreational activities given up or reduced because of substance use
6. continued substance use despite knowledge of having a persistent or recurrent social, psychological, or physical problem that is caused or exacerbated by the use of the substance (e.g., keeps using heroin despite family arguments about it, cocaine induced depression, or having an ulcer made worse by drinking
7. marked tolerance: need for markedly increased amounts of the substance (i.e., at least a 50% increase) in order to achieve intoxication or desired effect, or markedly diminished effect with continued use of the same amount
8. characteristic withdrawal symptoms (see specific withdrawal syndromes under Psychoactive Substance-induced Organic Mental Disorders
9. substance often taken to relieve or avoid withdrawal symptoms

B. Some symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time
Table 1 (continued). DSM III-R Diagnostic Criteria for Psychoactive Substance Dependence

Criteria for Severity of Psychoactive Substance Dependence:

Mild: Few, if any, symptoms in excess of those required to make the diagnosis, and the symptoms result in no more than mild impairment in occupational functioning or in usual social activities or relationships with others.

Moderate: Symptoms or functional impairment between "mild" and "severe".

Severe: Many symptoms in excess of those required to make the diagnosis, and the symptoms markedly interfere with occupational functioning or with usual social activities or relationships with others.

In Partial Remission: During the past six months, some use of the substance and some symptoms of dependence.

In Full Remission: During the past six months, either no use of the substance, or some use of the substance and no symptoms of dependence.
exclude any subjects after this initial screening. All subjects participated voluntarily in the study, and each was paid $5.00 for participating. Each subject was diagnosed by a qualified clinician as meeting the DSM III-R criteria for Psychoactive Substance Dependence (see Table 1). Individuals with a history of either major psychotic disorder or major organic mental disorder were not included in the study. All subjects had been completely detoxified of all psychoactive substances by the time of assessment. Selected subject characteristics are summarized in Tables 2, 3, and 5.

Length of time in treatment varied from under one month to ten months, with the mean length of stay being 2.29 months. The age of the subjects varied between 19 and 63 years, with a mean of 34.58 years. Thirty six subjects (75%) reported that they had entered treatment voluntarily, three reported that they had entered treatment as a result of pressure from family or friends, and nine (18.8%) reported that they were court-ordered into treatment. Many of the subjects who reported entering treatment voluntarily may actually have been strongly motivated to enter treatment for legal reasons, such as the desire to minimize the severity of the sentence in an upcoming court case.

In terms of education, 6 subjects (12.5%) had not graduated from high school, 15 (31.3%) were high school graduates, 23 (47.9%) had some college level education, and 4 (8.3%) had completed a bachelor's degree. On the basis of self-reported ethnicity, 2
Table 2

Subject Characteristics: Ethnicity and Marital Status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total N=48</th>
<th>Alcohol n=24</th>
<th>Stimulant n=24</th>
</tr>
</thead>
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<tr>
<td>Ethnicity</td>
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<td></td>
<td></td>
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<tr>
<td>Hawaiian</td>
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<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Chinese</td>
<td>1</td>
<td>0</td>
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</tr>
<tr>
<td>Japanese</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Caucasian</td>
<td>34</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>25</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Married</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Separated</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Divorced</td>
<td>12</td>
<td>9</td>
<td>3</td>
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</tbody>
</table>
Table 3

Subject Characteristics: Educational Level and Reason for Entering Treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total N=48</th>
<th>Alcohol n=24</th>
<th>Stimulant n=24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational level</td>
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<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>6</td>
<td>1</td>
<td>5</td>
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<tr>
<td>High school grad.</td>
<td>15</td>
<td>10</td>
<td>5</td>
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<tr>
<td>Some college</td>
<td>23</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Reason for entering treatment</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary</td>
<td>36</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Social pressure</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Court-ordered</td>
<td>9</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
subjects (4.2%) were classified as Hawaiian, 1 (2.1%) as Chinese, 2 (4.2%) as Japanese, 34 (70.8%) as Caucasian, and 9 (18.8%) as other. The majority falling into this last group were subjects with mixed ethnicity.

In terms of marital status, 8 subjects (16.7%) reported that they were currently married, 12 (25.0%) were divorced, 3 (6.3%) were separated, and 25 (52.1%) were single.

Subjects were divided into two groups on the basis of reported primary drug of choice. The first group (alcohol) consisted of 24 individuals who reported that their primary drug of choice was alcohol, while the second group (stimulant) consisted of 24 individuals who reported that their primary drug of choice was cocaine or crystal methamphetamine. Of the alcohol group, only 9 subjects stated that they had been using alcohol exclusively prior to entering treatment, and 15 acknowledged the use of at least one other drug. Of the 15 that reported some other drug use, 9 subjects had used a stimulant drug in addition to alcohol. In the case of the stimulant group, only 2 subjects reported the exclusive use of stimulants, while 22 acknowledged the use of at least one other drug. Of the 22 who reported some other drug use, 17 had used alcohol in addition to stimulants. It is thus clear that, while the two groups differ in terms of reported drug of choice, there is considerable overlap between the groups in terms of the range of drugs used. Polysubstance use was the norm in both groups, and the
modal subject reported using alcohol, stimulants, and marijuana. Therefore, the two groups cannot be considered mutually exclusive, as would be desirable from the point of view of testing the hypothesized differences between them; this limitation must be borne in mind when the results of the study are interpreted. Unfortunately, from the point of view of the researcher, it is becoming increasingly difficult to find "pure" users of a single substance, particularly within publicly funded treatment programs. Directors and clinical staff of the programs from which the subjects were drawn often commented on the fact that a high percentage of their clients used a variety of different substances. Parenthetically, this is an issue which, the author believes, is frequently overlooked in much of the research on alcoholism and drug abuse.

The alcohol and stimulant groups did not differ significantly in terms of length of time in treatment, and only minor differences were noted between the groups in terms of reason for entering treatment, education, or ethnicity. The groups did, however, differ significantly \((t = 3.4972; p = .0011)\) in terms of age. The mean age of the alcohol group was 38.75 years, and the mean age of the stimulant group was 30.42 years. Substantial differences between the groups were also noted in terms of marital status. In the alcohol group, 4 were married, 9 divorced, 1 separated, and 10 single, whereas in the stimulant group, 4 were married, only 3 were
divorced, 2 separated, and 15 were single. It seems likely that these differences in marital status are related to the difference in age between the two groups.

Measures

Measurement of resistance.

In recent years, there have been a number of attempts to describe and explicate the processes and stages of change in human behavior. For example, the work of Prochaska and his associates (e.g., Prochaska, Velicer, DiClemente, & Fava, 1988) has been important in furthering the understanding of what goes on in the change process. There have, however, been relatively few attempts to specify and measure the factors involved in people’s resistance or reluctance to change.

Attempts have been made to operationalize the concept of resistance using a behavioral observation system (Chamberlain, Patterson, Reid, Kavanagh, & Forgatch, 1984; Kavanagh, Gabrielson, & Chamberlain, 1982). Relatively little effort has gone into the development of self-report scales which can measure aspects of resistance. Glasgow, McCaul, and Schafer (1986) have developed a Barriers to Adherence Questionnaire (BAQ) specifically for use with insulin-dependent diabetics. Although the BAQ could be adapted for use with other populations, in its present form it does not allow for the comparison of reasons for non-adherence across different populations. Moreover, as the BAQ is conceptualized in terms of
adherence rather than resistance, it may be difficult to apply to attempts to change which do not involve treatment or therapeutic directives. This relative lack of emphasis on self-report scales may be attributable to the fact that resistance has been conceptualized in the past, particularly from the psychodynamic point of view, as something that is largely unconscious, and therefore not amenable to measurement by self-report. The utilization of a self-report measure assumes that people are capable of some degree of conscious awareness of at least a subset of the motivational factors that inhibit their ability to change maladaptive behavior patterns. It is also possible that, at any given point in time, factors outside of conscious awareness may be operating to inhibit change. This recognition of the role of unconscious processes should not, however, be taken as an endorsement of traditional psychodynamic formulations of the unconscious. Factors outside of conscious awareness which could significantly affect motivational patterns might, for example, include elements of neuro-endocrine functioning. The present conceptualization of resistance thus acknowledges that it is probably not possible to capture all aspects of it on a self-report scale. It does, however, hypothesize that some important motivations influencing resistance to change are amenable to measurement by a self-report instrument.
An initial attempt to develop such a self-report scale was made by Bemis (1986). As part of a larger study on the comparison of eating disorders and phobias, she developed the Concerns About Change Scale (CCS) in order to assess the fears and concerns psychiatric patients may have about giving up or recovering from their presenting problem. The CCS was originally designed to be applicable to both eating disorder and phobic subjects. It consisted of 66 items rationally grouped into 11 subscales. The results of an expert rating procedure which was performed on the items led to some minor modification of the structure of the subscales (Bemis, 1986).

The CCS has recently been revised in an attempt to make it even more widely applicable. The revision represents an attempt to develop an instrument that comprehensively measures concerns that individuals may have about the consequences of giving up or changing a wide range of maladaptive behaviors, including psychoactive substance use. It is assumed that these concerns are potentially accessible to people’s awareness as they consciously appraise their motivations, and thus are amenable to assessment by means of a self-report instrument. For the purposes of this research project, the Concerns About Change Scale has been selected as the most appropriate available instrument for measuring the concept of resistance to change.
The revised version of the OCS consists of a total of 105 items grouped into 17 rationally derived subscales, each of which consists of six items. In addition, there are three floating items that were included on the original version of the scale. These have been retained to allow for comparisons between the versions, but they are not included on any of the current 17 subscales. The subscales are labelled as follows (see Appendix D for item content of subscales):

1) Unable to Change
2) Unworthy of Change
3) Concern About Risks Involved in Changing
4) Concern About Sexuality
5) Concern About Maturity
6) Concern About Interpersonal Loss
7) Concern About Personal Loss - Accomplishment
8) Concern About Personal Loss - Hedonic
9) Concern About Reactions of Others
10) Problem Provides Sense of Identity
11) Problem Provides Means for Avoidance of Negative Affect
12) Problem Provides Reason for Avoidance of Responsibility
13) Problem Provides Means of Disinhibition of Expression
14) Problem Provides Means for Goal Attainment
15) Problem is Symptom of Deeper Underlying Problem
16) Unpleasantness of Change Process
17) Failure to Recognize Problem as a Problem
In order to be consistent with the original construction of the CCS, an expert rating procedure was performed on the new items (for instructions, see Rating Procedure 1, Appendix E). A total of 13 post-Master's and Doctoral level psychologists who were familiar with the principles of test construction served as the raters. Raters were asked to assign each item to one of the 17 subscales of the CCS. It was determined to be statistically significant at the .05 level of probability when 4 out of the 13 raters assigned an item to its intended subscale. To be more conservative, however, only items which were assigned by 7 or more raters to the intended subscale were regarded as appropriately classified. All but 4 of the items met this conservative criterion. The only exceptions were items 34, 35, 83, and 97 (see Appendix D). In each case, the item was assigned by some raters to its intended subscale, but was also assigned by a significant number of raters to another subscale which appeared to bear some relation to the intended subscale. In order to simplify comparisons between subscales by maintaining the same number of items per subscale, a decision was made to include these 4 items on their intended subscales for the purpose of scoring the CCS for this study. For the future, however, a further revision of the CCS has tentatively been planned taking into account the results of both this rating procedure and another rating procedure, described below, in which items were assigned to positive and negative reinforcement dimensions.
Bemis (1986) informally hypothesized that the subscales of the CCS could roughly be broken down into two major dimensions, reflecting positive and negative reinforcement based concerns about change. The scale was not, however, specifically designed to reflect these two dimensions, but represented an attempt to assess as broad a range of concerns as possible. For the purposes of this study, positive and negative reinforcement dimensions were developed for the Concerns About Change Scale (CCS-P and CCS-N) by having expert raters assign individual items on these instruments to the two dimensions (for instructions, see Rating Procedure 2, Appendix E). A total of 12 post-Master's and Doctoral level psychologists who were familiar with the principles of positive and negative reinforcement served as the raters. Raters were asked to assign each item of the CCS to a positive reinforcement dimension, a negative reinforcement dimension, or to an "Item fits neither dimension" alternative. Raters could also indicate that they were unsure as to the appropriate assignment of an item. It was determined to be statistically significant at the .05 level of probability when 7 out of the 12 raters assigned an item to a single dimension. In order to be conservative, only items which were assigned by 8 or more raters to a single dimension were included on the dimensions.

On the basis of these ratings, CCS-P was made up of 36 items which were drawn from 7 of the 17 existing subscales of the CCS.
There are a total number of 42 items on these 7 subscales, all of which had tentatively been identified prior to the rating procedure as positive reinforcement based subscales. Of the remaining 6 items, 5 were not reliably assigned to a subscale, and only 1 was assigned to CCS-N. Thus, the assignments of the raters seemed quite consistent with the hypothesized structure of the subscales. CCS-N was made up of 34 out of a total of 42 items from another set of 7 subscales which had tentatively been identified as negative reinforcement based subscales. The remaining 8 items were not reliably assigned to a single subscale. Again, the assignments of the raters seemed quite consistent with the hypothesized structure of the subscales. The 18 items on the 3 remaining subscales were, as tentatively predicted, reliably assigned by raters to the "Item fits neither dimension" choice. Once again, the assignments of the raters seemed quite consistent with the hypothesized structure of the subscales. The results of this rating procedure are summarized in Appendix D.

The psychometric properties of the CCS are not yet well established. One of the purposes of this study was to examine the construct validity of this instrument by placing it in a theoretical framework which would allow it to be compared with other instruments. In addition to the testing of specific hypotheses, however, part of the process of establishing construct validity must be exploratory in nature. It is often difficult to accurately
predict the behavior of a new instrument in relation to other instruments. It was thus important to simply examine the relationships that emerged when the CCS and other instruments were administered to this particular diagnostic group for the first time.

As part of the ongoing development of the CCS, it is planned to combine the data from this study with data from other sources in order to provide a large enough sample to effectively examine other psychometric properties of the CCS, such as the internal consistency of the subscales, and the factor structure of the instrument.

Measurement of expectancies.

Recently, there has been an increasing recognition that the decision to use alcohol (and presumably other psychoactive substances) is strongly influenced by expectancies about its reinforcing effects. A number of instruments have been developed to measure alcohol expectancies. These include the Alcohol Expectancy Questionnaire (AEQ; Brown, Christiansen, & Goldman, 1987), the Alcohol Effects Scale (AES; Southwick, et al., 1981), the Effects of Drinking Alcohol questionnaire (EDA; Leigh, 1987), and the Alcohol Beliefs Scale (ABS; Connors & Maisto, 1988).

Three of these instruments, the AEQ, the AES, and the EDA, together with a number of conceptual and methodological issues related to the measurement of alcohol expectancies, have been extensively reviewed by Leigh (1989). She concludes that there are problems with all of these instruments, but the AEQ and the EDA both
appear to account for a significant portion of the variance in drinking behavior.

The AEQ is the most widely used of these instruments, and it will soon be commercially available. One of the problems cited by Leigh (1989) in respect to the AEQ, its focus on desirable outcomes, is not relevant to this study. In fact, this attribute tends to make it an appropriate instrument, because the focus of the study is on expectations of the desirable or reinforcing effects of psychoactive substance use. From the point of view of the theoretical framework employed in this study, there are, however, at least three problems with the AEQ. First, it was not conceptualized in terms of positive and negative reinforcement, and it appeared that items reflecting expectancies of positive reinforcement outnumbered items reflecting expectancies of negative reinforcement. This was, in fact, borne out by the results of the rating procedure described below. Second, some items relate to consequences such as the pleasant taste of alcohol, which, though desirable or reinforcing, are probably relatively trivial in terms of their contribution to the development and maintenance of addictive behavior. Third, some of the items reflect the subject's expectancies about how alcohol affects people in general, or, in some cases, other people, rather than just the self. Despite these problems, however, on balance it appeared that the AEQ was the most
appropriate instrument for the operationalization of alcohol
expectancies for the purposes of this study.

The latest adult version of the AEQ is a 120 item self-report
instrument measuring six general domains of expectancies that were
factor analytically derived (Brown, et al., 1980):

1) Global Positive Changes
2) Sexual Enhancement
3) Physical and Social Pleasure
4) Increased Social Assertiveness
5) Relaxation and Tension Reduction
6) Arousal and Aggression

Only 68 of the items are utilized in scoring these six factors.
Brown et al. (1980) proposed that the six factors of the AEQ were
independent, but Leigh's (1989) review suggests that this is
probably not the case. The scales are, in some cases, quite highly
correlated with each other, and it seems likely that a smaller
number of factors are involved. Results of at least one second
order factor analysis of the scale have, in fact, suggested the
possibility that the AEQ may be measuring a single broad factor
representing desirable expectancies in general (Cooper, Russell, &
George, 1988). As indicated by the title, the item content in
factor 1 is broad and quite heterogeneous, and, while clearly less
broad, several of the other factors are somewhat less homogeneous
than their titles suggest. Other psychometric properties of the AEQ
have been fairly well established in a series of studies by Brown and her associates (reviewed in Brown, et al., 1987).

For the purposes of this study, it is hypothesized that desirable expectancies can be grouped into two broad dimensions reflecting expectancies of positive and negative reinforcement. Dimensions of positive and negative reinforcement (ABQ-P and ABQ-N) were developed for the ABQ by means of an expert rating procedure that was identical in nature to that used to create positive and negative reinforcement dimensions for the CCS (for instructions, see Rating Procedure 2, Appendix E). The same 12 post-Master’s and Doctoral level psychologists who assigned items to the positive and negative reinforcement dimensions of the CCS also rated all items on the ABQ. Raters were asked to assign each item to a positive reinforcement dimension, a negative reinforcement dimension, or to an "Item fits neither dimension" alternative. Raters could also indicate that they were unsure as to the appropriate assignment of an item. It was determined to be statistically significant at the .05 level of probability when 7 out of the 12 raters assigned an item to a single dimension. In order to be conservative, only items which were assigned by 8 or more raters to a single dimension were included on the dimensions.

On the basis of these ratings, ABQ-P was made up of 66 items, 40 of which were drawn from all six of the factors of the ABQ. The remaining 26 items are not used in the scoring of the factors.
AEQ-N was made up of 30 items, 14 of which were drawn from factors 1, 4, 5, and 6. The remaining 16 items are not used in the scoring of the factors. Thus, unlike the subscales of the OCS, the factors of the AEQ generally did not break down into positive and negative reinforcement based clusters. Factors 2 and 3 were both clearly positive reinforcement based factors, but the remaining factors all contained a mixture of items. The results of this rating procedure are summarized in Appendix D.

Measurement of personality.

There are a number of different instruments designed to measure the personality dimensions of Extraversion and Neuroticism. The relatively new NEO Personality Inventory (Costa & McCrae, 1985) provides a measure of both dimensions, but, at the descriptive level, the conceptualization of the dimensions differs somewhat from the Eysenck-Gray model which forms the basis of the conceptual framework for this study, and it lacks a well-articulated theoretical base at the explanatory level.

The well-known Myers-Briggs Type Indicator provides a measure of Extraversion based on Jungian theory, but it is not at all clear that it is compatible with the type of theoretical framework employed in this study. Moreover, this instrument does not include a dimension of Neuroticism. The 16 PF (Cattell, Eber, & Tatsuoka, 1970) is a quite widely used instrument based on Raymond Cattell’s theory of personality which includes second order factors of
Extraversion and High Anxiety-Low Anxiety which seem to roughly tap these two dimensions, but Cattell's own focus has been on the primary factors of this instrument rather than the second order factors, and there is again a lack of explanatory level theory for these second order factors.

For the purposes of this research project a decision was made to utilize the Eysenck Personality Questionnaire (H.J. Eysenck & S.B.G Eysenck, 1975). Although this is not a widely used instrument in clinical settings in the United States, it has the advantages of being designed specifically to measure the dimensions of Extraversion and Neuroticism, of having a considerable amount of empirical research to support its reliability and validity, and of being developed as the direct outgrowth of a reasonably well articulated theory of personality. Its psychometric properties have been well-established by numerous studies conducted both by Eysenck himself and by numerous other researchers (see H.J. Eysenck & M.W. Eysenck, 1985, for a thorough review). Most importantly, as noted above, the theoretical model proposed for this study, which is essentially an amalgam of Eysenck's descriptive model and Gray's explanatory model, suggests that the Extraversion and Neuroticism dimensions of Eysenck's instrument are, to a quite considerable degree, reflective of the relative motivational strengths of positive and negative reinforcement respectively.
Supplementary measures.

In addition to the main instruments employed in this study, a number of supplementary measures were selected in order to assess the effects of possible confounding variables. A socially desirable response set is one such variable that may bias the responses to a wide range of self-report measures. The Marlowe-Crowne Social Desirability Scale (SDES; Crowne & Marlowe, 1964), an instrument that is commonly used in psychological research, was employed as a measure of socially desirable response patterns. The nature of the concept of social desirability remains somewhat controversial, and it appears likely that SDES measures a complex individual difference variable rather than a simple situation-specific response set (Crowne, 1979; Evans, 1982). It has been conceptually linked to constructs such as approval dependence and defensiveness, and tends to correlate negatively with measures of psychological distress (Crowne, 1979). The scale consists of 33 items answered "true" or "false". Normative studies have typically shown mean scores for males to fall between 12 and 16 (Evans, 1982).

Level of depression is another factor that, it was hypothesized, might systematically influence the response set of subjects on the self-report measures being employed in this study. Some degree of depression is common, but by no means ubiquitous, in individuals undergoing treatment for Psychoactive Substance Use Disorders (Hesselbrock, et al., 1983; Steer, McElroy, & Beck, 1982),
and it was not considered practical; or even desirable, to exclude depressed subjects from the study. The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), another instrument that is very commonly used in both clinical and research settings, was employed as a measure of depression. Its psychometric properties have been comprehensively reviewed (Beck & Beamesderfer, 1974), and it has repeatedly been shown to correlate quite highly with other measures of depression. It consists of 21 items that can be rated from 0 to 3 in terms of intensity. Individuals scoring 10 or below are considered non-depressed, 11 to 17 mildly depressed, 18 to 29 moderately depressed, and 30 and above severely depressed (Steer & Beck, 1988). By these criteria, 28 of the subjects in the present study were non-depressed, 16 mildly depressed, and 4 moderately depressed.

It was hypothesized that severity of addiction to a psychoactive substance might be another factor that could systematically influence the response set of subjects. A 25 item addiction severity questionnaire (ASQ) based on DSM III-R diagnostic criteria for Psychoactive Substance Abuse and Dependence (see Appendix) was developed by the author for this study as a measure of the severity of the problems associated with psychoactive substance use. All measures used in this study are included in Appendix C.
Procedure

Potential subjects were initially screened by treatment program staff, and a checklist (see Appendix B) was completed by a qualified clinician for each subject selected for participation in the study. Prior to administration of the questionnaires, subjects were given verbal instructions regarding their participation in the research project. If they chose to participate, they then signed the consent form. A packet containing a cover sheet for information on demographic variables, the Concerns About Change Scale, the Alcohol Expectancy Questionnaire (with modified instructions for stimulant users), the Eysenck Personality Questionnaire, the Marlowe-Crowne Social Desirability Scale, the Beck Depression Inventory, and the addiction severity questionnaire (see Appendix C) was then given to each subject. Administration of the questionnaires took place in small groups, ranging in size from three to ten subjects, at the treatment facilities in which the subjects were in residence. Every administration was supervised throughout by either the principal investigator or a trained undergraduate research assistant. Written instructions for the questionnaires were provided to all subjects, and further verbal instructions were also given before subjects began responding. On completion of all questionnaires, each subject was paid five dollars for participation.
Data Analysis

Data analysis consisted of three major parts. The first part was designed to test the first set of two hypotheses that had been derived from the theoretical framework. This part of the analysis used scores of all subjects to explore the relationships between EPQ-E, AEQ-P, and CCS-P, and between EPQ-N, AEQ-N, and CCS-N. A series of regression analyses were conducted using either CCS-P or CCS-N as dependent variables. When CCS-P was the dependent variable, the independent variables included EPQ-E and AEQ-P, together with demographic variables and scores on the BDI, SDES, and the ASQ. When CCS-P was the dependent variable, the independent variables included EPQ-N and AEQ-N, together with demographic variables and scores on the BDI, SDES, and the ASQ. Various combinations of independent variables were attempted in both regular and stepwise regression analyses in order to determine the best fitting models.

The second major part of the analysis was designed to test the second set of two hypotheses that had been developed from the theoretical framework. The analysis compared the alcohol group with the stimulant group in terms of personality dimensions, expectancies, and resistance to change. Two stepwise discriminant function analyses were used to determine how well the variables EPQ-E, EPQ-N, AEQ-P, AEQ-N, CCS-P, and CCS-N were able to distinguish between the two groups. In the first analysis, only the
above six variables were included; in the second analysis, all
variables which might distinguish between the groups were included.

The third major part of the analysis was essentially
exploratory in nature. Means were computed for all variables
employed in the study, a correlation matrix was constructed
including all variables, and t-tests were computed between the
alcohol group and the stimulant group on all variables. These,
together with the above analyses, were inspected in order to
identify significant findings that were not predicted in the
hypotheses.

A few missing data points were discovered, primarily as a
result of unanswered items on the CCS. These were dealt with by
taking the mean of the remaining items on the relevant subscale, and
adding that figure to the subscale total. The number of missing
data points was quite small (not more than 10 in all), and it did
not appear that the missing data would significantly bias the
results in any way.
CHAPTER IV
RESULTS

In general, hypotheses 1 and 2, pertaining to the sample as a whole, were not confirmed by the results of the data analysis. Regression analyses indicated that neither EPQ-E nor AEQ-P accounted for a significant portion of the variance in CCS-P. Likewise, neither EPQ-N nor AEQ-N accounted for a significant portion of the variance in CCS-N.

The regression analyses did, however, produce some interesting findings. The most important finding to emerge from the analyses was that scores on the BDI were highly predictive of scores on both CCS-P and CCS-N, and thus also of total score on the CCS. An initial analysis, with CCS-P as the dependent variable, included, in the following order, the independent variables AEQ-P, EPQ-E, BDI, SDES, and ASQ; R-square for the model was 0.3557, $F (5, 42) = 4.635$, $p = .0018$. Within this model, BDI was the only significant predictor variable ($F = 4.260; p = .0001$). When BDI was excluded from this model, R-square dropped to a nonsignificant value of 0.0773. Similarly, in a stepwise regression analysis, again with CCS-P as the dependent variable, in which additional variables could be selected as predictors, only the BDI met the criteria for entry into the model, yielding an R-square of 0.3201, $F (1, 46) = 21.66$, $p = .0001$. In this analysis, AEQ-P, which was, as predicted,
positively correlated with CCS-P, and also age and SDES, which were negatively correlated, all approached, but did not reach, significance at the .05 level of probability.

Similar analyses were conducted with CCS-N as the dependent variable. Initially, a model including, in the following order, ABQ-N, EPQ-N, BDI, SDES, and ASQ as independent variables, yielded an R-square of 0.3813, \( F(5, 42) = 5.178, p = .0009 \). When BDI was excluded from this model, R-square dropped to a nonsignificant value of 0.0972. In a stepwise regression analysis in which additional variables could be selected as predictors, only BDI met the criteria for entry into the model, yielding an R-square of 0.3274, \( F(1, 46) = 22.39, p = .0001 \). In this analysis, age and SDES, both of which were negatively correlated with CCS-N, approached, but did not reach, significance at the .05 level of probability.

The above stepwise analyses were repeated after adding to the models the Psychoticism and Lie scales of the EPQ (EPQ-P and EPQ-L). These variables had not previously been included in the analyses, as they were not hypothesized to be of any great importance, but as the data were available, it seemed worthwhile to examine their effects. Surprisingly, EPQ-P emerged as an important variable, second only to BDI in its ability to predict both CCS-P and CCS-N. As a predictor of CCS-P, it yielded an R-square of 0.1062, \( F(2, 45) = 8.33, p = .0060 \), and as a predictor of CCS-N, it yielded an R-square of 0.0677, \( F(2, 45) = 5.03, p = .0298 \). EPQ-L
was negatively correlated with both CCS-P and CCS-N, but it did not emerge as a significant predictor of either dimension.

Hypotheses 3 and 4, pertaining to comparisons between the alcohol group and the stimulant group, were partially supported by the results of the data analysis. A stepwise discriminant analysis was conducted, utilizing the six variables predicted to distinguish between the two groups (see Table 4). ABQ-N, with means of 24.833 for the alcohol group and 19.542 for the stimulant group, was the variable that best distinguished between the two groups, and it did so in the predicted direction. In the stepwise discriminant model, it yielded an R-square of 0.2742, F (1, 44) = 17.381, p = .0001.

EPQ-E, with means of 11.542 for the alcohol group and 15.000 for the stimulant group, also significantly distinguished between the groups in the predicted direction. In the stepwise discriminant model, it yielded an R-square of 0.1010, F (1, 44) = 5.057, p = .0295. The other four variables did not significantly distinguish between the groups, and differences between the groups varied in terms of the predicted directions. In the case of CCS-P, the difference was in the predicted direction, the mean for the stimulant group being substantially higher than that for the alcohol group (76.750 vs. 64.708) even though statistical significance was not achieved. In the case of CCS-N, however, contrary to prediction, the mean for the stimulant group was again substantially higher than that for the alcohol group (80.875 vs. 72.083). Similarly, in the case of ABQ-P,
### Table 4

**Stepwise Discriminant Analysis**

<table>
<thead>
<tr>
<th>Variable</th>
<th>R-square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEQ-N</td>
<td>0.2742</td>
<td>17.381</td>
<td>.0001</td>
</tr>
<tr>
<td>EPQ-E</td>
<td>0.1010</td>
<td>5.057</td>
<td>.0295</td>
</tr>
<tr>
<td>AEQ-P</td>
<td>0.0634</td>
<td>2.978</td>
<td>.0914</td>
</tr>
<tr>
<td>CCS-P</td>
<td>0.0291</td>
<td>1.289</td>
<td>.2626</td>
</tr>
<tr>
<td>CCS-N</td>
<td>0.0186</td>
<td>0.816</td>
<td>.3714</td>
</tr>
<tr>
<td>EPQ-N</td>
<td>0.0068</td>
<td>0.295</td>
<td>.5900</td>
</tr>
</tbody>
</table>
the difference was not in the predicted direction, the mean for alcohol group being a little higher than the mean for the stimulant group (49.333 vs. 46.292). In the case of EPQ-N, the groups barely differed, the mean for the stimulant group being slightly higher than the alcohol group (15.042 vs. 14.625).

A second stepwise discriminant analysis was conducted using all continuous variables. In addition to differing on AEQ-N and EPQ-E, the two groups, as already indicated, differed significantly in terms of age. They also differed in terms of score on the ASQ, the mean for the alcohol group being significantly higher than that of the stimulant group (22.875 vs. 20.833). ASQ yielded an R-square of 0.2067, $F(1, 43) = 11.202$, $p = .0017$. As both groups scored very highly on the ASQ, however, it is not clear that this difference has any great clinical significance, and it seems plausible that it may be, at least in part, a function of the difference in age between the two groups.

Means and standard deviations of the major variables are shown in Table 5, and those of the subscales of the OCS and AEQ appear in Tables 6 and 7 respectively. Examination of these descriptive statistics yielded some interesting findings, some of which are quite significant and of immediate relevance, and some of which merely raise questions which may be worthy of further exploration in the future.
Table 5

Means (and Standard Deviations) of Selected Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>All subjects N=48</th>
<th>Alcohol n=24</th>
<th>Stimulant n=24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>34.58 (9.19)</td>
<td>38.75 (9.68)</td>
<td>30.42 (6.52)</td>
</tr>
<tr>
<td>Months in tx.</td>
<td>2.29 (1.96)</td>
<td>2.04 (1.60)</td>
<td>2.54 (2.26)</td>
</tr>
<tr>
<td>CCS-P</td>
<td>70.73 (24.90)</td>
<td>64.71 (21.55)</td>
<td>76.75 (26.97)</td>
</tr>
<tr>
<td>CCS-N</td>
<td>76.48 (23.31)</td>
<td>72.08 (21.57)</td>
<td>80.88 (24.59)</td>
</tr>
<tr>
<td>AEQ-P</td>
<td>47.81 (9.96)</td>
<td>49.33 (9.94)</td>
<td>46.29 (9.96)</td>
</tr>
<tr>
<td>AEQ-N</td>
<td>22.19 (5.11)</td>
<td>24.83 (3.63)</td>
<td>19.54 (5.05)</td>
</tr>
<tr>
<td>EPQ-E</td>
<td>13.27 (5.19)</td>
<td>11.54 (5.00)</td>
<td>15.00 (4.87)</td>
</tr>
<tr>
<td>EPQ-N</td>
<td>14.83 (5.05)</td>
<td>14.63 (5.43)</td>
<td>15.04 (4.74)</td>
</tr>
<tr>
<td>EPQ-P</td>
<td>5.44 (3.00)</td>
<td>5.13 (3.10)</td>
<td>5.75 (2.92)</td>
</tr>
<tr>
<td>EPQ-L</td>
<td>4.67 (3.14)</td>
<td>5.17 (2.76)</td>
<td>4.17 (3.47)</td>
</tr>
<tr>
<td>BDI</td>
<td>9.75 (6.08)</td>
<td>8.96 (6.77)</td>
<td>10.54 (5.32)</td>
</tr>
<tr>
<td>SDES</td>
<td>10.96 (5.28)</td>
<td>11.79 (6.04)</td>
<td>10.13 (4.37)</td>
</tr>
<tr>
<td>ASQ</td>
<td>21.85 (3.36)</td>
<td>22.88 (2.94)</td>
<td>20.83 (3.51)</td>
</tr>
</tbody>
</table>
Table 6

COS Subscales: Means and Standard Deviations

<table>
<thead>
<tr>
<th>Subscale</th>
<th>All subjects</th>
<th>Alcohol</th>
<th>Stimulant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=48</td>
<td>n=24</td>
<td>n=24</td>
</tr>
<tr>
<td>CCS-1</td>
<td>10.92 (5.30)</td>
<td>11.38 (5.82)</td>
<td>10.46 (4.80)</td>
</tr>
<tr>
<td>CCS-2</td>
<td>11.25 (4.57)</td>
<td>11.38 (4.79)</td>
<td>11.13 (4.45)</td>
</tr>
<tr>
<td>CCS-3 (N)</td>
<td>10.04 (4.81)</td>
<td>9.38 (4.07)</td>
<td>10.71 (5.45)</td>
</tr>
<tr>
<td>CCS-4 (N)</td>
<td>11.85 (4.70)</td>
<td>10.79 (3.46)</td>
<td>12.92 (5.55)</td>
</tr>
<tr>
<td>CCS-5 (N)</td>
<td>15.19 (5.20)</td>
<td>13.79 (4.86)</td>
<td>16.58 (5.26)</td>
</tr>
<tr>
<td>CCS-6 (P)</td>
<td>11.21 (4.94)</td>
<td>9.88 (4.39)</td>
<td>12.54 (5.18)</td>
</tr>
<tr>
<td>CCS-7 (P)</td>
<td>9.88 (4.66)</td>
<td>9.33 (4.33)</td>
<td>10.42 (5.00)</td>
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<tr>
<td>CCS-8 (P)</td>
<td>11.75 (5.79)</td>
<td>11.50 (5.73)</td>
<td>12.00 (5.96)</td>
</tr>
<tr>
<td>CCS-9 (P)</td>
<td>14.15 (6.32)</td>
<td>12.17 (4.60)</td>
<td>16.13 (7.23)</td>
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<tr>
<td>CCS-10 (P)</td>
<td>13.54 (4.92)</td>
<td>12.25 (4.71)</td>
<td>14.83 (4.88)</td>
</tr>
<tr>
<td>CCS-11 (N)</td>
<td>12.67 (5.23)</td>
<td>12.13 (5.02)</td>
<td>13.21 (5.48)</td>
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<td>CCS-12 (N)</td>
<td>19.65 (5.27)</td>
<td>18.42 (5.53)</td>
<td>20.88 (4.79)</td>
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<td>CCS-13 (P)</td>
<td>11.10 (4.87)</td>
<td>10.67 (4.39)</td>
<td>11.54 (5.36)</td>
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<td>CCS-14 (P)</td>
<td>13.00 (5.62)</td>
<td>11.75 (4.85)</td>
<td>14.25 (6.14)</td>
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<tr>
<td>CCS-15 (N)</td>
<td>13.94 (5.45)</td>
<td>13.50 (5.70)</td>
<td>14.38 (5.27)</td>
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<tr>
<td>CCS-16 (N)</td>
<td>12.06 (5.15)</td>
<td>11.83 (5.47)</td>
<td>12.29 (4.91)</td>
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<tr>
<td>CCS-17</td>
<td>12.79 (5.95)</td>
<td>12.58 (6.21)</td>
<td>13.00 (5.80)</td>
</tr>
</tbody>
</table>

Note. (P) = Positive reinforcement based subscale.  
(N) = Negative reinforcement based subscale.
Table 7

ABQ Subscales: Means and Standard Deviations

<table>
<thead>
<tr>
<th>Subscale</th>
<th>All subjects</th>
<th>Alcohol</th>
<th>Stimulant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=48</td>
<td>n=24</td>
<td>n=24</td>
</tr>
<tr>
<td>AEQ-1</td>
<td>16.92 (3.80)</td>
<td>17.21 (3.67)</td>
<td>16.63 (3.99)</td>
</tr>
<tr>
<td>AEQ-2</td>
<td>4.42 (2.39)</td>
<td>4.42 (2.50)</td>
<td>4.42 (2.32)</td>
</tr>
<tr>
<td>AEQ-3</td>
<td>7.69 (1.65)</td>
<td>7.83 (1.74)</td>
<td>7.54 (1.59)</td>
</tr>
<tr>
<td>AEQ-4</td>
<td>8.50 (2.56)</td>
<td>9.13 (2.13)</td>
<td>7.88 (3.33)</td>
</tr>
<tr>
<td>AEQ-5</td>
<td>6.46 (2.17)</td>
<td>8.00 (1.53)</td>
<td>4.92 (1.53)</td>
</tr>
<tr>
<td>AEQ-6</td>
<td>6.35 (1.51)</td>
<td>6.75 (1.45)</td>
<td>5.96 (1.49)</td>
</tr>
</tbody>
</table>
Of some immediate interest are the mean scores on the individual subscales of the CCS. Because there are an equal number of items on all subscales of the CCS, it is easy to make direct comparisons among subscale scores without having to perform any transformations on the scores. Subscale 12 (Problem Provides Reason for Avoidance of Responsibility), yielded the highest overall mean score of 19.646, followed by the conceptually related subscale 5 (Concern About Maturity), with an overall mean score of 15.188. This same pattern held true in both the alcohol group, where the two means were 18.417 and 13.792 respectively, and in the stimulant group, where the two means were 20.875 and 16.583 respectively. Interestingly, despite the similarity in pattern between the two groups, subscale 5 approached significance in distinguishing between the two groups in the stepwise discriminant analysis.

It is also interesting to note that subscales 12 and 5 of the CCS are primarily composed of items from the negative reinforcement dimension, and that, for both the alcohol group and the stimulant group, mean scores on CCS-N were substantially higher than those on CCS-P. In the case of the alcohol group, the mean difference between CCS-N and CCS-P of 7.375 was sufficient to achieve statistical significance ($t = 3.04; p = .0059$). In the case of the stimulant group, the mean difference of 4.125 approached significance ($t = 1.88; p = .0731$).
There was a substantial difference between the two groups in terms of total score on the CQS, the mean for the alcohol group being 202.500, and the mean for the stimulant group being 226.833; however, this difference, though substantial, was not statistically significant. This difference in total is also reflected in the subscale means. The mean for the stimulant group was higher than that for the alcohol group for all subscales except numbers 1 (Unable to Change), and 2 (Unworthy of Change). In a stepwise discriminant analysis including all subscales of the CQS, only subscale 9 (Concern About Reactions of Others), with means of 12.167 for the alcohol group and 16.125 for the stimulant group, significantly distinguished between the two groups. A series of t-tests was also conducted comparing the two groups on all subscales of the CQS. Even under these more liberal conditions, though a number of other subscales approached statistical significance, none but subscale 9 achieved it.

The AEQ subscales do not have equal numbers of items, and thus are not readily comparable with each other. In a stepwise discriminant analysis including all of the AEQ subscales, only subscale 5 (Relaxation and Tension Reduction), with means of 8.000 for the alcohol group and 4.917 for the stimulant group, significantly distinguished between the two groups. Total score on all AEQ subscales also differed substantially between the two groups, with means of 53.333 for the alcohol group and 46.958 for
the stimulant group. This difference was significant in a simple t-test comparison between the groups ($t = 2.3916, p = .0210$), but it did not achieve significance in the stepwise discriminant analysis. This difference in total score was reflected in differences in subscale scores: the mean of the alcohol group was higher than that of the stimulant group on all subscales except number 2 (Unworthy of Change), on which the means were identical. However, as noted above, with the exception of subscale 5 (Concern About Maturity), the differences were not substantial, and did not achieve statistical significance.

The two groups did not differ significantly on BDI or SDES scores. In the case of the former, the mean of the stimulant group was slightly higher than that of the alcohol group (10.542 vs. 8.958), and in the case of the latter, the mean of the alcohol group was slightly higher than that of the stimulant group (11.792 vs 10.125).

A correlation matrix was constructed in order to permit an inspection of the interrelationships among all variables (Table 8 shows correlations amongst major variables). In line with the predictions made in hypotheses 1 and 2, CCS-P showed small but statistically nonsignificant positive correlations with AEQ-P and EPQ-E. CCS-P also, as expected, showed a small, but statistically nonsignificant, negative correlation with AEQ-N. Contrary to prediction, however, CCS-P showed a fairly substantial positive
Table 8

Correlations between Selected Variables

<table>
<thead>
<tr>
<th></th>
<th>CCS-P</th>
<th>CCS-N</th>
<th>AEQ-P</th>
<th>AEQ-N</th>
<th>EFQ</th>
<th>EFQ-N</th>
</tr>
</thead>
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<td>CCS-P</td>
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<td>-0.06</td>
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<td>0.01</td>
<td>-0.13</td>
<td>1.00</td>
</tr>
<tr>
<td>EFQ-P</td>
<td>0.52***</td>
<td>0.46**</td>
<td>-0.16</td>
<td>-0.33*</td>
<td>0.26</td>
<td>0.32*</td>
</tr>
<tr>
<td>EFQ-L</td>
<td>-0.16</td>
<td>-0.23</td>
<td>0.00</td>
<td>0.02</td>
<td>-0.15</td>
<td>-0.43**</td>
</tr>
<tr>
<td>BDI</td>
<td>0.57***</td>
<td>0.57***</td>
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<td>-0.04</td>
<td>0.01</td>
<td>0.57***</td>
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<tr>
<td>SDESS</td>
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<td>-0.14</td>
<td>-0.13</td>
<td>0.00</td>
<td>-0.52***</td>
</tr>
<tr>
<td>ASQ</td>
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<td>0.26</td>
<td>-0.14</td>
<td>0.29*</td>
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<tr>
<td>Age</td>
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<td>-0.36*</td>
<td>0.23</td>
<td>0.25</td>
<td>-0.17</td>
<td>-0.27</td>
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</table>
Table 8 (continued). Correlations between Selected Variables

<table>
<thead>
<tr>
<th></th>
<th>EPQ-P</th>
<th>EPQ-L</th>
<th>BDI</th>
<th>SDES</th>
<th>ASQ</th>
<th>Age</th>
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<tr>
<td>BDI</td>
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<td>-0.11</td>
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<tr>
<td>SDES</td>
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<td>0.65***</td>
<td>-0.27</td>
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<tr>
<td>ASQ</td>
<td>0.12</td>
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<td>-0.45**</td>
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<tr>
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<td>0.23</td>
<td>-0.24</td>
<td>0.04</td>
<td>0.01</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* P<.05  
** P<.01  
*** P<.001
correlation with EPQ-N ($r = 0.43799$). EPQ-N also showed, as predicted, a substantial positive correlation with CCS-N ($r = 0.48514$); however, as previously indicated, EPQ-N did not account for a significant portion of the variance in either CCS-P or CCS-N in the regression analyses. EPQ-N also showed a substantial positive correlation with BDI ($r = 0.57117$), and a substantial negative correlation with SDES ($r = -0.52303$). SDES was positively correlated with the conceptually related EPQ-L ($r = 0.65363$), and both of these measures showed moderately substantial negative correlations with both CCS-P and CCS-N.

Another interesting finding was that CCS-P and CCS-N were very highly correlated ($r = 0.89137$), and that AEQ-P and AEQ-N were also quite highly correlated ($r = 0.65652$). EPQ-E and EPQ-N, however, showed a small negative correlation ($r = -0.12501$). Eysenck (1967) has claimed that these dimensions are orthogonal; the current data clearly do not refute that claim, but they do raise the question of whether these dimensions would prove to be orthogonal in a larger sample of this population.

Some interesting findings emerged in comparing overall and group mean scores with established norms on some of the instruments. Unfortunately, there are, as yet, no established norms for the CCS relative to this type of population, but comparisons between this sample and samples drawn from other diagnostic categories will be forthcoming in the near future. There are also
no clearly defined norms for the AEQ, although a comparison of AEQ subscale scores with those reported in previous research (Brown, et al., 1987) indicates that subjects in this sample tended to score quite highly on AEQ subscales, falling within a range that apparently is characteristic of heavy alcohol users.

Despite the predictive power of the BDI relative to CES-P and CES-N, overall and group mean scores on the BDI all fell below even the mildly depressed range. It seems reasonable to assume that some degree of depression could be expected in this population, given the fact that many of these individuals have suffered severely negative consequences as a result of their substance use prior to entering treatment. Previous studies with alcoholic patients have typically yielded mean scores in the range of 13 to 17 (Hesselbrock, Hesselbrock, Tennen, Meyer, & Workman, 1983; Steer, McElroy, & Beck, 1982; Zeiner, Stanitis, Spurgeon, & Nichols, 1985). The level of depression reported by these subjects thus appears to be relatively low. This is an issue that will be addressed further in the next section, and that may be of considerable importance in the interpretation of the data.

The norms for the EPQ are reported in the manual (Eysenck & Eysenck, 1975). Based on the mean ages of the alcohol and stimulant groups, it would be expected that subjects in both groups would score in the range of 9.33 on EPQ-N and 12.85 on EPQ-E. Relative to those norms, subjects in both groups scored rather highly on EPQ-N,
the mean for the alcohol group being 14.625, and for the stimulant
group 15.042. This pattern is in line with findings reported by
Eysenck and Eysenck (1975) that alcoholics and drug addicts tend to
score well above the normal range on EFQ-N. In the case of EFQ-E,
the mean score of 11.542 for the alcohol group was slightly below
the norm, but about two points above the mean reported by Eysenck
and Eysenck (1975) in a sample of alcoholic patients. For the
stimulant group, the mean score of 15.000 was over two points higher
than the norm, and considerably higher than that reported by Eysenck
and Eysenck (1975) in an unspecified sample of drug addicts
(probably not stimulant users). On EFQ-P, the mean scores were
5.125 for the alcohol group and 5.750 for the stimulant group, as
compared to the norm of 3.27. In the case of EFQ-L, the mean scores
were 5.167 for the alcohol group, and 4.167 for the stimulant group,
substantially lower than the norm of 7.53. Consistent with this
finding on EFQ-L, the mean scores on SDES fall somewhat below the
norm. Mean scores of around 15 to 17 on the SDES have typically
been reported for alcoholics (Evans, 1982).

No norms are available for the ASQ, developed for the purposes
of the present study; however, as already noted, both groups scored
highly on this instrument. Out of a maximum possible score of 25,
the mean scores were 22.875 for the alcohol group, and 20.833 for
the stimulant group. In DSM III-R terms, all subjects would fall
into the diagnosis of Psychoactive Substance Dependence - Severe.
CHAPTER V
DISCUSSION

In regard to hypotheses 1 and 2, the absence of any significant relationships between EPQ-E, AEQ-P, and CQS-P, and between EPQ-N, AEQ-N, and CQS-N was disappointing. The only finding that seemed to offer much support for the hypothesized relationships between the variables was the sizeable positive correlation between EPQ-N and CQS-N, but even this relationship proved to be insignificant in the regression analyses, being overshadowed by the powerful effect of BDI.

There are several factors other than those hypothesized that may have a bearing on the results. It seems likely that several of these factors, in combination, could account for these negative findings. First, there may be problems within the theoretical framework on which the study is based, so that the hypothesized relationships may simply be wrong. It is possible, for example, that the EPQ dimensions of Extraversion and Neuroticism are more complex than has been assumed in the theoretical framework, and that they do not simply reflect susceptibility to positive reinforcement and susceptibility to negative reinforcement as the theoretical framework proposes. If this is the case, then it would not be expected that these dimensions would necessarily correlate highly with positive and negative reinforcement dimensions of the AEQ and
CCS. The fact that ERQ-N showed substantial positive correlations with both CCS-N and CCS-P, and ERQ-E showed small positive correlations with both dimensions, could certainly be interpreted as an indication that the relationship between Extraversion and Neuroticism on the one hand, and positive and negative reinforcement on the other, may not be a simple one.

Second, there is the possibility that, even if the theoretical framework has some validity, differences in susceptibility to positive and negative reinforcement may be difficult to assess with self report measures. Items on the ABQ and CCS were very reliably assigned to positive and negative reinforcement based dimensions by the expert raters, but data analysis showed a very substantial positive correlation between ABQ-P and ABQ-N, and an even stronger positive correlation between CCS-P and CCS-N. These high correlations may be related to an inability of individuals to readily distinguish and report the relative influences of positive and negative reinforcement on their behavior. For example, in everyday language, the difference between the two dimensions, with respect to expectancies about the effects of psychoactive substances, can be thought of as the distinction between using a substance to feel good versus using it to stop or avoid feeling bad. It seems very likely that, at a phenomenological level, it is often difficult for individuals to distinguish between the two. For example, "drinking to relax" seems to suggest positively reinforcing
consequences, whereas "drinking to relieve tension", while
describing essentially the same effect from a slightly different
perspective, seems to suggest negatively reinforcing consequences.
The subjects in this sample appeared to expect a wide range of
desirable or reinforcing consequences from their substance use, and
also tended to endorse a fairly wide range of concerns about
changing that behavior, but, in general, they did not seem to make
significant distinctions between positively reinforcing and
negatively reinforcing consequences of substance use. It may be of
some clinical significance, however, that subjects tended to express
more negative than positive reinforcement based concerns about
changing their behavior.

Third, it is possible that the distinction between positive and
negative reinforcement can, at least in theory, be reliably and
validly assessed by self-report instruments, but that these
particular instruments are not appropriate or adequate for the task
for which they were used. This explanation may have some validity,
particularly in the case of the AEQ. As noted above, the AEQ has a
number of problems that may make it less than ideal for the task for
which it was used in this study. It was not designed with the
positive vs. negative reinforcement distinction in mind, and, in the
rating procedure, its subscales did not easily break down into two
such types. Furthermore, the AEQ attempts to survey a wide range of
expectancies, some of which may not be of great relevance to the
maintenance of the high levels of consumption associated with the diagnosis of dependence. Its simple, dichotomous "agree vs. disagree" format provides no mechanism for valencing the expectancies that it attempts to assess. A recent article by Solomon and Annis (1989) emphasizes the importance of assessing the value that is placed on a consequence, in addition to assessing the likelihood of that consequence. The AEQ simply does not address this valencing issue.

Despite the fact that the CCS is still in its formative stages, it appears to be more suited to the task for which it is used in this study than does the AEQ. It was roughly conceptualized with the positive vs. negative reinforcement distinction in mind, and, in the rating procedure, with the exception of a few items, its subscales broke down quite neatly into a group of seven positive reinforcement based subscales and another group of seven negative reinforcement based subscales. In addition, its five point Likert scale format provides a built in way of valencing the concerns that individuals endorse. This difference, in particular, may explain the lack of any significant relationships between the positive and negative reinforcement dimensions of the AEQ and those of the CCS.

Fourth, it is possible that the distinction between positive and negative reinforcement can be reliably and validly assessed by means of self-report instruments only in certain ideal circumstances. The potential drawbacks of self-report instruments
have been well-documented by numerous authorities on assessment (see for example, Bellack & Hersen, 1977). One of the main dangers is that some form of response set or bias, that may or may not be systematically related to the variables being measured, will account for a significant portion of the variance in the instrument. There are some indications that some form of response bias influenced subjects’ responses to the instruments used in this study, and that this bias was strong enough to overwhelm the predicted effects of the variables of interest. It was observed that the BDI and, in a distant second place, EPQ-P served as the most powerful predictors of both COS-P and CCS-N, and that COS-P and CCS-N were strongly positively correlated. This seems to suggest that this group of subjects displayed a general tendency to endorse concerns about change which is strongly related to the level of depression, and, somewhat less strongly, to the general level of psychopathology that they reported. The directionality of this relationship is, however, not clear. It could be that willingness to acknowledge depression and other forms of psychopathology and willingness to acknowledge concerns about change should be seen as the joint effects of some third variable; however, it is unclear what this third variable might be. Furthermore, the third variable explanation gives no clue as to possible mechanisms which may be operating to produce the observed results.
A possible mechanism linking these variables may have to do with response sets that have previously been noted in research on depressed subjects. It has been noted that depressed individuals often tend to be more realistic in their assessments of situations than non-depressed individuals (Alloy & Abramson, 1979; Lewinsohn, Mischel, Chaplin, & Barton, 1980). It thus seems plausible that, in this case, degree of depression may be associated with the subjects' ability to realistically assess their concerns about the consequences of behavior change. Conversely, the relative absence of depression may be associated with a tendency to deny concerns about such consequences. SDES, as a measure of socially desirable response sets, and EPQ-L, as a measure of dissimulation and/or naivete (Eysenck & Eysenck, 1975), appear to come closest to being measures of such denial, although neither are ideal instruments for that purpose. Following the BDI and EPQ-P, the next most powerful predictors of CQS-P and CQS-N were age and SDES, both of which were negatively correlated with the two dependent variables, and also with the BDI and with EPQ-P. It is consistent with the current line of reasoning that SDES (and EPQ-L) should be negatively related to the other variables. Eysenck and Eysenck (1975) have noted that scores on EPQ-L increase steadily with advancing age, so it seems logical that age would also be negatively correlated with CQS-P and CQS-N, apparently indicating a decreasing tendency to acknowledge concerns about change with increasing age.
It must be understood that the term denial, as used above relative to concerns about change, does not necessarily imply a conscious and deliberate attempt to publicly deny concerns that the individual privately knows to be true. It merely suggests an inability to recognize, and thus to report, concerns about change that, from a more realistic perspective, the individual could be expected to endorse. It is unfortunate that more direct measures of such denial are not available for comparison. SDES and ERQ-L come closest to being direct measures of this tendency, while the BDI appears to serve as an indirect, but nevertheless quite powerful, measure of such a tendency.

In regard to hypotheses 3 and 4, pertaining to comparisons between the alcohol group and the stimulant group, the discriminatory power of AEQ-N appears to indicate, as predicted, that the alcohol group expected significantly more negatively reinforcing consequences from their drug of choice than did the stimulant group. Surprisingly, however, the alcohol group also expected more positively reinforcing consequences from their drug of choice than did the stimulant group, although the difference was not statistically significant. In general, it seems that the alcohol group simply expected a somewhat broader range of desirable or reinforcing consequences from their drug of choice than did the stimulant group. The reasons for this are unclear, but it is possible that they may have more to do with differences in the
psychopharmacology of the two substances than with differences in the two subject groups. The author is not aware of any research specifically comparing expectancies about the effects of alcohol with expectancies about the effects of stimulants, but the literature on drug actions seems to suggest that the psychopharmacological effects of alcohol are somewhat broader and less specific than those of the stimulants (see for example, Julien, 1985; Wise, 1988).

In the case of CCS-P and CCS-N, neither dimension achieved statistical significance in distinguishing between the alcohol and stimulant groups, although in both cases, the stimulant group scored substantially higher than the alcohol group. This pattern is the reverse of that observed with the AEQ. In light of the findings regarding the effects of the BDI, EPQ-P, age, and SDES on CCS scores, this pattern can be accounted for by the fact that the stimulant group scored somewhat higher on the BDI and EPQ-P, was significantly younger, and also scored slightly lower on SDES, than the alcohol group.

In the case of the EPQ, it was found that EPQ-E did, as predicted, distinguish between the two groups, the stimulant group scoring significantly higher than the alcohol group on this dimension. Stimulant users thus appear to be more extraverted than alcohol users, and their EPQ-E scores are above the norms reported by Eysenck and Eysenck (1975), suggesting that they also tend to be
more extraverted than the general population. The two groups were virtually indistinguishable on the basis of EPQ-N scores, which were well above Eysenck and Eysenck's (1975) norms, suggesting that heavy psychoactive drug use tends to be associated with increases in scores on this dimension regardless of the type of drug used. This is consistent with the literature on the effects of long term drug and alcohol use which consistently reports increased symptomatology of a neurotic nature as a consequence of that use (see for example, Royce, 1981).

The descriptive statistics yielded some interesting findings, perhaps foremost among which was the consistent appearance of the conceptually related CCO subscales 12 (Problem Provides Reason for Avoidance of Responsibility) and 5 (Concern About Maturity), as the highest of the CCO subscales. This was the case in the sample as a whole, and in both the alcohol and stimulant groups. This was a rather unexpected finding, particularly in the case of the stimulant group, as the majority of the items on both of these subscales were assigned by raters to the negative reinforcement dimension of the CCO. Taken as a unit, these two subscales appear to be tapping into a general concern about taking on the responsibilities of a mature adult. The reasons for the importance of this concern are not clear, but the author speculates that they may be related to the characteristics of this population. As noted earlier, patients in publicly funded substance abuse treatment programs tend to
constitute a rather dysfunctional group. They have usually experienced multiple problems associated with their substance use, personality disorders can commonly be diagnosed amongst them, and they are often deficient in social and other adaptive skills. Thus, they frequently have a poor track record of mature and responsible functioning. It seems logical that such individuals would be concerned about having to take on the responsibilities of a mature adult. The clustering of the items of these two subscales on the negative reinforcement dimension of the CCl suggests that one basis for this concern may be a fear of the stress which is likely to be associated with attempting to take on responsibilities for which they are poorly equipped. It is possible, however, that, given the general tendency of subjects to endorse a significant number of positive as well as negative reinforcement based items, the concern may also reflect some reluctance to give up the positive reinforcement that may be associated with a lifestyle that is oriented more toward immediate gratification than toward mature, responsible behavior. Certain items on these two subscales suggest that a major element of this concern involves a general inability to delay reinforcement, whether it be positive or negative. The ability to delay reinforcement while working toward long term goals is an important component of mature functioning, so it would not be surprising if individuals who lacked this ability had significant concerns about taking on the responsibilities of mature adults.
The tendency of both groups to score significantly more highly on CCS-N than on CCS-P is another interesting finding. This difference is partly, but not entirely, the result of the elevations on subscales 5 and 12. It seems that this group of psychoactive substance users was generally somewhat more concerned about losing a source of negative reinforcement than losing a source of positive reinforcement, although clearly both concerns were present. It was expected that this would be the case for the alcohol group, but it was surprising that this pattern also held true for the stimulant group. These findings are, however, consistent with those of Farber et al. (1980) regarding reasons for drinking, and seem to further suggest that resistance to change tends to become more and more centered around negative reinforcement in severe Psychoactive Substance Use Disorders.

Generally, the subscales of both the CCS and the AEQ did not distinguish well between the alcohol group and the stimulant group. The exceptions to this were CCS subscale 9 (Concern About Reactions of Others), on which the stimulant group scored significantly higher than the alcohol group, and AEQ subscale 5 (Relaxation and Tension Reduction), in which the reverse was true. These differences are predictable; the stimulant group was significantly more extraverted than the alcohol group, so it is logical that the stimulant users would be more peer group oriented, and thus more concerned about the reactions of others. On the other hand, differences in
psychopharmacology between alcohol and the stimulants would lead to a prediction that stimulant users would be less likely to expect relaxing and tension reducing effects from their drug of choice than would alcohol users.

In comparison to normative scores, the scores on the BDI were, as noted above, surprisingly low given the circumstances of the subjects, falling at the upper end of the normal range. On the other hand, it is equally surprising that scores on SDES and ERQ-L were also relatively low, again falling essentially within normal limits. One might anticipate, given the relatively low scores on BDI, that the scores on SDES and ERQ-L would be relatively high. Relative to existing norms, however, this was not the case, and one can only speculate as to the reasons for this pattern of results. It could perhaps be argued that, on the basis of the behavioral histories of individuals in this sample, as indicated by their scores on the ASQ, the norms for the SDES and ERQ-L for this type of population should be considerably lower than the norms for the general population. If such an argument is valid, the observed scores on SDES and ERQ-L might well fall considerably above the expected norm for this particular group. Another way of saying essentially the same thing is that while the subjects' degree of denial is within the range that one would find in the general population, it is still considerably higher than it should be, given the reality of their circumstances. This tendency toward denial
appears to be stronger in the alcohol group than in the stimulant group, and may be related, at least in part, to age differences between the groups.
CHAPTER VI
CONCLUSION

The major findings and implications of the present study can be summarized as follows. First, it appears probable that there are a number of problems with the theoretical framework on which the study was based. It seems likely that the personality dimensions of Extraversion and Neuroticism, as measured by the Eysenck Personality Questionnaire, are somewhat more complex than was proposed, and cannot be seen simply in terms of susceptibility to the influence of positive and negative reinforcement respectively. If this is the case, it is understandable that no significant relationships were found between the EPQ dimensions and the positive and negative reinforcement dimensions of the Concerns About Change Scale.

In regard to these positive and negative reinforcement dimensions, the results of the expert rating procedure do seem to indicate that most of the items on the Concerns About Change Scale can readily be broken down into such dimensions, with each dimension being basically composed of seven of the seventeen subscales. The high positive correlation between the two dimensions suggests, however, that the distinction between concerns about change that are related to the loss of some form of positive reinforcement and concerns that are related to the loss of some form of negative reinforcement may not be a particularly important one. The same
positive correlation between positive and negative reinforcement dimensions was also observed on the Alcohol Expectancy Questionnaire.

It seems plausible that one of the reasons for these positive correlations is that, in their subjective experience, subjects tended not to clearly subdivide the desirable consequences of psychoactive substance use into positively and negatively reinforcing effects. It has previously been shown that individuals do clearly distinguish between the desirable and undesirable consequences of changing their pattern of psychoactive substance use (Solomon & Annis, 1989), but the present data suggest that it may be more difficult to distinguish between different types of desirable effects. This may have to do with the rather wide range of psychopharmacological effects of alcohol and the stimulants, both of which substances probably impact the brain mechanisms of both positive and negative reinforcement. Thus, although the distinction between the positively and negatively reinforcing effects of psychoactive substance use is certainly a very important one at a theoretical level, it may be a distinction that is not readily made at a phenomenological level. Consequently, while it is certainly possible to break the CCS down into positive and negative reinforcement dimensions, it may be more parsimonious for many purposes to simply consider total score on the instrument.

It is possible, however, that further research, perhaps with other diagnostic groups, will indicate the utility of the
distinction between positive and negative reinforcement dimensions on the CCS. In the current study, one finding that did appear to be of potential clinical importance was that, although the positive and negative reinforcement dimensions of the CCS were highly correlated, for both the alcohol and stimulant groups, scores on the negative reinforcement dimension were significantly higher than scores on the positive reinforcement dimension.

In regard to predictors of scores on CCS-P and CCS-N, and thus of total score on CCS, it seems likely that the positively correlated effects of the BDI and EPQ-P, together with the negatively correlated effects of SDES, EPQ-L, and age, can all be incorporated into a relatively coherent interpretation. It has been shown that depressed subjects tend to be relatively more realistic in their appraisals of situations than non-depressed subjects, who tend to be more naively optimistic in their appraisals (Alloy & Abramson, 1979; Lewinsohn, et al., 1980). It would thus be expected that more depressed subjects would endorse a wider range of concerns about changing a behavior like psychoactive substance use which, as scores on the AEQ indicate, has clearly provided a good deal of reinforcement to all subjects in the past.

Higher scores on measures of social desirability such as SDES and EPQ-L may, when there are obvious potential reasons for dissimulation, indicate that individuals have made a deliberate attempt to portray themselves in a favorable light (Crowne &
Marlowe, 1964; Eysenck & Eysenck, 1975). There do not appear to be any reasons to suspect such deliberate dissimulation in this study. Higher scores on these measures can also be interpreted in terms of a somewhat naive denial of psychological problems or defensiveness (Crowne & Marlowe, 1964; Eysenck & Eysenck, 1975). The K scale, and to a lesser extent, the L scale, of the MMPI are usually interpreted in a similar way (Graham, 1987). Such measures typically correlate negatively with a variety of measures of psychopathology (Eysenck & Eysenck, 1975). It would thus be expected that these measures would correlate negatively with the BDI and EPQ-P, and it would also seem to follow that individuals who score higher on these instruments would be less likely to endorse concerns about change. In terms of the theoretical framework that was developed for this study, it seems reasonable to hypothesize that such individuals would tend to have less awareness of, or insight into, the motivations underlying resistance to change of their maladaptive behavior.

One of the implications of these findings for future use of the CCS is that measures of depression or psychological distress, such as the BDI, and of social desirability or "faking good", such as SDES, would seem to be helpful in interpreting total score, and perhaps also subscale elevations, on the CCS. Clearly, this is an area that seems to warrant more research.

Another important finding is the consistent appearance in both the alcohol and stimulant groups of CCS subscales 12 (Problem
Provides A Reason for Avoidance of Responsibility), and 5 (Concern About Maturity), as the highest of the subscales. While there are some significant differences between the two groups, it would seem that this finding points to a fundamental similarity between the groups. The one characteristic that, more than any other, seems to define the individuals in this sample, regardless of their reported drug of choice, is their concern about having to take on the responsibilities of mature adults if they change their behavior and stop using psychoactive substances. In relation to the principles of reinforcement, on which the theoretical framework for this study is based, this concern may have to do with an inability to delay reinforcement, and a concomitant orientation toward immediate gratification in the form of either positive or negative reinforcement. This seems to have some clear implications for treatment, indicating a need for publicly funded substance abuse treatment programs to address this concern more directly. Further research is also indicated in order to specify more clearly the nature and the basis of this concern.

Finally, and on a more speculative note, it is possible that there is some connection between the general pattern of results that was observed and the nature of the population from which this sample is drawn. It seems plausible that individuals who have not been highly functional, and who are concerned about taking on mature, adult responsibilities would tend to have a relatively naive and
unrealistic view of themselves. Despite the findings of researchers such as Alloy and Abramson (1979) and Lewinsohn, et al. (1980), it seems reasonable to suppose that, at least to some degree, the ability to make relatively realistic appraisals is a quality that is necessary for responsible adult functioning. The social desirability scores of this sample, while generally falling in the normal range, may be quite high, considering that the actual past behavior of many of these individuals would not lend itself to high scores in social desirability. The individuals in this sample may thus tend to have a relatively more naive and unrealistic view of themselves than their social desirability scores, taken alone, would suggest.

In addition, the level of depression in this sample is surprisingly low, considering the problems many of these individuals face. This again suggests a rather naive and unrealistic appraisal of their circumstances. It also seems likely that the scores on the COCS are also relatively low, considering the wide range of reinforcement that these individuals expected from their substance use. Unfortunately, there are, as yet, no norms for the COCS that can be used for comparison purposes, but there is one earlier study which may be of some relevance. Using the earlier 66 item version of the COCS, Bemis (1986) reported that the mean total scores were 186.6 for a group of anorexics, and 148.3 for a group of normal weight bulimics. Although not all of the original 66 items are
included on the current version of the CCS, it was estimated that
the alcohol group would have scored approximately 130, and the
stimulant group approximately 145 on the original version. This
would seem to suggest that total CCS scores in the present study,
particularly those of the alcohol group, are relatively low.

In conclusion, it can be stated that, given the reality of
their circumstances, these individuals, who most strongly
acknowledge a concern about taking on the responsibilities of a
mature adult, seem to display relatively naive and unrealistic
appraisals of themselves and their circumstances, as evidenced by
relatively high levels of social desirability, and relatively low
levels of depression and concerns about change. However, as level
of depression increases and level of social desirability drops,
concerns about change tend to increase, presumably reflecting
increasingly realistic appraisals. The directionality of this
relationship remains unclear at this time, and further elucidation
of the nature of the relationship must await additional research.
APPENDIX A

Consent Form

CONSENT TO USE INFORMATION FOR RESEARCH PURPOSES

You are invited to participate in a research project investigating individual differences among persons who are receiving treatment for substance abuse problems.

Your participation will involve the completion of several questionnaires, and will take between 1 and 2 hours. You are free to withdraw at any time should you choose to do so. You will be paid five dollars for your participation on completion of all of the questionnaires.

Any information that is obtained from you in connection with this study will remain confidential. All of the information will be coded with a number, and stored separately from any records identifying you by name. The information will be used strictly for research purposes, and will not become part of your clinical record. You will not be identified in any way in the analysis and presentation of the data.

If you have any questions, please ask us. If you have additional questions later, please contact Brian Goodyear, Department of Psychology, University of Hawaii at Manoa, Honolulu, HI 96822 (telephone: 948-8414).

You will be offered a copy of this form to keep.

I hereby acknowledge that I have read the information provided above, and have decided to participate in the study. I understand that signing this form does not obligate me to complete all the questionnaires, and that I am free to withdraw from participation in the study at time.

_________________________  _______________________
Signature                      Date

_________________________  _______________________
Witness                        Date
APPENDIX B

Checklist for Treatment Program Staff

I.D.# ______________________

Thank you for your cooperation in this research project. Please complete this checklist about the client. This information will be used to determine the appropriateness of the client for inclusion as a participant in the study.

___ Client has no known history of major psychotic disorder, such as schizophrenia, bipolar disorder, or schizo-affective disorder, that is independent of his or her substance abuse.

___ Client has no known history of major organic mental disorder that is independent of his or her substance abuse.

___ Client meets DSM III-R diagnostic criteria for Psychoactive Substance Abuse.

___ Client meets DSM III-R diagnostic criteria for Psychoactive Substance Dependence.

According to our assessment, this client’s drug of choice prior to entering treatment was (check one only):

___ Alcohol
___ Cocaine
___ Crystal methamphetamine
APPENDIX C

Study Measures

Cover Sheet

I.D. # __________________________

Thank you for agreeing to participate in this research project. Please fill in the information on this cover sheet, and then proceed to answer the questionnaires. You do NOT need to provide your name or any other form of identification on these questionnaires. In order to insure your confidentiality, during data analysis and presentation your answers will be identified only by the I.D. number assigned by the researcher.

My drug of choice has been (check one only): __ Alcohol __ Cocaine __ Crystal meth

List other drugs (including alcohol) that you were using prior to entering treatment: __________________________________________________________

How long have you been in this treatment program? ____________

Primary reason for entering treatment (check one only):
___ Voluntarily sought help
___ Pressure from family and/or friends
___ Court-ordered

Have you ever been in a treatment program for alcohol or drug abuse previously? ____ YES ____ NO
If you answered YES, how many times? __________

Did you ever attend any meetings of Alcoholics Anonymous or Narcotics Anonymous before entering this treatment program? ____ YES ____ NO

Sex: Male ____ Female ___

Age (in years): ___

Marital status: ____________ # of children: ____________
What is your usual occupation? ________________________________

Are you currently employed? ____ YES ____ NO
If YES: What is your current occupation? ____________________

What was your approximate annual income in the 12 month period prior to entering treatment? $ ________________

Ethnicity: Hawaiian ____
Chinese ____
Japanese ____
Filipino ____
Caucasian ____
Other (please specify): ________________________________

Educational Level: Some high school ____
Graduated high school ____
Some college ____
Bachelor's degree ____
Master's or higher degree ____

Please answer the following questions about your parents:

Father

Educational Level: Some high school ____
Graduated high school ____
Some college ____
Bachelor's degree ____
Master's or higher degree ____

Usual occupation: ________________________________

History of alcohol or drug abuse? ____ YES ____ NO

Mother

Educational Level: Some high school ____
Graduated high school ____
Some college ____
Bachelor's degree ____
Master's or higher degree ____

Usual occupation: ________________________________

History of alcohol or drug abuse? ____ YES ____ NO
PLEASE NOTE

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138-145,
Concerns About Change Scale
146-147,
Eysenck Personality Questionnaire
148-149,
Beck Depression Inventory
150-151,
Marlowe-Crowne Social Desirability Scale

University Microfilms International
Addiction Severity Questionnaire

PLEASE ANSWER THE FOLLOWING QUESTIONS: YES OR NO
___ 1) Have you ever used more alcohol than you originally intended when you started drinking that day?
___ 2) Have you ever tried to quit or cut down on your consumption of alcohol, and then found yourself drinking just as much as before you tried to cut down?
___ 3) Have you found yourself spending a good deal of your time either drinking alcohol, thinking about drinking, or recovering from the effects of drinking?
___ 4) Have you ever awakened in the morning after drinking alcohol the night before, and found that you could not remember a part of the evening?
___ 5) Have you ever gone to work or school under the influence of alcohol?
___ 6) Have you ever missed work or school because you were drinking or hung over?
___ 7) Have you ever been fired from a job or suspended from school because of problems related to your drinking?
___ 8) Have you ever been told by friends or family members that you drink too much?
___ 9) Have you ever been told by friends or family members that they do not like to be around you when you have been drinking?
___ 10) Have you ever become violent when you were drinking?
___ 11) Have you ever neglected any of your responsibilities when you were drinking or hung over?
___ 12) Have you ever experienced financial difficulties that were in some way related to your drinking?
___ 13) Have you ever felt guilty about something that you have done while you were drinking?
14) Have you ever driven a motor vehicle while under the influence of alcohol?

15) Have you ever been involved in any kind of accident while under the influence of alcohol or hung over?

16) Have you ever been arrested as a result of your drinking?

17) Have you given up activities that used to be important to you as a result of your drinking.

18) Have you ever experienced any medical problems that were in some way related to your drinking?

19) Have you ever experienced any emotional or psychological problems that were in some way related to your drinking.

20) Have you found that you are able to drink a lot more than you used to be able to?

21) Have you found that you need to drink more alcohol than you used to in order to get the desired effect?

22) Have you ever experienced withdrawal symptoms after drinking a lot of alcohol?

23) Have you ever used alcohol to relieve withdrawal symptoms or the effects of a bad hangover?

24) Have you ever been admitted to a hospital or treatment facility for detoxification from alcohol?

25) Have you ever gone to anyone to seek help for problems related to your drinking?

Note: The precise wording of this questionnaire varied according to the reported drug of choice of the subject.
APPENDIX D

Subscales and Dimensions of the Concerns About Change Scale and Alcohol Expectancy Questionnaire

Concerns About Change Scale

1) Unable to Change
   8, 22, 27, 58, 63, 74

2) Unworthy of Change
   1, 17, 40, 55, 75, 85

3) Concern About Risks Involved in Changing
   9, 12, 30, 41, 49, 79

4) Concern About Sexuality
   15, 26, 33, 56, 68, 91

5) Concern About Maturity
   4, 11, 42, 77, 88, 98

6) Concern About Interpersonal Loss (including secondary gain)
   37, 50, 51, 76, 80, 92

7) Concern About Personal Loss - Accomplishment
   2, 34, 52, 64, 73, 97

8) Concern About Personal Loss - Hedonic
   16, 28, 36, 39, 70, 95

9) Concern About Reactions of Others (especially peer group)
   10, 43, 69, 71, 82, 94

10) Problem Provides Sense of Identity
    3, 18, 53, 66, 87, 101

11) Problem Provides Means of Avoidance of Negative Affect
    14, 29, 47, 48, 81, 96

12) Problem Provides Reason for Avoidance of Responsibility
    7, 24, 44, 57, 89, 102

13) Problem Provides Means of Disinhibition of Expression
    6, 32, 35, 83, 90, 100
14) Problem Provides Means for Goal Attainment
   25, 46, 54, 65, 78, 99

15) Problem is Symptom of Deeper Underlying Problem
   19, 21, 38, 62, 67, 84

16) Unpleasantness of Change Process
   20, 31, 60, 61, 72, 93

17) Failure to Recognize Problem as a Problem
   5, 13, 23, 45, 59, 86

Floating Items: 103, 104, 105

Positive Reinforcement Dimension
   Subscale 6: all items except 51
   7: all items
   8: all items
   9: all items except 82, 94
   10: all items except 66, 101
   13: all items except 32
   14: all items

Negative Reinforcement Dimension
   Subscale 3: all items
   4: all items
   5: items 11, 98
   9: item 94
   11: all items except 81
   12: all items except 57
   15: items 19, 21, 67
   16: all items
Alcohol Expectancy Questionnaire

1) Global Positive Changes
   16, 20, 30, 31, 38, 40, 42, 43, 45, 49, 50, 51, 52, 54, 62, 65,
   68, 69, 70, 71, 72, 76, 83, 87

2) Sexual Enhancement
   47, 59, 66, 79, 80, 81, 88

3) Physical and Social Pleasure
   3, 5, 8, 15, 17, 22, 28, 29, 84

4) Increased Social Assertiveness
   7, 14, 19, 21, 26, 36, 41, 63, 73, 90

5) Relaxation and Tension reduction
   57, 61, 64, 74, 75, 78, 85, 86, 89

6) Increased Arousal and Power
   10, 11, 18, 23, 33, 39, 58, 67, 77

Positive Reinforcement Dimension
Subscale 1: items 16, 20, 31, 40, 43, 45, 50, 51, 52, 65,
   69, 71, 72, 83
   2: all items
   3: all items except 8
   4: items 14, 19, 21, 90
   5: items 57, 75, 85, 86
   6: items 11, 18, 23
Other items: 2, 4, 6, 9, 13, 35, 44, 53, 77, 91, 92, 93,
   95, 99, 101, 102, 103, 104, 105, 106, 108,
   110, 112, 117, 118, 120

Negative reinforcement Dimension
Subscale 1: items 30, 49, 54, 62, 68, 70, 76, 87
   4: items 41, 73
   5: items 61, 74, 78
   6: item 67
Other items: 24, 25, 27, 34, 37, 42, 46, 55, 56, 94, 96,
   100, 109, 111, 113, 116
APPENDIX E

Directions for Expert Rating Procedures

Rating procedure 1: positive and negative reinforcement dimensions of the Concerns About Change Scale and the Alcohol Expectancy Questionnaire

March 19, 1990

Dear

I would appreciate your help with an important rating procedure involving the items on two self-report questionnaires that will be used in my dissertation research. The questionnaires are the Concerns About Change Scale and the Alcohol Expectancy Questionnaire. Directions for the rating procedure are attached to the first page of each questionnaire. If you have any questions about the procedure, please give me a call at 949-0399. I would appreciate it if you could get the ratings back to me within the next two weeks.

Thank you very much for taking the time to do these ratings. It will be a great help for me.

Brian Goodyear
DIRECTIONS FOR RATING THE CONCERNS ABOUT CHANGE SCALE

The Concerns About Change Scale was developed to measure the concerns that individuals may have about changing maladaptive behavior patterns such as those found in psychoactive substance use disorders or eating disorders. It is hypothesized that the items on the scale will tend to cluster into two main dimensions. One dimension reflects the concern that changing the maladaptive behavior will involve losing a source of some form of positive or pleasurable experience. In other words, there is a concern that change will involve the loss of some form of positive reinforcement.

The second dimension reflects the concern that changing the maladaptive behavior will involve losing a means of either avoiding or relieving some form of painful or aversive experience. In other words, there is a concern that change will involve the loss of some form of negative reinforcement.

Please rate each item on the attached copy of the Concerns About Change Scale in the following way. If you think an item reflects a concern about losing a source of some form of positive reinforcement, please mark it with the letter "P". An example might be an item such as: "I won't have any way of feeling happy if I change".

If you think an item reflects a concern about losing a means of relieving or avoiding some form of painful or aversive experience, please mark it with the letter "N". An example might be an item such as: "I won't have any way of getting rid of the blues if I change".

If you are unsure about an item and cannot decide whether it should be assigned to the positive reinforcement dimension or the negative reinforcement dimension, please mark it with the letter "U". If you think that an item definitely does not fit in either dimension, please mark it with the letter "X".
DIRECTIONS FOR RATING THE ALCOHOL EXPECTANCY QUESTIONNAIRE

The Alcohol Expectancy Questionnaire was developed to measure the expectations that individuals have about the effects of consuming alcohol. Again, it is hypothesized that the items will cluster into two main dimensions. One dimension reflects the expectation that alcohol will serve as a source of pleasurable experience. In other words, there is an expectation that drinking alcohol will provide some form of positive reinforcement.

The second dimension reflects the expectation that alcohol will serve as a means of relieving or avoiding painful or aversive experience. In other words, there is an expectation that drinking alcohol will serve as a form of negative reinforcement.

Please rate each item on the attached copy of the Alcohol Expectancy Questionnaire in the following way. If you think an item reflects an expectation that alcohol will provide some form of positive reinforcement or pleasurable experience, please mark it with the letter "P". An example might be an item such as: "Drinking alcohol makes me feel great."

If you think an item reflects an expectation that alcohol will serve as a means of relieving or avoiding some form of painful or aversive experience, please mark it with the letter "N". An example might be an item such as: "A few drinks helps me to feel less depressed."

If you are unsure about an item and cannot decide whether it should be assigned to the positive reinforcement dimension or the negative reinforcement dimension, please mark it with the letter "U". If you think that an item definitely does not fit in either dimension, please mark it with the letter "X".
Rating procedure 2: Assignment of items to subscales of the Concerns About Change Scale

March 19, 1990

Dear

I would appreciate your help with an important rating procedure involving items on a self-report questionnaire that will be used in my dissertation research. The questionnaire is the Concerns About Change Scale. The directions for the rating procedure are on the next page. If you have any questions about the procedure, please give me a call at 949-0399. I would appreciate it if you could get the ratings back to me within the next two weeks.

Thank you very much for taking the time to do these ratings. It will be a great help for me.

Brian Goodyear
DIRECTIONS FOR RATING

The Concerns About Change Scale (COS) was developed to measure the concerns that individuals may have about changing maladaptive behavior patterns such as those found in psychoactive substance use disorders or eating disorders. Recently, some new items and subscales have been added to the scale in order to give it a broader scope. The 17 subscales of the COS are listed on the next two pages, along with a brief description of the content area that each subscale is intended to measure. Please read these descriptions carefully. Following the list of subscales you will find a list of the new items which will be included in the questionnaire. Please review each item on this list, and decide which of the subscales you think the item should be assigned to. Indicate your choice by writing the number of the appropriate subscale on the line next to the item. Disregard item numbers - these are simply the numbers that are assigned to the new items in the full questionnaire.
SUBSCALES OF THE OCS

1) UNABLE TO CHANGE
Items reflecting a concern that the individual is incapable of changing the maladaptive behavior.

2) UNWORTHY OF CHANGE
Items reflecting a belief that the individual does not deserve to change, or needs the problem as a form of punishment or suffering.

3) CONCERN ABOUT RISKS INVOLVED IN CHANGING
Items reflecting a concern that changing the maladaptive behavior may involve the occurrence of some feared event. Items specifically related to fears of interpersonal loss, personal loss, sexuality, maturity, or the reactions of others should be coded under these specific headings.

4) CONCERN ABOUT SEXUALITY
Items reflecting a concern that changing the maladaptive behavior may require the individual to face and deal with his or her sexuality.

5) CONCERN ABOUT MATURITY
Items reflecting a concern that changing the maladaptive behavior may mean having to "grow up" and act like an adult.

6) CONCERN ABOUT INTERPERSONAL LOSS:
Items reflecting a concern that changing the maladaptive behavior may result in the loss of some support or other benefits currently being received from other people.

7) CONCERN ABOUT PERSONAL LOSS (ACCOMPLISHMENT)
Items reflecting a concern that changing the maladaptive behavior may result in the loss of some sense of accomplishment or achievement.

8) CONCERN ABOUT PERSONAL LOSS (HEDONIC)
Items reflecting a concern that changing the maladaptive behavior may result in the loss of some source of good feelings.

9) CONCERN ABOUT REACTIONS OF PEER GROUP
Items reflecting a concern that changing the maladaptive behavior may mean having to lose or give up friends and peer group.
10) **PROBLEM PROVIDES SENSE OF IDENTITY**
Items reflecting a concern that changing the maladaptive behavior may threaten the individual's sense of identity because the behavior is an important part of the individual's identity.

11) **PROBLEM PROVIDES MEANS OF AVOIDANCE OF NEGATIVE AFFECT**
Items reflecting a concern that changing the maladaptive behavior may result in the loss of some means of relieving stress, tension, pain, or other negative affective experience.

12) **PROBLEM PROVIDES MEANS OF AVOIDANCE OF RESPONSIBILITY**
Items reflecting a concern that changing the maladaptive behavior may mean having to accept responsibility for the mistakes and failures in one's life, and for the future direction of one's life.

13) **PROBLEM PROVIDES MEANS OF DISINHIBITION OF EXPRESSION**
Items reflecting a concern that changing the maladaptive behavior may result in the inability to express one's thoughts and feelings to others.

14) **PROBLEM PROVIDES MEANS FOR GOAL ATTAINMENT**
Items reflecting a concern that changing the maladaptive behavior may result in the loss of a needed means of achieving some immediate or short-term goal or objective.

15) **PROBLEM IS A SYMPTOM OF DEEPER UNDERLYING PROBLEM**
Items reflecting a concern that changing the maladaptive behavior may result in the emergence of a deeper, and possibly more serious or painful problem.

16) **UNPLEASANINESS OF CHANGE PROCESS**
Items reflecting a concern that the process of changing the maladaptive behavior may be painful or unpleasant in some way.

17) **FAILURE TO RECOGNIZE PROBLEM AS A PROBLEM**
Items reflecting a failure to recognize that the problem behavior is maladaptive or dysfunctional.
REFERENCES


Journal of Cognitive Psychotherapy, 1, 87-104.


Cambridge, MA: Ballinger.

In M.J. Mahoney & A. Freeman (Eds.), Cognition and psychotherapy.
New York: Plenum.

Marlatt, & T. Loberg (Eds.), Alcoholism: new directions in behavioral research and treatment. New York: Plenum.


Prochaska, J.O., Velicer, W.F., DiClemente, C.C., & Fava, J.  


New York: Pergamon.


New York: Norton.