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An investigation of cross-situational consistency in the behavior of compulsive and histrionic personality disorders: An analogue study

Amodei, Nancy, Ph.D.

The University of North Carolina at Greensboro, 1988

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AN INVESTIGATION OF CROSS-SITUATIONAL CONSISTENCY IN THE BEHAVIOR OF COMPULSIVE AND HISTRIONIC PERSONALITY DISORDERS: AN ANALOGUE STUDY

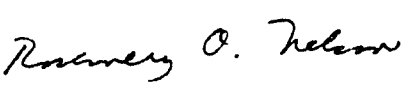
by

Nancy Amodei

A Dissertation Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
1988

Approved by



Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

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AMODEI, NANCY, Ph.D. An investigation of cross-situational consistency in the behavior of compulsive and histrionic personality disorders: An analogue study. (1988) Directed by Dr. Rosemery O. Nelson. Pp. 272

Despite the relative lack of empirical data about personality disorders, the most commonly accepted definitions of them (e.g., DSM-III-R; Millon, 1981) incorporate assumptions of the relative temporal stability and cross-situational consistency of behavior. The present study examined the degree of behavioral consistency across specific types of experimental situations in persons classified as histrionic or compulsive personality disorder analogues. Different predictions regarding the degree to which subjects in this study would show behavioral consistency were made from the personologist, situationist, and interactionist models of human behavior.

Twenty-eight histrionic analogues, 26 compulsive analogues, and 28 controls completed this study. Each subject performed three tasks in each of four situations. Each situation varied along two dimensions: type of audience and type of demand. A public situation was defined as the presence of an audience (experimenter) as subjects completed the tasks. A private situation was defined as the absence of an audience during task performance. In a neutral demand situation subjects were given neutral instructions about the tasks. In a high demand situation subjects were given explicit instructions about the expected standard of performance. Each subject received all four possible combinations of situations and their order of presentation

was counterbalanced. The four dependent measures collected in each situation were angle confidence ratings, angle accuracy scores, letter cancellation scores, and verbal gain scores.

The results were most consonant with the situationist view that behavior, whether abnormal or normal, is primarily due to environmental factors and that individuals' behavior shows variation from one situation to another. Results of the multivariate analysis as well as three out of four univariate analyses showed that the situational factors, type of audience and type of demand, both independently and in an interactive manner with order, were most important in determining subjects'performance on tasks. However, it should be noted that the generalizability of these results is substantially constrained due to the non-representativeness of the situations selected and the lack of conceptual correspondence of the independent variables to the defining criteria of personality disorders.

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CHAPTER I

INTRODUCTION

DSM-III, DSM-III-R, and Personality Disorders

Personality disorders made up almost 50% of the psychiatric sample examined in the field trials of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; Turkat & Levin, 1984). Yet, despite their prevalence, little systematic evidence has been accrued in support of this variant of psychopathology. Most of what is known about the personality disorders is based on clinical observation. According to some researchers (e.g., Adams, 1981; Turkat & Levin, 1984) there is, as yet, no unifying definition of the concept of personality, so that it is not surprising that there have been problems in developing a valid and reliable classification system for personality disorders (Turkat & Levin, 1984).

At present, the officially sanctioned and most widely accepted classification scheme for mental disorders is the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (1980), which was most recently revised in 1987 (DSM-III-R). Because of the conceptual similarity between DSM-III and DSM-III-R, and because very little has been written so far about the latter, most of the following discussion makes

reference to DSM-III. However, any assumptions and arguments made here about DSM-III are equally applicable to DSM-III-R, unless stated otherwise.

Prior to DSM-III, personality disorders occupied a peripheral position in diagnostic systems (Millon, 1981). For instance, in DSM-I and DSM-II, personality disorders were categorized with other miscellaneous and secondary syndromes. The introduction of a multiaxial system in DSM-III by the American Psychiatric Association underscored the importance of personality disorders as a major diagnostic category. According to Frances (1980, 1986), the major reason for providing a separate axis for the diagnosis of personality disorders was the recognition that they often coexist with, and may influence the predisposition for, course of, and response to treatment of Axis I conditions. Indeed, a number of studies have suggested important interactions between personality disorders and various affective (Bielski & Friedel, 1976; Taylor & Abrams, 1975; Weissman, Prusoff,& Klerman, 1978), schizophrenic (Gittelman-Klein & Klein, 1969), addictive (Taylor & Abrams, 1975), and cardiovascular disorders (Haynes, Feinleib, & Kannel, 1980).

Although the personality disorders make up the least well-defined section of DSM-III, the definitions represent a substantial improvement over those proposed by DSM-II (Turkat & Maisto, 1985). DSM-III (1980) and DSM-III-R

(1987) provide a definition of personality disorders which reflects an effort to delineate the boundaries between a trait and a disorder in the following manner:

> Personality traits are enduring patterns of perceiving, relating to, and thinking about the environment and oneself, and are exhibited in a wide range of important social and personal contexts. It is only when personality traits are inflexible and maladaptive and cause either significant impairment in social or occupational functioning or subjective distress that they constitute Personality Disorders. The manifestations of Personality Disorders are generally recognizable by adolescence or earlier and continue throughout most of adult life, though they often become less obvious in middle or old age...The diagnosis of a Personality Disorder should be made only when the characteristic features are typical of the individual's long-term functioning and are not limited to discrete episodes of illness (p. 305, DSM-III; p. 335, DSM-III-R).

By providing clearer definitions and operational criteria for each of the individual personality disorders, as well as separate axes to distinguish between clinical syndromes and personality disorders, DSM-III and DSM-III-R have substantially increased the reliability of this diagnostic category over that achieved by previous classification systems, although the level of reliability achieved for the personality disorders is still much lower than that achieved for most Axis I conditions. While the interrater reliability for the diagnostic class of personality disorders was greater for Phase Two than Phase One of the DSM-III field trials, the kappas (chance-corrected agreement) for the specific personality disorders were still rather low, ranging from .26 to .75. However,

diagnostic agreement on certain Axis II categories is considered reasonable. For instance, Strober and his colleagues (1981) obtained a kappa coefficient of 1.0 for diagnostic agreement on the histrionic personality disorder (Strober, Green, & Carlson, 1981).

Millon's Biosocial Learning Theory

Millon (1969, 1981, 1986b) has proposed a theory of personality pathology which he identifies as a biosocial-learning theory, although it is derived primarily from clinical observation. According to this theory, normal and abnormal personality development is a multideterminant process in which manifold biogenic and psychogenic influences interact in a reciprocal and circular fashion throughout the life of the individual.

According to Millon, environmental stimulation activates genetic processes in order for the maturation of biological substrates of psychological capabilities to occur. While understimulation from the environment may lead to deficiencies in neural development and their associated psychological functions, overstimulation may also have a detrimental impact on the development of neural substrates. Millon (1981, 1986b) postulates three stages of neuropyschological development in which transactions between constitutional and experiential influences at one stage exert a profound influence on later stages. The sensory-attachment phase occurs from birth to approximately 18

months of age. In this period, neurological substrates for sensory processes mature rapidly and are reflected in the infant's attachment and dependency on others. The period of sensorimotor-autonomy commences at about 12 months of age and extends through approximately the sixth year. This period is characterized by the differentiation of motor capacities and is manifested in locomotion, the ability to manipulate objects, and more skilfull verbalizations. The third period, referred to as intracortical-initiative, transpires from about the fourth year through adolescence. This period is characterized by rapid neurological growth and by the child's increased ability to plan, reflect, and function independently of parental supervision.

Stimulus impoverishment or stimulus enrichment at any of these stages will ultimately produce maladaptive psychological functioning. For example, Millon (1986b) speculates that excessive stimulation during the sensory-attachment phase will lead to stimulus-seeking behavior and excessive dependence upon others, whereas understimulation during the intracortical-initiative stage will lead to disturbances in identity formation.

According to Millon (1986b), personality disorders are a product of both biogenic and psychogenic factors and develop as complex forms of instrumental behavior to cope with the individual's environment. He distinguishes between personality disorders and traits as follows:

> Central to our understanding of these terms is the recognition that normality and pathology are relative concepts; they represent arbitrary points on a continuum or gradient, since no sharp line divides normal from pathological behavior...Despite the tenuous and fluctuating nature of the normality-pathology distinction, three features may be abstracted from the flow of behavioral characteristics to serve as differentiating criteria; these are an adaptive inflexibility, a tendency to foster vicious or self-defeating circles, and a tenuous emotional stability under conditions of emotional stress.

Millon (1986a) further distinguishes between personality patterns (personality disorders), symptom disorders, and behavioral reactions. Personality patterns are a "system of deeply ingrained structures and broadly exhibited functions that persist and endure over extended periods of time and have come to characterize the individual's distinctive manner of relating to his environment" (p. 646). Symptom disorders are seen as a function of the conjoint effects of both person variables and external situational events. Prompted by external events, symptom disorders are manifested by individuals who are troubled by negative past experiences. To an observer, the individual's responses often appear bizarre or irrational. In contrast, behavioral reactions are specific maladaptive responses which are precipitated by current environmental stimuli and are weakly anchored to the person's characteristic way of functioning.

Millon (1986a) claims that these three clinical conditions can be translated into DSM-III terms:

Personality patterns correspond to Axis II personality disorders (personological determinants), while both symptom disorders (interactional determinants) and behavior reactions (situational determinants) closely correspond to the clinical syndromes of Axis I.

From his theoretic model, Millon (1969, 1981, 1986a) has formulated a dimensional system for classifying personality disorders which corresponds closely to Axis II of DSM-III. The similarity between his theoretically derived system and Axis II is not unexpected given his significant involvement in the development of Axis II. His dimensional system is described briefly below, as it served as the basis for subject classification in this study.

Millon's Personality Schema

The three dimensions which Millon (1969, 1981) proposes for coordinating and classifying the personality disorders have been identified repeatedly by theorists both predating and following Freud. The dimensions proposed are activity-passivity, self-other, and pleasure-pain motivation. The pleasure-pain dimension refers to the types of reinforcement the individual seeks or avoids. This distinction assumes that the individual is motivated by two types of events and two directions: toward sources of positive reinforcement, and away from aversive stimulation or punishment. The self-other dimension refers to the location of reinforcements, i.e., whether the individual seeks reinforcement from the

self or from others. Lastly, the active-passive dimension refers to the types of behaviors in which the individual engages in order to obtain reinforcement.

To obtain his personality "coping styles" which correspond closely to DSM-III personality disorder categories, Millon combines four levels of the self-other dimension (dependent, ambivalent, detached, and independent) with two poles on the active-passive dimension to form eight mildly pathological personality disorders. This group is composed of the following personalities: Schizoid, Avoidant, Dependent, Histrionic, Narcissistic, Antisocial, Compulsive, and Passive-Aggressive. Another three disorders (Paranoid, Borderline, and Schizotypal) are classified using the same dimensions, except that they are considered to a) be much more severe disorders, b) reflect lower levels of structural integration and psychic functioning, and c) be derived from specific clusters of the eight under sustained stress. The present dissertation focused on two of Millon's milder personality disorders, namely, histrionics and compulsives.

Histrionic Personality Disorder

DSM-III definition. The term histrionic personality disorder was first officially recognized by the American Psychiatric Association and listed in DSM-III in 1980. The term replaced the designation "hysterical personality" which was listed in the second Diagnostic and Statistical Manual of Mental Disorders (DSM-II, American Psychiatric

Association, 1968). While the DSM-II description of hysterical personality is similar to that of DSM-III and DSM-III-R, the latter systems provide a more elaborate description of this disorder as well as more operational criteria for making a diagnosis (Turkat & Levin, 1984).

DSM-III states that two specific criteria are required for the diagnosis of histrionic personality disorder. The individual shows dramatic, reactive, and intensely expressed behavior as manifested by at least three of the following: self-dramatization; constant drawing of attention to oneself; craving for activity and excitement; overreaction to minor events; and irrational angry outbursts. Characteristic disturbances in interpersonal relationships are manifested by at least two of the following: perceived by others as shallow and lacking in genuineness, although superficially charming and appealing; egocentric and inconsiderate of others; vain and demanding; dependent, helpless, and constantly seeking reassurance; prone to manipulative suicidal threats, gestures, or attempts. According to DSM-III, these individuals tend to be "impressionable and easily influenced by others or by fads" (p. 314). They also tend to be easily bored.

A review of the literature reveals that there is a paucity of published research (i.e., Kass, Spitzer, & Williams, 1983; Koenisberg, Kaplan, Gilmore, & Cooper, 1985; Mellsop, Varghese, Joshua, & Hicks, 1982; Strober et

al., 1981) which has explicitly used DSM-III criteria to identify individuals with histrionic personality disorder. Consequently, the following sections also draw upon research or literature which uses alternative assessment procedures.

Historical Antecedents and Clinical Description

Although hysteria was a term used in ancient Greek times to refer to women whose disturbed behavior was thought to result from a malpositioned uterus (Chodoff, 1982; Luisada, Peele, & Pittard, 1974; Wolowitz, 1972), the first major theoretical discussions and clinical descriptions of what is now referred to as the histrionic personality are much more recent.

Hysteria played an important role in the theory and practice of psychoanalysis. For Freud, hysteria was a diagnosis for physical symptoms of psychological origin (Chodoff, 1982). It was his interest in hysteria, and the study of middle-class female patients who manifested the condition, that led to his development of the psychoanalytic method (Chodoff, 1982; Compton, 1974). Most of the early psychoanalytic literature on hysteria emphasized conversion symptoms such as paralysis, disturbances of sensation, and psychogenic blindness rather than traits such as emotional instability and suggestability which were later frequently reported to accompany conversion reactions (Lazare, 1971). It was not until the 1930s that the concept of hysterical character disorder was first addressed substantively.

In "Libidinal Types"(1931/1961), Freud described his hysterical patients as having an "erotic" personality. The highest priorities of these patients were to love and to be loved. Wilhelm Reich (1949) was the next major author from a psychoanalytic perspective to describe the histrionic personality. He depicted the histrionic (hysterical) character as exhibiting the following: "obvious sexual behavior, a specific kind of body agility, an undisguised coquetry, an apprehensivenss when sexual behavior seems close to attaining its goal, an easy excitability, a strong suggestibility, a vivid imagination, and pathological lying" (Lazare, 1971., p. 133).

More recently within the psychoanalytic community, several authors (e.g., Easser & Lesser, 1965; Zetzel, 1968) have proposed that at least two basic subtypes of the hysterical personality exist. The distinction between these subtypes, namely, "healthier" and "sicker" hysterical personalities is made on the basis of such criteria as the intensity of the hysterical features, level of psychosexual fixation, the major defense mechanisms, and responsiveness to treatment. The healthier or "good" hysteric demonstrates generally good ego functioning and behavioral adjustment and has a history of adequate parenting and stable relationships. The sicker or "bad" hysteric is considered to have a poorly integrated ego and a very unstable family history.

From a rather different perspective, Shapiro (1965) provided a conceptualization and description of the hysterical personality disorder which was based on cognitive style. In his view, a cognitive style represents an individual's characteristic way of thinking, perceiving, and organizing information. Shapiro (1965) characterizes the hysterical style of thinking as global, relatively diffuse, and lacking in sharpness of detail. This style of thinking is more sensitized to perceiving emotions than to acquiring facts. Repression, or the loss of certain ideas from consciousness, is considered the predominant defense mechanism of the hysterical style.

Chodoff and Lyons (1958) summarized the historical background of the concept of hysterical personality and attempted to distinguish it from hysteria. Their description of the hysterical personality included the following features: vanity, egocentricity, labile and shallow affectivity, attention-seeking behavior, sexual provocativeness, awareness of sex, and demandingness in interpersonal relationships.

Horowitz (1977) has described the hysterical personality in terms of characteristic groups of behaviors which are organized by time intervals. The groups are: long-order patterns (interpersonal relationships), medium-order patterns (traits), and short-order patterns (information-processing style). For instance, long-order

patterns may include "repetitive, impulsive, stereotyped, interpersonal relationships often characterized by victim-aggressor, child-parent, and rescue or rape themes". Medium-order patterns include attention-seeking behaviors such as "demands for attention", and the use of charm and sex appeal. Lability of mood and suggestibility may also be evident. Short-order patterns refer to a global information-processing style (Horowitz, 1977, p. 5).

Following a review of the literature pertaining to subjects diagnosed as hysterical personalities or as hysterics who manifested personality traits not explicitly considered hysterical, Alarcon (1973) arrived at a list of 28 characteristics used to describe the hysterical personality. Based on this list, seven characteristics were chosen that maximized the degree of consensus among the different reports. The features identified were: histrionic behavior, emotional lability, dependency, excitability, egocentrism, seductiveness, and suggestibility. Alarcon (1973) noted that his findings were compatible with those of previous reviews (i.e., Chodoff & Lyons, 1958; Lazare, Klerman, & Armor, 1966).

A notable factor-analytic study which attempted to validate empirically the construct of hysterical personality was conducted by Lazare et al. (1966). Twenty personality traits were measured by a 200-item, self-rating form filled out by female psychiatric patients who were judged by

resident psychiatrists to be either oral, obsessive, or hsyterical personalities. The traits found to load significantly (.40 or greater) on the hysterical factor were emotionality, aggression, oral aggression, exhibitionism, egocentricity, sexual provocativeness, and dependence. The other significant traits, which were not predicted from the literature to load significantly, were aggression and oral aggression.

In a later replication of the study, the same researchers (Lazare, Klerman, & Armor, 1970) attempted to correct one of the weaknesses of the original study by using a sample of consecutive female admissions to a psychiatric hospital rather than patients who were considered a priori to represent the personality types of interest. The factor identified as the hysterical personality was similar to that obtained in the previous study. Emotionality, exhibitionism, egocentricity, sexual provocativeness, aggression, and oral aggression all loaded .38 or higher, while dependency failed to load significantly on this factor. Obstinacy, another trait not originally predicted, was also found to load significantly (.64) on the hysterical factor.

The first factor analytic study of Lazare et al. (1966) has been criticized on methodological grounds by Hill (1976). Specifically, Hill (1976) argued that the sample was not homogeneous enough to justify the way in which the

researchers pooled the data. Another criticism noted was that the investigators did not take proper measures to prevent subjects from responding in a socially desirable manner. Furthermore, the reliabilities, content, and construct validities of the seven item-trait scales were not investigated. Since the second factor-analytic study was essentially a replication of the original study, the same criticisms would also apply to that study (Pollack, 1981).

In order to assess empirically the importance of specific characteristics for the diagnosis of hysterical personality disorder, Slavney (1978) sampled the attitudes of the staff of three psychiatric residency programs. The residents surveyed had varied experience and theoretical orientations. Of the nine items (taken mostly from DSM-II) that the residents were asked to rank order in terms of importance for diagnosis and of reliable recognition, the following features were selected: self-dramatization, attention-seeking, emotional stability, and seductiveness. Self-dramatization was considered the most important diagnostic feature. The results were fairly comparable among psychiatrists with different levels of experience and theoretical perspectives. To what extent the finding of this particular study can be generalized to actual clinical practice is uncertain.

Millon's description. On the dimensional system that Millon (1969, 1981, 1986a) has devised to categorize the

various personality disorders, he describes the histrionic personality as exhibiting an active-dependent coping style. Individuals exhibiting this pattern have learned that feelings associated with pleasure or the avoidance of pain are provided most effectively by others. The behavior of such individuals is characterized by a strong need for external support, attention, and approval. Furthermore, these individuals actively (rather than passively) seek reinforcement or avoid punishment (including pain).

Millon (1981) describes the histrionic personality as follows:

> This pattern is typified by a gregarious, facile and superficially charming social lifestyle. There is a persistent seeking of attention, stimulation and excitement, usually expressed in seductive, immaturely exhibitionistic and self-dramatizing behaviors. Interpersonal relationships are characteristically shallow, frivolous and fleeting. A general intolerance of delay and inactivity often results in impulsive and overreactive behaviors. Thought processes are typically insubstantial, unreflected and scattered. Highly labile emotions are notable by their easy and short-lived enthusiasms followed by rapid boredom (p. 138).

In sum, the literature reviewed above indicates a reasonable amount of consistency in descriptions of the histrionic personality and related disorders. Of particular relevance to the present study is the attention-seeking type of behavior which is often used to describe individuals of this type.

Theories of Histrionic Personality Disorder

A number of researchers (e.g. Andrews, 1984; Bandura & Walters, 1963; Freud, 1905/1953; Millon, 1981; Wolowitz, 1972) have presented theories concerning the etiology and or maintenance of histrionic behavior. Although review of each of these theories is beyond the scope of this study, two of these theories -- psychoanalytic and Millon's -- are summarized briefly. Psychoanalytic theory is included because it is one of the oldest and most prevalent contributions to the literature. On the other hand, Millon's theory is included because it contains explanations of the attention-seeking or "other-directed" behavior frequently associated with the histrionic personality, and is of particular relevance to this study.

Psychoanalytic theory. Most psychoanalytic theories of the hysterical (histrionic) personality are derived from Freud's (1905/1953) ideas on the development of infantile sexuality and his structural model (1923). In the various stages of psychosexual development, libido, the energy of sexual drive, progresses hierarchically from one zone of sexual excitement to another. These zones become the erogenous centers for the oral, anal, and phallic stages, respectively. The oedipal conflict represents the culmination of infantile sexuality; the child normally resolves this conflict by sublimating his or her sexual energy until puberty, renouncing the parent of the opposite

sex as a desired sexual partner, and by identifying with the same-sexed parent. Reinvestment of psychic energy into a phase of earlier gratification (regression) may occur if drives are somehow frustrated in adult life. A structural weak spot can develop when the individual fixates abnormal amounts of psychic energy at lower developmental levels. The individual is susceptible to developing neurosis if the inclination to seek libidinal gratification conflicts with the ego's preoccupation with reality. The structural weak spot will influence the type of character or neuroses that develops. In the case of the hysterical character, for example, regression to the conflicts and gratifications of the phallic-oedipal phase presumedly occurs (Temoshok & Heller, 1983).

Not all psychoanalytic theorists have upheld Freud's view that fixation in hysterics occurs at the phallic-oedipal level. For instance, Wittels (1930) and Marmor (1953) have asserted that pre-oedipal conflicts are central to the histrionic personality's etiology. As noted earlier, several psychoanalytic writers (e.g., Easser & Lesser, 1965; Zetzel, 1968) have proposed that at least two subtypes of patients with hysterical personalities might exist. These subtypes could be differentiated on such factors as the severity or intensity of their syptoms, level of psychosexual fixation, degree of ego funtioning, and family dynamics. The more severe variant of the hysterical

personality was considered to demonstrate pregenital (oral) fixations and conflicts (Easser & Lesser, 1966; Zetzel, 1968).

Millon. Millon's (1981) largely untested theory postulates various experiential and biogenic factors which may be relevant in the origins of histrionic behavior patterns. He speculates that histrionic adults may have demonstrated a high degree of emotional responsiveness and sensory alertness throughout their early life, leading them to be externally oriented rather than internally oriented in order to seek rewards. Histrionic behavior is characteristically learned under the following sets of conditions: minimal punishment; positive reinforcement for certain parentally sanctioned behaviors (e.g., "looking pretty", "doing well"), and intermittent reinforcement such that reward- and attention-seeking behaviors are not easily extinguished. Other factors that he believes facilitate the learning of histrionic behavior include histrionic parental models and competition among siblings for the attention and affection of parents.

Histrionic Personality and Performance on Experimental Tasks

The various clinical descriptions and theoretical formulations of the histrionic personality presented above have frequently referred to the attention-seeking or other-directed behavior of the histrionic personality. Yet there are few empirical studies in the literature to support this

description. The intention of the following section is to draw upon the available research, which may provide suggestive evidence for this description. In general, this evidence is sparse and indirect.

A body of literature that may have some bearing on the other-directed/attention-seeking behavior of the histrionic personality is that pertaining to the motivational concept referred to as "the need for social approval". Crowne and Strickland (1961) investigated differences in verbal conditioning between subjects with low versus high need-for-social approval as determined by scores on the Marlowe-Crowne Social Desirability Scale (M-C SD scale; Crowne & Marlowe, 1960). The researchers hypothesized that subjects with a high approval need would show greater rates of responding than would subjects with a lower need-for-approval when positive reinforcement was delivered in a verbal conditioning procedure. Also, subjects with a high approval need were hypothesized to be more sensitive than their counterparts to mildly negative statements delivered by the experimenter in a verbal conditioning procedure.

To test their hypotheses, both high and low need-for-approval subjects were assigned to one of three conditions. In the positive reinforcement condition, the subject was instructed to generate as many words as he or she could think of; over a 25-minute period, the experimenter consequated each plural noun with a head nod and by

uttering, "mm-mmm." Subjects in the punishment condition were also asked to generate as many words as they could; however, the experimenter consequated each plural noun by a head shake and an "uh-uh." Subjects in the control condition generated words without any feedback for twenty-five minutes. For the purposes of data analysis, the 25-minute task was divided into five 5-minute intervals. With the exception of the first 5-minute period of the task, high need-for-approval subjects who received positive reinforcement generated significantly more plural nouns than the high need-for-approval subjects under nonreinforced conditions, and low approval-need subjects under both reinforced and nonreinforced conditions. The results of the study also provided partial support for the second hypothesis. When the high and low need-for-approval groups were compared under the verbal punishment procedure, significant differences were obtained for the first, third, and fourth time segments. Specifically, the high need-for-approval group generated significantly fewer plural nouns than the low approval-need group during these time periods. The punished high need-for-approval group only differed from its nonreinforced counterpart during the fourth period. In this period, the punished high need-for-approval group generated significantly fewer plural nouns than the nonreinforced high need-for-approval group. Taken together, the results suggest that subjects with a high need-for-

approval, as gauged by their scores on the M-C SD scale, are more sensitive to reinforcement than subjects with lower approval needs, and are more sensitive to reinforcement than to punishment procedures.

Another indirect source of evidence suggesting that histrionic personalities, as described by Millon (1969, 1981), may be very responsive to positive reinforcement, is derived from verbal conditioning studies of certain psychoanalytic character types. In psychoanalytic theory, the oral character is considered to be dependent and sensitive to suggestions of authority figures on whom it depends for self-esteem, while the anal character is considered to be obstinate and resistant to authority figures (Fenichel, 1945). The oral personality, on the basis of clinical description, seems to correspond to Millon's dependent personality type. However, Millon classifies both the dependent and histrionic personalities as other-directed (i.e., seeking reinforcement from others rather than from themselves). According to Millon (1981), histrionics are no less dependent upon others for attention and affection, but in contrast to dependents, take the initiative in securing these reinforcements (p. 131). Thus, both the dependent and histrionic personalities may share this feature in common and might be predicted to respond in a similar manner to a verbal conditioning task. On this assumption, the following studies are presented as indirect

support for the histrionics' sensitivity to reinforcement from others.

Using a verbal conditioning paradigm, Timmons and Noblin (1963) demonstrated that orals showed significant verbal conditioning relative to anals when mild, positive words were delivered by the experimenter following utterances of a selected class of pronouns. In contrast, the anal group failed to demonstrate significant verbal conditioning. In fact, there was a trend, although nonsignificant, suggesting that verbal praise had the effect of decreasing the number of targeted words emitted by anals.

In a follow-up study, Noblin, Timmons, and Kael (1966) demonstrated that verbally delivered punishment and verbally delivered affirmatory statements have different effects on the verbal behavior of oral types. The delivery of verbal praise following targeted responses produced an increase in the frequency of correct pronouns relative to baseline levels, while punishment in the form of negative verbal feedback resulted in decreases in the frequency of the targeted pronoun. Conversely, the anals demonstrated a significant decrease, relative to baseline, in the frequency of targeted responses when positive verbal feedback was administered. Moreover, negative verbal feedback produced a significant increase in the emission of targeted pronouns. Thus, results for the anal subjects are the opposite of what is typically demonstrated in verbal conditioning studies.

Cooperman and Child (1971) followed a procedure very similar to the previous two studies, but also investigated the effects of cessation of an aversive tone following the emission of targeted words by orals and anals. Contrary to the results of the two earlier studies, there was no difference between orals and anals in the direction of conditioning when either mild affirmatory or mild negative remarks followed certain types of verbal responses by the subject. However, only the anals extinguished their verbal output during the subsequent extinction phase. Both orals and anals conditioned when a negative reinforcement procedure (cessation of loud tone) was implemented; likewise, both orals and anals showed a significant decrease in the frequency of targeted words when a loud tone was used as punishment. Cooperman and Child (1971) attribute the similarity in the patterns of responding by orals and anals in their study to the absence of an authority serving as the experimenter, as was present in the earlier studies. They concluded that different personality types might respond differentially to the perceived power of the reinforcing agent.

Unfortunately, several methodological problems which characterize these studies necessitate that their results be interpreted with caution. First, each of the three studies used the Blacky Pictures (Blum, 1950) to diagnose the oral and anal personality types. As Pollack (1979) notes, this

is a projective test with many of the psychometric weaknesses which characterize all such tests (e.g., problems of standardization, reliability, and validity). Second, the authors of all three studies incorrectly use the term "negative reinforcement" to refer to an actual punishment operation, rendering their results and discussion confusing and misleading. Finally, the generalizability of the results could have been increased by including a group of subjects who served as normal controls. If orals are characterized by their suggestibility and other-directedness, it would be informative to compare these conditioning rates to those of controls.

Compulsive Personality Disorder

Although the compulsive personality has been a topic of discussion in the literature for more than 60 years (Turkat & Levin, 1984), it is a phenomenon which has been labeled in various ways. Terms which have been used interchangeably with the "compulsive personality" include obsessive-compulsive personality, obsessive personality, anakastic personality, and obsessional personality. The analytic concept of the anal character is considered to be a forerunner of contemporary conceptions of the compulsive personality (Millon, 1981). Most recently, DSM-III-R has adopted the term obsessive-compulsive personality disorder.

DSM-III definition. According to DSM-III, the specific criteria for the compulsive personality disorder are at least four of the following: impaired ability to demonstrate warm and tender emotions; perfectionism manifested by such behaviors as preoccupations with rules, order, trivial details, etc.; insistence that others comply with his or her stipulations about how to do things, while showing no awareness of how his or her behavior affects others; excessive devotion to work and productivity to the exclusion of pleasure and the value of interpersonal relationships; indecisiveness as manifested by decision-making which is either protracted, postponed, or avoided, for excessive fear of making a mistake. Distress, circumstantial speech, or depressed mood are also associated with this disorder.

As in the case of histrionic personality disorder, there are extremely few studies (i.e., Kass et al., 1983; Koenisberg et al., 1985; Mellsop et al., 1982; Strober et al., 1981) that use DSM-III criteria to diagnose individuals with compulsive personality disorder. In contrast, there are several studies available that have investigated individuals receiving one of the many other related diagnostic labels mentioned above. Given the shortage of empirical research using DSM-III diagnostic criteria, the following sections also make reference to literature which

uses alternative diagnostic criteria, while acknowledging its limitations.

Historical Antecedents and Clinical Description

The anal personality, first described by Freud in his brief 1908/1925 paper, "Character and Anal Eroticism", probably represents the prime historical antecedent to what is now labeled the compulsive personality disorder. In this paper, Freud specified three essential features of the anal personality--orderliness, parsimony, and obstinacy. For Freud, orderliness implied conscientiousness, body cleanliness, and being highly reliable. Parsimony referred to thriftiness and, in its extreme form, stinginess and greed. Obstinacy referred to negativistic and stubborn tendencies, and even hostile reactions to authority figures (Pollack, 1979).

Extending Freud's depiction of the anal character, Ernest Jones added the following traits: procrastination, sensitivity to interference, socially boring, impaired ability to experience pleasurable activities, difficulty letting others share responsibilities, and a tendency to be "put out" (Jones, 1918/1938). A more detailed psychoanalytic portrayal of the anal character was later advanced by Abraham (1921/1927). Extending Freud's (1908/1925) and Jones' (1918/1938) works, Abraham added the traits of ambivalence, of doubting, and indecisiveness. He

also noted that these individuals tended to be greedy and to place excessive importance on possessions.

Wilhelm Reich (1949), another analytic writer, pointed out that traits such as "pedantry, circumstantiality, a tendency to compulsive rumination, and frugality" were typical of the compulsive personality. Additional anal traits considered not to have the same etiology as the former, but nonetheless present in this personality type, included strong reactions of sympathy and guilt, indecision, doubt, and distrust (Ingram, 1982).

During the 1950s, the major analytic theorist writing on "obsessive character" was Rado (1959), who noted:

> The patient is overconscientious in his particular way. What he is mostly concerned about are the minutiae, the inconsequential details, the meticulous observance of minor rules and petty formalities...He is the ultimate perfectionist. While sensitive to his own hurt, he may, at the same time, be destructively critical, spiteful, vindictive, and given to... bearing grudges in trivial matters. Or, on the contrary, he may be overcautious, bent on avoiding...conflict (1959, pp. 325-326).

In the following decade, several studies appeared which attempted to validate empirically the concept of the compulsive (obsessional) personality. In one such study, Sandler and Hazari (1960) used a centroid method of factor anaysis, to evaluate the responses of 100 subjects to an "obsessional" questionnaire. In addition to finding two distinct clusters which corresponded to obsessional traits and obsessional symptoms, they found that the features comprising the trait cluster agreed with classic analytic

descriptions of the obsessional type. The obsessional personality they described was systematic, methodical, meticulous, consistent and thorough.

In another factor-analytic study, Lazare et al. (1970) investigated the empirical basis of three psychoanalytic personality types--obsessive, oral, and hysterical, using a sample of 100 consecutively admitted, female psychiatric inpatients. The traits which constituted the obsessional factor in this study were orderliness, rigidity, super ego, perseverance, emotional constriction, and parsimony. The authors concluded that the defining traits of the obsessive factor in both studies show a strong correspondence to the psychoanalytic description of the obsessional character. The criticisms of this study were described in an earlier section.

Millon's description. As noted earlier, Millon (1969, 1981, 1986a) has formulated a dimensional system for classifying personality disorders which corresponds closely to the DSM-III nosology. He describes the compulsive (conforming) personality as demonstrating a passive-ambivalent coping pattern. In other words, this pattern is based on a conflict between hostility towards others and a fear of social disapproval and humiliation. The ambivalence is temporarily resolved by superficial overconforming and overcompliant behavior. Anger and intense oppositional feelings, which are often present, cannot always be

supressed and occasionally break through. While Millon (1981) acknowledges that the pattern he describes is similar to the anal, compulsive, and obsessional types, he calls this pattern the conforming personality "to represent the deferential and self-constricting manner in which the obedience-defiance conflict is resolved" (p. 224).

Millon (1981) describes the compulsive personality as follows:

> This pattern is typified by behavioral rigidity, emotional overcontrol, and a conscientious compliance to rules and authority. Everyday relationships have a conventional, formal, and serious quality to them, and there is a conspicuous concern with matters of order, organization, and efficiency. Perfectionism, small-mindedness, and a lack of cognitive spontaneity are manifested in a cautious indecisiveness, procrastination, and a tendency to be upset by deviations from routine. The characteristic air of austere and disciplined self-restraint preludes informality and easy relaxation (p. 224).

In general, it appears that clinical descriptions of the compulsive personality agree reasonably well with each other. A facet of the compulsive personality which appears regularly in these clinical descriptions, and which is relevant to the present dissertation, is their tendency to be conscientious and sensitive to criticisms or to making mistakes.

Theories of Compulsive Personality Disorder

There are fewer theoretical accounts of the compulsive than of the histrionic personality disorders available in the literature. Two of the major theories of the compulsive personality disorder are presented below.

Psychoanalytic theory. Classic analytic theory postulates that the anal character has its origins in the conflicts that occur between parent and child over toilet training in the second and third year of life. The conflict occurs between the child's desire to eliminate or retain feces as freely as he wishes and the parent's attempts to train the child to regulate his bowel functions in a manner that is consistent with societal and cultural expectations about cleanliness and impulse control. The conflict may be intensified and may lead to anal fixations under several conditions; a) the parents may be too punitive or intolerant of their child's efforts to demonstrate autonomy in the situation; b) the training may be initiated too early or too late; or c) it may be either very frustrating or very rewarding (Pollack, 1979). Freud (1908/ 1925) considered the qualities of obstinacy, orderliness, and parsimony to be derivatives of the infantile and erotic impulses.

Millon's theory. Millon (1981) suggests that compulsives may be endowed with an "anhedonic temperament" which may account for their rather severe and joyless countenance. He suggests that the conflict between intense anger and intense fear experienced by these individuals and manifested as indecisiveness and doubt may have neurological substrates consisting of very well-developed areas of the limbic system corresponding to "fear" and "anger". Similarly, the pleasure centers of the brain may be

underdeveloped, thereby accounting for the joyless demeanor of this type of person.

While constitutional factors are thought to have a role in the development of this personality style, Millon (1981) suggests that experiential factors are the prime determinants. As a child, the compulsive is subjected to an "overcontrolling" method of parenting. In essence, these parents have high expectations for their children to live up to certain standards; contingent and consistent punishment and condemnation is experienced for failure to do so. In contrast, future compulsives are rarely praised for their achievements, which are taken for granted. They also learn to model and internalize their parents' behavior and rules demonstrating adult propriety, self-discipline, and "conscience", as well as their parents' attitudes of strictness. In turn, they also become extremely critical of others who do not live up to their acquired standards. According to Millon (1981), the parenting model also promotes guilt in the future compulsive, so that angry feelings are turned inward; fear of criticism will more strongly attenuate any tendency towards defiance and independence.

Compulsive Personality Disorder and Performance on Experimental Tasks

In contrast to the scant literature pertaining to the experimental validation of the histrionic personality, there

exists a reasonably large body of research which attempts to test predictions about the compulsive personality based on theory and clinical description. Pollack (1979) reviewed most of this research until 1979 and pointed out many of the methodological and diagnostic problems which characterized these studies. Similarly, following a review of 17 empirical studies published since 1970 which at least mentioned anality or compulsiveness, Turkat and Levin (1984) noted that many of the studies had methodological flaws. For the purposes of the present project, studies are reviewed which in some way attempt to test predictions from theory or clinical descriptions that the compulsive personality tends to be conscientious, orderly, and/or more compliant with rules. Studies which have attempted to discuss Freud's notion of anal orderliness will be considered as part of that genre of studies. Similarly, studies which purported to examine the Freudian notion of compulsive obstinacy are also reviewed.

A dependent measure which may be related to the orderliness of compulsives and which has been used for this purpose in several studies is verbal recall (Pollack, 1979). For instance, Adelson and Redmon (1958) compared the immediate and delayed recall performances of anal and normal subjects who had been identified using the Blacky Test. The subjects were given both an innocuous and a disturbing passage to read, and then tested under conditions of both

immediate and delayed recall. An interesting aspect of this study is that the anal subjects were further distinguished according to whether they were "retentive" or "expulsive". On the basis of pyschoanalytic theory, it was predicted that anal retentives (fixated at the late anal phase) would have a greater ability to recall verbal information than anal expulsives (fixated at the early anal phase). Under all four test conditions, anal retentives demonstrated significantly superior recall performance to that of anal expulsives and normal controls. Moreover, the normal control group's performance level was midway between that of the anal groups' on all four tests. The researchers suggest that recall differences might be the result of motivational differences between expulsives and retentives. They claim that retentives "show a marked disposition towards compliance and conformity" (p. 248), whereas expulsives are independent and rebellious.

In another study, Reed (1977a) attempted to explore what he termed the paradoxical nature of the obsessional personality's memory. He noted that clinical accounts indicate that this type tends to give meticulous and precise accounts of events, yet these individuals also demonstrate brooding and indecision which suggests faulty memory. On the assumption that the cognitive style of the compulsive is characterized by "the overstructuring of input" and "the maladaptive over-defining of categories and boundaries",

Reed (1977a) predicted that these individuals would show superior performance compared to psychiatric controls in recall tasks requiring concentration. Likewise, their recall would be superior in tasks where rehearsal of ambiguous material improves subsequent recall, but where no instructions are given to do so. As predicted, compulsive personality psychiatric subjects exhibited superior performance relative to matched psychiatric controls on a task (Digit Span subtest of the Wechsler Adult Intelligence Scale) requiring attention and concentration, whereas there was no difference between these two types of subjects on a task requiring long-term recall of general information (as assessed by the Information subtest of the Wechsler Adult Intelligence Scale). As predicted, compulsives were better able to recall details about insoluble problems after a two-week interval than psychiatric controls when no rehearsal of information had been requested. Thus, the author concluded that compulsives do not have an overall superior memory for recall, but pay attention to detail and tend to rehearse vague information even when it is not requested.

In a second study, Reed (1977b) compared the performances of compulsives and a group consisting of other personality disorders on two types of timed tasks: a) a highly structured task (Arithmetic Subtest, Wechsler Adult Intelligence Scale), and b) a specially constructed and standardized number series task which was abstract and open-

ended. On the one hand, Reed (1977b) hypothesized that the indecision of compulsives reflects a cognitive style (as described above) which would not impede the subjects' performance in the first task mentioned, due to its structured nature. On the other hand, compulsives' performance was predicted to be inferior to that of controls on the second task. The predictions were supported for both tests. Moreover, when the time limit was removed for the number series task, group differences disappeared. Although Reed (1977a, 1977b) was testing specific hypotheses about the cognitive style of compulsives, their behavior could be interpreted as being conscientious and precise.

Another feature predicted of anal (compulsive) personalities that has received some research attention is obstinate behavior, which is also often associated with opposition to authority. In contrast to direct displays of obstinacy and resistance to authority, Millon (1981) portrays the compulsive as being outwardly respectful and ingratiating with authority figures, while witholding feelings of anger and desires to rebel.

Two verbal conditioning studies (Noblin et al., 1966; Timmons & Noblin, 1963), described earlier, support the notion of compulsive obstinacy. In both studies, anal subjects showed a decrease (although this was only statistically significant for the later study) in the frequency of target pronouns from the baseline to the

conditioning phase, in which mild verbal praise was delivered following the emission of target words by the subject. Moreover, in the second study, contrary to the expected findings in verbal conditioning studies, the anals increased their emission of targeted pronouns relative to baseline when the experimenter used mildly aversive statements.

The results obtained by Cooperman and Child (1971) were not consistent with these two studies, however. Cooperman and Child (1971) suggested that a reason they failed to replicate this pattern of results for anals who did condition in their study was that their experimenter was probably not perceived as an authority figure by their subjects. The problems which arise in interpreting the results of these studies were described earlier.

Another study addressing the relationship between resistance to authority and anality was described by Tribich and Messer (1974). Oral and anal college subjects identified on the basis of the Blacky Pictures were differentially affected by the presence of a person perceived to be either high or low in authority. When viewing autokinetic phenomenon, oral subjects gave estimates of the amount of light movement which were more concordant with estimates of both the high and low authority figure than those given by anal subjects or by a normal control group. In addition, while neither orals or anals admitted

to being significantly influenced by the authority figures, orals moved closer in their responses to those given by both authority figures, while anals and normal control subjects moved away from both of these authority figures. The implications of the results of this study for the notion that anals are resistant to authority figures are not straightforward. First, both anals and normal control subjects tended to respond in a manner opposite to a perceived high authority figure. Second, both anals and control subjects tended to respond in a manner opposite to that of a low authority figure as well.

Despite the existence of methodological problems, these studies collectively tend to support various predictions for the anal character. Moreover, the distinction that Adelson and Redmon (1958) made between two types of anals may have implications for the apparently conflicting findings of other studies wherein this distinction was not made. For instance, subjects in the Cooperman and Child (1971) study may have been primarily anal retentives, whereas subjects in the Noblin et al.(1966) study may have been primarily anal expulsives. Although no studies have directly tested Millon's (1981) more recent predictions concerning the conforming behavior of compulsive personalities, it seems that there might be a closer correspondence between this type and the psychoanalytic "anal retentive" type than between Millon's compulsive and the anal expulsive type.

Personological-Situational Debate

One of the classic and as yet unresolved debates in psychology has concerned whether personality traits (or enduring cross-situational consistencies in the behavior of individuals) exist, i.e., whether people are temporally and situationally inconsistent (Epstein & O'Brien, 1985; McFall & McDonel, 1986; Wallach & Leggett, 1972), or whether behavioral stability only exists within situational constraints (Endler, 1982). The assumption that behavior endures or is repeated over time is referred to as temporal consistency, whereas the assumption that behavior is consistent across situations is referred to as cross-situational consistency. Although both types of consistency are at issue in the debate, there is often a tendency on the part of disputants to ignore or fail to recognize this distinction.

The present study addressed the cross-situational consistency of the behavior of persons who are analogues of personality disorders. A synopsis of the debate is presented to provide a context for the present study.

Background to the Debate

Until approximately two decades ago, personality/clinical research and theorizing was guided by the personological (or individual differences) approach. The two most influential variants of this approach were the various trait and psychodynamic perspectives, respectively.

Both approaches shared the assumption that individuals could be best described, predicted, and understood in terms of a set of stable intraorganismic variables. The differences among the personologists centered primarily on identifying which of the inner attributes were the most critical (McFall & McDonel, 1986).

Trait theory received greater attention from empirically oriented psychologists than psychoanalytic theory because it offered the promise of predictive utility and testability which its opponent could not fulfill. Whereas psychoanalytic theory offered viable descriptions and post hoc explanations of behavior, it was disappointing when it came to predicting behavior. In contrast, the more objective and quantitative methods integral to the trait approach were better suited to the newly emerging functions of psychologists, which included diagnosis, clinical prediction, and personality assessment (McFall & McDonel, 1986). Trait theory was least useful in its role as an explanatory system. For example, it is not very informative to claim that someone has lots of friends because she is high on the trait of extraversion.

The major challenge to one of the basic assumptions of the trait approach did not occur until the 1960s, although early theorists had also proposed views that would be considered incompatible with the personological approach (e.g., Lehman & Witty, 1934; Thorndike, 1906). The

assumption challenged was that traits are enduring response dispositions that manifest themselves across time and situations. If individuals do not behave in a relatively stable fashion across time and situations, the notion of personality itself would be seriously questioned. Yet opponents of trait theory were beginning to provide persuasive logical and empirical criticisms of this approach.

Mischel (1969), a strong critic of the trait approach and an early advocate of the situationist approach, raised the following question:

> How does one reconcile our shared perceptions of continuity with the equally impressive evidence that on virtually all our dispositional measures of personality, substantial changes occur in the characteristics of the individual longitudinally over time and even more dramatically across seemingly similar settings cross-sectionally (p. 1012).

The situationist approach endorsed by Mischel in his early writings (1968, 1969) proposed that there is little stability in behavior and that situational factors are the major determinants of behavior. He noted that, with the exception of intellectual abilities, there was little evidence for the behavioral consistency of variables such as aggression, social conformity, rigidity, or attitudes towards authority. Mischel's (1968) critique of the generality of behavior, in conjunction with the staunch criticisms penned by Peterson (1968) -- who was involved in

trait research for 10 years -- served as catalysts for mobilizing both sides of the debate.

A third group of disputants to emerge in response to this debate were the interactionists, who saw their position as resolving the controversy by a synthesis of the situationist and personological perspectives (McFall & McDonel, 1986). Interactionists hold that behavior results from the reciprocal transactions between personality and situational factors (Ekehammer, 1974).

The next sections highlight some of the research and arguments for and against these three positions.

Situationist Position and Critique

One of the strongest indictments against the trait position was the evidence provided by Mischel (1968) that consistency coefficients over time and situations rarely exceed the .30 - .40 level. In effect, such correlations imply that trait consistency accounts for only 10 to 15 percent of the variance across situations.

Another type of argument that situationists used to discredit the trait approach was to point out that individuals attribute more consistency to the behaviors of the people around them than is objectively the case (e.g., Bem & Allen, 1974; Jones & Nisbett, 1971; Mischel, 1968; Shweder, 1975). Many reasons have been offered as to why individuals appear to have a bias towards consistency where it does not actually exist. One argument, for example,

proposes that the human observer is always present in the situations in which he or she observes other people. Since the observer is unlikely to be present in all the possible situations that the observee encounters, the observer is likely to see a restricted sample and may conclude erroneously that the individual behaves consistently (Bem & Allen, 1974). Another explanation that has been advanced is that people have implicit theories that assume stability in personality, thereby leading the observer to perceive people in simple, consistent ways. Research findings from the attribution literature (e.g., Jones & Nisbett, 1971; Kelley, 1967) support the notion that people tend to overestimate the role of traits and underestimate the role of environmental factors in causing behavior; thus, individuals tend to make assumptions that the observee's behavior generalizes across situations in the absence of objective evidence. Situationists contend that while lay persons appear to use implicit theories of consistency in everyday functioning, this approach is untenable for the psychologist who is usually interested in making specific, testable predictions about the behaviors of others.

Another line of evidence used by situationists to fortify their position consists of numerous studies using analysis of variance designs (Epstein, 1979). Such studies have demonstrated that the variance attributable to situations or to the interaction of persons and situations

is usually greater than the variance attributable to individual differences.

One study frequently cited by situationists in support of their position was conducted by Raush and his colleagues at the Child Research Branch of the National Institute of Mental Health (Raush, Dittman, & Taylor, 1959). The behavior of six very aggressive, preadolescent boys was observed systematically in six settings selected on theoretical grounds from a much larger pool of possible situations. The specific settings included breakfast, unstructured game activities, structured game activities, arts and crafts sessions, snacktime, and meals other than breakfast. Behavior was coded using an established coding procedure with known reliability, which categorized behavior in terms of a friendly versus hostile dimension and a dominance versus submissive dimension. The behavior was coded on these same dimensions and in these same settings 18 months later.

Using a procedure which was very similar to analysis of variance, but which did not require assumptions of linearity, the researchers demonstrated that situational factors alone were more useful in predicting behavior in the study than were individual factors alone. Nevertheless, the interaction between situation and person reduced predictive uncertainty more than either situational or individual factors alone. Opponents of situationism could argue that

this study was biased in favor of a situationist position because individual differences were minimized, whereas behavioral differences due to the situation were maximized.

Within the situationist approach, adherents can be divided into three groups. The first group demonstrates little interest in the differences among individuals who behave in the situations under investigation; such differences are considered noise and are handled by averaging across the behavior of individuals. The methodology of this approach is based on description and naturalistic observation (McFall & McDonel, 1986).

Within this situationist approach, there is disagreement on whether situations should be defined topographically (e.g., restaurant, church) or functionally (e.g., situations eliciting fear or social interaction). The issue regarding how situations should be measured (i.e., quantitatively or qualitatively) is also unresolved. Finally, one of the major unresolved conceptual and definitional problems regarding situations concerns the lack of a general agreed-upon taxonomy for studying situations. The boundaries and identities of situations are difficult to delineate; furthermore, when behavior is studied over time, it becomes even more difficult to decide whether the same situation occurs at two different points in time.

McFall and McDonel (1986) identify a second group of situationists which consists of learning theorists, operant

psychologists, and social learning theorists who all maintain that behavior is primarily controlled by its environmental antecedents and consequences. These researchers do not deny the existence of individual differences in people's responses to situations; rather, they attribute these differences to individual learning histories (Harzam, 1984). Thus, what trait theorists refer to as personality can be understood as the accumulated influences of environmental variables. Furthermore, since learning continues to occur, these theorists would not predict the same degree of consistency as trait theorists do (McFall & McDonel, 1986). The disadvantages of this approach are most evident outside the laboratory where there is neither a satisfactory taxonomy for classifying situations (Fredricksen, 1972) nor an appropriate methodology for assessing the situational determinants of an individual's behavior in the natural environment (McFall & McDonel, 1986).

The third group of situationists is concerned with the behavior of individuals as it is influenced by their perceptions of situations (Mischel, 1973, 1979). According to this approach, people respond similarly to situations that they perceive as similar, and differentially to situations that they perceive as different. Thus, two people may behave differently in what appears to be the same situation because they perceive the situation in different

ways. A problem associated with this approach is that there does not exist at this time a reliable or valid means of assessing how the individual construes all the events that surround him or her at a particular point in time. Beyond this, the question arises as to what variables lead individuals to interpret situations as the same or as different. Finally, if it were determined that two individuals perceived a given situation in a similar manner, how might one account for differences in responding that still might be present (McFall & McDonel, 1986)?

The Trait Position and Critique

Consistency has been taken by trait theorists to mean three different things: absolute consistency, relative consistency, and coherence. Absolute consistency assumes that a person exhibits a behavioral trait (e.g., agressiveness) to the same degree at all times and in all situations. This position is not considered seriously by any trait theorist (Endler, 1983; McFall & McDonel, 1986). Relative consistency assumes that the rank order of persons for a specific behavior would stay the same across situations for that group of individuals. Coherence refers to the logical or internal consistency of a person's behavior, without reference to an absolute or relative consistency. In other words, the individual demonstrates a characteristic pattern of stable and changing behavior across a diverse range of situations (Endler, 1983).

It is unlikely that most trait theorists were referring to the structural coherence or internal consistency of people's behavior when they proposed that individuals behave consistently; since the types of correlational analyses which are the hallmark of trait research are not appropriate for answering questions about the coherence of people's behavior (McFall & McDonel, 1986). Most trait theorists proposed that people would exhibit relative consistency in their behavior across time and situations; if people did not, the relevance of the concept of personality would have to be questioned. They sought to downplay the situational effects on behavior by trying to find better ways to measure traits. One of the arguments provided by trait theorists in defense of their position is that many of the studies which are undertaken to demonstrate stability in personality have been experimental studies which are better suited to find instability rather than consistency in personality (Bowers, 1973).

Another approach has been to use <u>moderator</u> variables to increase consistency. The moderator approach attempts to identify the types of variables which influence the behavioral manifestations of traits in some cases but not others. By classifying subjects on the basis of selected moderator variables, trait theorists assert that the cross-situational consistency of traits may be revealed.

Ickes (1984) has noted that an important situational moderator variable refers to the "strength" versus "weakness" of the situation, as experienced by the individual. A situation that is highly structured and provides quite distinct cues to guide behavior is considered to be a "strong" situation, whereas a situation offering minimal cues to guide behavior and/or is rather unstructured is considered a "weak" situation. Ickes (1982) has suggested that one of the reasons many studies have demonstrated only modest relationships between traits and the behaviors they are supposed to predict is that many personality studies are conducted in highly structured laboratory situations, wherein individual differences are minimized and behavioral differences due to the situation are maximized. Conversely, Ickes (1982) maintains that only a few studies are conducted in situations which do not offer salient cues to guide behavior, but rather force individuals to rely on their own traits and dispositions to guide behavior. To facilitate the demonstration of trait-behavior correspondences, Ickes (1984) contends that researchers should conduct studies in relatively unstructured or ambiguous situations. Nevertheless, he notes that some of the more useful "strong" situations are those that can maximize differences in the criterial behaviors of the particular trait under investigation. "Precipitating" situations, as they are referred to, are

related to the trait being studied, make the trait a guide to behavior, and allow for specific ways of responding that will be related to the person's location on the relevant trait dimension (Ickes, 1984).

Despite the appeal of the moderator approach, several potential shortcomings have been identified. For example, the validity of the moderator approach would be best demonstrated through theory-based predictions of interactions between these moderator variables and traits, rather than post hoc accounts. Moreover, these findings need to be replicated (Bem, 1972; Mischel, 1968); for instance, Wallach and Leggett (1972) point to their own research findings with moderator variables which have been difficult to replicate. Finally, the more moderator variables that are included in the analysis of one or several traits, the more difficult it is to interpret resultant higher-order interactions.

A second type of rebuttal to the situationist attack was that the prevailing use of nomothetic, rather than idiographic, assessment procedures prevented researchers from recognizing that there are varying degrees of behavioral consistency. For instance, some individuals are highly consistent across certain situations while others are not consistent for those particular behaviors, but may be consistent for others.

In support of this view, Bem and Allen (1974) identified subjects who considered themselves to be consistent versus inconsistent with regard to conscientiousness and friendliness, respectively. Four subjective and two objective measures of friendliness were used to assess consistency, along with four subjective and three objective measures of conscientiousness. For the trait of friendliness, those who assessed themselves as relatively consistent across situations demonstrated lower variability across situations relative to individuals who described themselves as inconsistent across situations for that trait. The ratings for conscientiousness were not so distinct; it was only when subjects were classified on the basis of the experimenter's definition of conscientiousness that low-variability subjects were more consistent across situations than high-variability subjects. Bem's approach is consistent with Allport's (1937) idiographic view that individuals differ both in terms of how traits are related within the same person and in terms of which traits are relevant to each person. It is also synonymous with the coherence view described earlier.

McFall and McDonel (1986) provide three criticisms of the coherence approach. First, adherents of this approach have not provided a viable unit of analysis for categorizing the relevant person variables. Second, although this approach is concerned with understanding the unique

structure of each individual's personality, it should aim towards providing some theoretical framework for constructing this analysis. Further, the system that is used to analyze personality structure should lead to valid, useful, and testable predictions. Third, this approach (as with all other approaches) needs a measurement model that is consistent with the theoretical approach.

Another persuasive argument in defense of behavioral consistency is that previous low cross-situational correlations were the result of inappropriate methodology. It was reasoned that a more appropriate methodology would be to demonstrate consistency through the aggregation of data. This methodology, however, was applied to address the temporal stability rather than situational consistency of behavior.

Epstein (1979), in reviewing studies including those by Block (1971, 1977) and Olweus (1977), emphasized that a distinguishing feature of such studies is that they have assessed relatively large samples of behavior. He contended that previous studies had high measurement error because they sampled only a few items of behavior. Epstein (1979) presented four studies to support his hypothesis that measurement error can be reduced and stability of behavioral observations can be elevated (both within and across subjects) by increasing the number of observations in an assessment sample. In one of Epstein's (1979) studies,

14 male and 14 female college students were assessed on a number of variables such as pleasant and unpleasant experiences, emotions, and response tendencies over a 30-day period. In general, stability coefficients for a particular variable were much lower when the data for two days were compared, than when the data over many observation periods were compared. For instance, when pleasant emotion scores were correlated for Day 1 and Day 2, the stability coefficient was .36. Similarly, when pleasant emotion scores for the last day were correlated with those of the next to last day, the stability coefficient was .34. In marked contrast, when the mean of all odd days was correlated with the mean of all even days, the stability coefficient for positive emotions rose to .88.

To deal with the potential criticism that these results might only be true of self-report data (in which case greater consistency would be expected), Epstein (1979) described the results of a second study that included an examination of the stability of behavior observed by others. Thirty-four subjects self-recorded their current emotional states and a variety of measures pertaining to communication and physical complaints each day for the second half of a semester. In addition, daily samples of pulse rate were recorded by the instructor as well as a series of unobtrusive measures related to carelessness. Within subject, split-half analyses revealed a similar pattern for

reliability coefficients as was quoted in the previous study. That is, stability coefficients were much higher (at least .70) when measurements were aggregated over a 12-day sample rather than a one-day sample. The authors of the study stress that there was more reliability for the types of measures that could be observed by an external observer than for the measures considered descriptors of inner states.

Epstein's (1979) defense of the consistency through aggregation argument has been criticized by McFall and McDonel (1986) on several grounds. First, they note that he confuses temporal consistency with cross-situational consistency. When Epstein (1979) used the same measures to assess the same subjects in the same settings over a month and performed split-half correlations on the data, he was assessing temporal consistency, not cross-situational consistency. Another limitation of the study is that subjects only rated themselves during weekdays; by doing so, variability due to situational influences was reduced whereas variability due to the person was accentuated. Yet another criticism of Epstein's (1979) approach is that its success is achieved at the expense of predictive utility. In other words, the aggregation approach can only predict average behavior. "If we are interested in knowing only the most general characteristics of people (or weather), then averages based on large samples are appropriate" (McFall &

McDonel, 1986, p. 15). Conversely, if we are interested in making specific predictions about behavior in a particular situation, the aggregation method will not be of much help.

Interactionist Position and Critique

The third group of disputants in the person-situation debate are the interactionists, who contend that behavior is always a joint function of the person and the situation. Moreover, behavioral stability is only considered to exist within situational constraints.

The interactionist position had its origins in the 1920s (Kantor, 1924) and 1930s (Lewin, 1935; Murray, 1938). The more modern version was derived from research using analysis of variance procedures. Bowers (1973) reviewed the findings of 11 studies in which it was found that the interaction of individuals and situations accounted for more variance than either the individual or situational variables alone. The result of a study (cited earlier) by Raush et al. (1959) was also used to support an interactionist position.

Endler (1983) describes the abovementioned type of interactionism as being mechanistic in the sense that it assumes a linear and additive relationship between the independent variables (person and situational factors) in determining behavior. The mechanistic model of interactionism is concerned with the structure of the

interaction. Moreover, the analysis of variance approach demonstrates, but does not explain the interaction.

In contrast to the mechanistic model of interactionism, the dynamic model assumes that there is a reciprocal interaction between behavior and both situational and individual factors; people affect situations and behavior, and vice versa. From this perspective, there is an interdependent relationship between the independent and dependent variable. According to Endler and Magnusson (1976), the person is an "intentional and active agent" in the interaction. The person chooses the situations he or she encounters and selects certain attributes of those situations as guides for behavior. Cognitive and emotional factors are important determinants of behavior, as is the psychological significance of the situation.

Most of the research on interactionism has been founded on the mechanistic view of interaction (Raush, 1977). The partitioning of variance procedure has been criticized because experimental conditions can be arranged to produce the particular outcome the experimenter desires. For example, by selecting homogeneous subjects and assessing their behavior over a very diverse range of situations, the experimenter will have created a study biased towards showing that the most significant determinant of behavior is the situation. Relatedly, the experimenter can arrange

experimental conditions such that individual differences will account for most of the variance.

Despite the problems associated with the partitioning of variance approach, there are a paucity of alternative techniques, strategies, and measurement procedures for investigating the dynamic approach. Procedures such as time-series analyses, Markov chains, or conditional probabilities have been suggested and may prove viable in time (Endler, 1983; McFall & McDonel, 1986).

One limitation, shared by all approaches, is that it is difficult to determine the appropriate conceptual units of analysis for the dynamic approach. According to McFall and McDonel (1986), we must find ways to define units which can reflect the transactional processes occurring between the behavior of persons within situations and across time.

Reactions to the Situational-Specificity of Behavior

Most behavioral assessors acknowledge that behavior is somewhat situation-specific. That is, behavior is not entirely a function of the individual's general disposition to respond, but is also a function of current situational variables (Kazdin, 1979; Nelson & Hayes, 1979, 1986). This view also implies that behavior may show different degrees of situational-specificity. In addition to accepting the view that behavior is a result of both environmental and organismic variables, some theorists are interested in

seeking to understand why situational influences do or do not emerge.

Staats (1986) has argued from the framework of social behaviorism that behavior will be consistent across situations if the same reinforcement system is operative and if the same behavioral repertoire is called for. Conversely, Mischel's (1968) reasons for the consistency-inconsistency of behavior are based on the processes of stimulus generalization or stimulus discrimination. These processes are dependent on the individual's learning history during which environmental stimuli assume discriminative properties: stimulus generalization produces consistent responding and stimulus discrimination produces inconsistent responding. A more cognitive account was later presented by Mischel (1973), who posited that behavioral consistency depends on the individual's perception that two situations are similar. Individuals' perceptions vary as a function of organism variables such as "construction competencies" or "encoding strategies" (Mischel, 1973).

Regardless of the theoretical orientation selected, it would be helpful in the long run to identify the variables under which behavioral consistency across situations does or does not emerge. One purpose of the present study was to attempt to identify some of the variables which produce consistent or discriminative responding for the histrionic and compulsive personality disorders.

Statement of Purpose

The purpose of the present study was to examine the degree of consistency across specific situations in the behavior of persons classified as histrionic or compulsive personality disorder analogues. This issue was examined within the context of the personologist-situationist debate.

Most modern behaviorists hold a variant of the interactionist position which posits that behavior is a function of both current environmental and organismic (i.e., physiology and past learning history) variables. An implication of the situational-specificity of behavior is that individuals may show varying degrees of consistency or inconsistency across the same situations due to their past learning histories (Kazdin, 1979; Nelson & Hayes, 1979, 1986). Whereas some individuals have learned generalized responding across certain situations, others may show discriminative responding across these same situations.

In general, many definitions of personality disorders (e.g., American Psychiatric Association, 1968, 1980; Duke & Nowicki, 1979; Goldstein, Baker, & Jamison, 1980; Sue, Sue, & Sue, 1981), seem to espouse the personologist view, as does Millon (1981). All of these definitions inherently suggest that the assumptions of the personologist position, namely, that behavior is relatively stable over time and consistent across situations, are most appropriate for defining personality disorders. Given that this debate has

not yet been resolved for normal and other forms of deviant behavior, the question arises as to the validity of this assumption with regard to the personality disorders. The assumption that individuals who are classified in this manner show relatively consistent patterns of behavior across time and situations has not been empirically demonstrated. One of these assumptions, namely, that individuals approximating personality disorders will exhibit cross-situational consistency in behavior, was investigated in this study. In contrast to the view of personologists that behavior of these individuals should be relatively consistent across situations, or the situationist view that behavior should be largely inconsistent across situations, it was predicted that the data would most support an interactionist position. Specifically, the behavior of histrionics and compulsives would be consistent across certain kinds of situations and inconsistent across others. Moreover, the situations that produce consistent responding for histrionics were expected to be distinct from the situations which produce consistent responding for compulsives.

To test these predictions, a 3 (Personality Types) x 2 (Audience Situation) x 2 (Demand Situation) x 4 (Order of Presentation) experimental design was implemented. Personality Types, a between-subjects factor, referred to individuals classified as histrionic personality disorder

analogues, compulsive personality disorder analogues, or normal controls. The first two groups were considered analogues to personality disorders because they consisted of college students who obtained significantly high scores on the relevant scales of the Millon Clinical Multiaxial Inventory (MCMI; Millon, 1982). This diagnostic instrument has separate scales which are derived from Millon's (1969, 1981) theory of personality. According to Millon (1981), the personality coping patterns that he has identified correspond closely to the Axis II disorders of DSM-III. He notes that the Task Force which developed the DSM-III section on personality disorders acknowledged that the behaviors which signify traits may also underlie personality disorders. The criteria adopted for distinguishing personality disorders require that these disorders be associated with subjective feelings of distress and/or severely impaired social relations. The subjects who were recruited for the present study were considered analogues to compulsive and histrionic disorders since the degree to which their personality patterns were accompanied by subjective distress and/or impaired social functioning was unknown.

Audience situation, a within-subjects factor, referred to whether the subject behaved in a public or private setting. A public setting was operationally defined as the experimenter being present (audience of one) during task

performance, and a private situation was defined as the experimenter being absent and supposedly ignorant of the subject's performance.

Theory and clinical descriptions suggest that the histrionic personality types are "attention-seeking" and "other-directed". As noted previously, Millon's (1981) description of the histrionic includes the observation that this type is characterized by a strong need for external support, attention, and approval. It was predicted that histrionic personalities would respond differently to situations in which there is another person present, as a potential dispenser of reinforcement, versus situations in which this source of reinforcement is unavailable.

Demand situation, a within-subjects factor, referred to whether explicit (high) demands for certain standards of performance were made by the experimenter or whether minimal (neutral) demands were made. Theory and clinical descriptions of the compulsive personality suggest that these types are sensitive to the demands imposed by others. For instance, Millon (1981) described the compulsive personality as demonstrating a "conscientious compliance to rules and authority" (p. 224) and proposed that parents of compulsives expect their children to maintain high standards. Compulsives, as children, learn to meet these expectations in order to avoid condemnation. Thus, it was

predicted that compulsive personalities would respond differentially to the high versus neutral demand situations.

Order of presentation, a between-subjects factor, referred to the order in which subjects participated in each of the four experimental conditions. The orders were derived from crossing the audience and demand situation factors. Thus, there were also four orders of presentation: (1) public/neutral demand, private/neutral demand, public/high demand, private/high demand; (2) public/high demand, public/neutral demand, private/high demand, private/neutral demand; (3) private/neutral demand, private/high demand, public/neutral demand, public/high demand; and, (4) private/high demand, public/high demand, private/neutral demand, and public/neutral demand.

The dependent variables in this study were the various performance measures from three types of tasks: an Angle Matching Task, a Letter Cancellation Task, and a Verbal Conditioning Task. The tasks were selected for several reasons. One reason was that they reflect some of the criteria used to define either histrionic or compulsive personality disorders. For instance, the Angle Matching Task has been used in the literature (Rotter & Mulry, 1965) to assess decision-making behavior and expectancies for success. Since the diagnostic criteria of both DSM-III and Millon (1981) include the compulsives' tendency to be indecisive, it was considered that this task was a suitable

method of assessing variables related to decision-making. The three tasks were also selected for inclusion in this study on the basis of results obtained from a previous pilot study. Although several dependent measures were collected in this study, it was hypothesized that each would be affected by the various independent variable manipulations in the same manner.

If the behavior of compulsives, histrionics, and control subjects is as consistent across situations as personologists predict, then only a main effect for subject types would be expected to be significant. If the behavior of compulsives, histrionics, and control subjects is as inconsistent as the situationists predict, then it is predicted that only main effects for audience and demand situation, or their interaction, would be significant. In contrast to the predictions of personologists and situationists, it was predicted that an interactionist position would receive the greatest support from the data. Specifically, two 2-way interactions were predicted: a) Personality Type x Demand Situation, and; b) Personality Type x Audience Situation.

More than merely demonstrating an interaction, the present study attempted to demonstrate certain kinds of cross-situational consistency for the different personality types. It was predicted that the behavior of histrionic analogues would be affected by the public/private dimension

but not by the high-demand/ neutral-demand dimension. Conversely, it was predicted that the behavior of compulsive analogues might be affected by the high/neutral but not by the private/public dimension. Normal controls were expected to be responsive to both dimensions.

If, as predicted, the results of the present study provided most support for an interactionist position, it could be argued that these results would have limited generalizability to an actual clinical population because of the analogue nature of the subject sample. Since Millon (1982) asserts that higher Base Rate (BR) scores on the personality scales of the Millon Clinical Multiaxial Inventory (MCMI) are suggestive of increased severity or intensity of a pathological personality trait, and since it was hypothesized that severity or intensity of symptomatology was one of the features which distinguished subjects in this study from an actual clinical population, it was predicted that there would be a positive association between BR scores on the relevant scales of the MCMI and discriminative responding across certain situations. Consistent with the predictions tested by an analysis of variance, it was predicted that Scale 7 (compulsive) scores would be positively correlated with the difference in response between neutral and high demand situations. In contrast, Scale 4 (histrionic) scores would be positively correlated with the difference in response between public

and private situations.

CHAPTER II

METHOD

Subjects

Subject selection procedure. During the first four weeks of the Fall 1987 and Spring 1988 semesters, students enrolled in introductory psychology classes at the University of North Carolina at Greensboro were invited to participate in large-scale screening sessions. Subjects were informed that their participation in these sessions would help determine their eligibility for several experiments to be conducted throughout the semester by various researchers. Volunteers who participated in these screening sessions received a general consent form, the Millon Clinical Multiaxial Inventory (MCMI; Millon, 1982), and a Consent for Contact Form as part of their screening package (see Appendices B, C, and D). Subjects were asked to sign the Consent for Contact Form if they were willing to be contacted by telephone to receive more information about the study and, if they were still interested, to solicit their participation. Subjects were informed that only those who met the screening criteria (elaborated later) would be contacted. A debriefing statement for the screening session is contained in Appendix E.

Millon Clinical Multiaxial Inventory (MCMI). The MCMI, a self-administered inventory of 175 statements which are

rated true or false, was used to identify eligible subjects. Scores are obtained on 20 clinical scales, including eight scales representing "Personality Patterns (Axis II)" which are derived from Millon's personality theory (1969, 1981), three "Pathological Personality Disorders" scales which reflect moderate or marked levels of impairment, nine scales designed to assess "Clinical Symptom Syndromes" based on DSM-III Axis I disorders, and three additional scales included to correct for test-taking distortions that may confound the interpretation of the MCMI, as well as detecting careless, confused, or random responding.

The scales of particular relevance to the present study were Scale 4 and Scale 7. Scale 4, which is labelled "Histrionic-Gregarious", is described by Millon (1982) as follows: "The active-dependent pattern ... is characterized by a superficial and indiscriminant search for affection and stimulation. Despite capricious and manipulative behaviors, there is a deep fear of genuine autonomy and an intense need for social attention and approval" (p. 34). Millon (1982) described the Compulsive Personality Disorder, which corresponds to Scale 7 (Compulsive-Conforming) of the MCMI as "the passive ambivalent pattern...characterized by a mixture of subservience and hostility that is constrained by a fear of social disapproval and humiliation. Lurking behind a surface conformity are intense oppositional feelings which occasionally break through controls" (p. 34).

Millon (1982) asserts that MCMI items were selected on the basis of high biserial correlations with their relevant scales. The median Kuder-Richardson coefficient for the 20 scales is .88, with a range of .58 to .95. He also provides test-retest reliability and validity data for the MCMI. Test-retest stability data on a clinical population yielded reasonably high correlation coefficients for the personality pattern scale scores. Test-retest correlation coefficients ranged from .78 to .91 for an interval of one week and from .61 to .85 for an interval of 5 weeks. At five weeks, the test-retest correlations were .85 for Scale 4 and .78 for Scale 7. Convergent validity of the MCMI scales was established through correlations with other diagnostic inventories including the MMPI, and two relatively new instruments, the Psychological Screening Inventory (PSI; Lanyon,1973) and the Symptom Distress Checklist (SCL-90; Derogatis, Lipman & Covi, 1973).

Raw scores from the 20 scales are converted into base rate (BR) scores, a transformation determined by the known prevalence of personality and syndrome base rates. A BR score of 75 represents a cutting line for identifying the "presence" of a trait or disorder, while a BR score of 85 represents a cutting line for identifying the most "prominent" syndrome. Although profile interpretation should be the primary method of evaluating MCMI results, a single-scale approach is justified if confidence in the

probability of a correct diagnostic judgement is closely guided by each scale's valid- to false-positive ratio (Scale 4 = 88:8, Scale 7 = 78:15 at BR > 85; Millon, 1982).

The MCMI was meant to be used for a clinical population and not for individuals without psychological symptoms nor for those who are not currently in psychotherapy or undergoing a psychological evaluation. The normative data and transformation scores for the MCMI are based on clinical samples and, hence, Millon (1982) cautioned strongly against the use of the instrument as a screening tool for nonclinical populations. Thus, for the purposes of the present study, it was necessary to establish normative data for a college student population. Normative data were established for BR scores on each of the MCMI scales, based on questionnaires given to 1063 students enrolled in introductory psychology classes at the University of North Carolina at Greensboro. These data were gathered from screening sessions held for two previous studies conducted by other investigators in the 1985-1986 and 1986-1987 academic years, respectively. Consistent with Millon's procedure for a clinical population, the transformation from raw scores to BR scores yielded slightly different BR scores on some scales for males and females.

The present study used the same college student norms for males and females in which a cut-off score of one standard deviation above the mean BR score for either Scale

4 or 7 was employed. The BR means and standard deviations derived from this population for the 20 scales are listed in Table 2.

Subjects met criteria for inclusion in the histrionic personality disorder analogue group if their Scale 4 score was above 96 and if no other scale scores exceeded that value. Subjects met criteria for inclusion in the compulsive personality disorder analogue group if their Scale 7 score was above 76 and if no other scale scores were greater than that value. Subjects who met criteria for inclusion in the normal control group had profiles with no BR scores greater than one standard deviation above the mean BR score for each scale. While means and standard deviations were used to determine inclusion criteria, it should be noted that such computations are not really appropriate for BR scores which are ordinal rather than interval data.

Subjects who met these screening criteria were contacted by telephone to solicit their participation in the study. When they were contacted, they were informed that the experiment was to be conducted on an individual basis over four weekly sessions, each of approximately one to one and a half hours in duration. They were informed that they would be compensated at the end of each session by receiving one experimental credit or $4.00 for each hour of participation. Ninety-three subjects met the screening

criteria and agreed to participate in the study. Eleven of these subjects did not complete the study, and their data were not included in subsequent statistical analyses. Five of these subjects were females who met the histrionic screening criteria, three were females who met the compulsive screening criteria, and three were males who met the screening criteria for the control group. Reasons for attrition included unwillingness to attend all sessions and/or scheduling difficulties.

Description of subject sample. Eighty-two college students of both sexes served as subjects in this experiment. Twenty-eight subjects (26 females, 2 males) met the criteria for the histrionic personality group. All the subjects in this group were white. The ages of these subjects ranged from 17 to 24 years, with a mean age and standard deviation in years of 18.64 and 1.49, respectively. The mean Scale 4 (histrionic) score for these subjects was 105.04, with a standard deviation of 6.92. The mean Scale 7 (compulsive) score for these subjects was 52.29, with a standard deviation of 14.72.

Twenty-six subjects (22 females, 4 males) met the criteria for the compulsive group. Twenty-four of the subjects were white and two were black. The compulsive subjects ranged in age from 18 to 41 years, with a mean age and standard deviation in years of 21.16 and 6.05, respectively. The mean Scale 7 score of this group was

83.27, with a standard deviation of 17.80. The mean Scale 4 score for this group was 53.81, with a standard deviation of 19.32.

The control group consisted of 21 females and seven males. Twenty-four members of the control group were white and four were black. The control subjects ranged in age from 17 to 38 years, with a mean age and standard deviation in years of 19.71 and 4.53, respectively. The mean Scale 4 score for this group was 74.04, with a standard deviation of 12.21. The mean Scale 7 score for this group was 62.96 with a standard deviation of 12.34. Descriptive information including the age, race, sex, Scale 4, and Scale 7 scores for each subject are included in Table 1.

Chi-square tests were performed to assess whether there was an equal ratio of males to females across personality disorder groups and to assess whether there was an equal distribution of black and white subjects across the groups. These tests revealed no differences across groups in the number of male and female subjects ($X^2 = 3.19$, $p = .19$), nor any differences across groups in the ratio of black to white subjects ($X^2 = 4.22$, $p = .12$). A univariate analysis also revealed that the three groups did not differ significantly in age, $F(2,78) = 2.19$, $p = .12$. Therefore, gender, race, and age were not included in subsequent analyses.

Power analyses were performed in order to assess the probabilities of obtaining various statistically significant effects when sample size, effect size, and significance criteria were specified. Power probabilities were computed for the main effects and interactions for each of the four dependent variables (letter cancellation score, percent angle accuracy, mean angle confidence rating, and verbal gain score each elaborated later) using a SAS software program, FPOWTAB developed by O'Brien and Lohr (1984). For each of the dependent variables, power probabilities were derived for low, medium, and large size effects using the total sample size in this study and a Type I error rate of .10. For the letter cancellation measure, power probabilities determined as a function of medium effect sizes were highest for the personality types, demand, and audience main effects (all .99) and weakest for the Personality Types X Audience interaction (.08). For the angle accuracy measure, power probabilities calculated for medium effect sizes were highest for the Personality Types X Audience interaction (.81) and lowest for the audience main effect (.11). For the angle confidence measure, power probabilities were highest for the audience main effect (.99) and lowest for the Personality Types X Audience interaction (.15) when calculated for medium effect sizes. For the verbal gain measure, power probabilities calculated for medium effect sizes were highest for the demand main

effect (.81) and lowest for the audience main effect (.11). It should be noted that although not all power probabilities that were computed were considered to be at conventionally accepted levels (e.g., .50 or above), subject recruitment constraints precluded the use of a larger sample size.

Experimenters

Three graduate students and five upper-level undergraduate psychology majors served as experimenters. Five of the experimenters were female. Because of scheduling constraints in matching experimenter and subject schedules, it was not possible to make strictly random assignments of subjects to experimenters; however, great efforts were made to have experimenters work with subjects from each of the personality groups. With the exception of the principal investigator, all experimenters were blind to the hypotheses of the investigation. The principal investigator worked directly with 20 histrionic, 18 compulsive, and 16 control subjects in this study. Each experimenter received approximately five hours of training in the procedures involved in conducting this experiment.

Experimental Design

The design of this experiment was a 3 (Personality Types: histrionic, compulsive, control) X 4 (Order of Presentation) X 2 (Demand Situation: high, neutral) X 2 (Audience Situation: public, private) mixed-factorial design with repeated measures on the last two factors. The first

factor, Personality Types, a between-subjects factor, distinguished among three types of subjects included in this study: compulsive personalities, histrionic personalities, and normal control subjects. The second between-subjects factor, Order of Presentation, referred to the four orders of presentation of the four experimental situations derived from crossing the two within-subjects factors, Demand Situation and Audience Situation.

The crossing of the audience and demand factors yielded four experimental situations, each occurring at an interval of approximately one week. Dependent measures from the Angle Matching, Letter Cancellation, and Verbal Conditioning tasks were collected at each session (i.e., for each experimental condition).

Counterbalancing of Order

The four orders of presentation were counterbalanced across subjects in each group. These orders, which model a Latin-Square design, were designated as follows: Order 1 = Public/Neutral Demand, Private/Neutral Demand, Public/High Demand, Private/High Demand; Order 2 = Public/High Demand, Public/Neutral Demand, Private/High Demand, Private/Neutral Demand; Order 3 = Private/Neutral Demand, Private/High Demand, Public/Neutral Demand, Public/High Demand; Order 4 = Private/High Demand, Public/High Demand, Private/Neutral Demand, Public/Neutral Demand. In each of the histrionic and control groups, seven subjects each received one of the four

orders. Because there were only 26 subjects in the compulsive group, seven subjects each received Orders 2 and 3 while six subjects received Order 1 and six received Order 4.

Apparatus and Materials

Letter Cancellation Task. This is a paper and pencil task which has been used in the literature under various types of instructions in order to measure diverse functions including the capacity for sustained attention (Lezak, 1983). It has been used by Turkat and Maisto (1985) as a "boring task" to assess the effects of immediate and delayed reinforcement.

Both DSM-III and Millon (1981) describe the histrionic personality as easily bored and intolerant of inactivity. The task was selected to assess histrionics' persistence with a boring task. Preliminary pilot work also indicated that compulsives were differentially sensitive to the public/neutral demand and public/high demand conditions. Moreover, there was no difference for compulsives' performance on this task under the public/neutral demand and private/neutral demand conditions. In contrast, the difference in performance for histrionics under the public/neutral and public/high demand situations was only significant at the $p < .10$ level (see Appendix A).

The subject's task was to cancel every "E" on each of 25 lines of typed, capital letters on a page with 30

randomly ordered letters to a line. The subject was given 15 identical sheets each time the task was presented and additional sheets were provided if these were completed. There were four versions of the task, in which letters appeared in different randomized orders. The presentation of different versions across experimental conditions was randomized for each subject. A copy of one form of the task is contained in Appendix F.

A Kaypro microcomputer was programmed in Turbo Pascal (version 2.0) to record the time that elapsed between the subjects' start and completion of the task. Any key on the keyboard could be depressed by the subject to commence the timer, while depressing any other key could stop it. The computer provided a printout of the time (in seconds) from the first to second key press.

Angle Matching Task. This task was a modified version of an angle-matching task used by Rotter and Mulry (1965). The task was selected for inclusion in this project because it was considered a viable way to assess the compulsives' purported indecisiveness. Preliminary pilot work also indicated that compulsives were relatively more accurate on this task in a public/high demand condition than in a public/neutral demand condition (see Appendix A).

Thirty-two 4 x 6 inch white cards were mounted on a 32 x 40 inch sheet of white cardboard. On each of these mounted cards was an angle drawn in black ink. The angles

ranged from 35 degrees to 110 degrees, in 5-degree intervals. The apexes of these angles were turned in different directions and their sides were of different lengths. There were two representations of each of the 16 possible angles, and they were arranged in random positions on the board. The set of matching stimuli, referred to as samples, consisted of 30 angles drawn on 4 x 6 inch cards in black ink. These angles ranged from 37.5 degrees to 107.5, and were also spaced at 5 degree intervals from each other. There were two representations of each of the 15 possible angles in a pack of sample cards (matching stimuli). The two representations could differ in the length of their sides or the orientation of their apexes on the card. There were four sets of sample angles which contained the same angles, but in each set, the orientation of the apexes and the length of their sides differed from those in the other sets. The order of presentation of the sets of sample angles was randomized across experimental situations. None of the sample angles was an exact match for any of the angles on the board; however, for each sample, there were four angles on the board which differed from it by only 2.5 degrees. For example, for a sample angle of 37.5 degrees, there were two corresponding angles on the board which were 35 degrees and another two which were 40 degrees. During each experimental session, one set of matching stimuli (i.e., 30 sample angles) was presented.

The board of standard angles was placed against a painted white wall and the bottom of the board was 30 inches from the floor. The subject was seated five feet away from the board with the center of the board at approximately eye level (see Appendix G for a schematic representation of the task materials).

Verbal Conditioning Task. Variations of the standard Taffel (1955) verbal conditioning procedure have previously been used as simplified models for interpersonal situations such as psychotherapy (e.g., Krasner, 1958; Ulman, Krasner, & Collins, 1961). Since one common feature of all personality disorders is a proclivity for experiencing social distress (American Psychiatric Association, 1980) or impaired interpersonal relations (Turner & Hersen, 1981), the verbal conditioning procedure was used to provide an opportunity to study the impact of different situational variables on a simplified model of interpersonal interaction. Another reason was that this procedure has been used previously to assess the verbal conditioning of psychoanalytic anal character types (Cooperman & Child, 1971; Noblin et al., 1966; Timmons & Noblin, 1963). Preliminary pilot work also revealed that histrionics conditioned under a public/neutral demand situation while compulsives did not.

It should be noted that the verbal conditioning task used in the present study was actually a modification of the

task discussed above. Unlike the standard version of the task in which the experimenter delivers consequences, usually in the form of verbal praise, subjects in this study performed this task on, and received consequences from, a microcomputer. This deviation from standard procedure was required in order to investigate the effects of private as well as public conditions on the behavior of subjects. However, at least two studies have demonstrated verbal conditioning when feedback was not delivered directly by the experimenter (Cooperman & Child, 1971; Herbert, 1986). In contrast to the usual procedure, feedback was delivered in the form of an asterisk in the center of the computer screen. The asterisk appeared on the screen when the subject typed a letter that corresponded to the first letter of the target pronoun that he or she used in generating a sentence during the conditioning phase.

The task consisted of four phases, each composed of 30 trials. Two were baseline phases, and two were conditioning phases in which feedback was presented. Half the subjects in each personality group received a sequence of phases commencing with baseline followed by feedback and forming an A-B-A-B phase design (where A was the baseline phase and B was the feedback phase). The remaining subjects in each group received a sequence of phases commencing with feedback and forming a B-A-B-A phase design. Each subject received

the same sequence of phases across experimental sessions.

On each trial, a verb in the simple past tense appeared in the center of the microcomputer screen. Below the verb appeared six pronouns ("I", "we", "you", "he", "she", and "they") in lower case letters. The subject was asked to say a sentence out loud, using any of the pronouns to begin the sentence and including the verb. After doing this, the subject was to type the first letter of the pronoun on the key board, hit the return key, and wait for another verb and list of pronouns to appear. One hundred and twenty different verbs were presented during the session. The order in which the pronouns appeared at the bottom of the screen was randomly varied for each trial. There were four versions of this task, each with a different set of 120 verbs in the simple past tense. The order of presentation of the four versions across experimental conditions was randomized for each subject.

A microcassette recorder was employed to record the sentences generated by the subject. This procedure served as a check on the subject's adherence to the instructions.

Dependent Measures

Letter Cancellation Task. The dependent measure derived from each experimental condition within the Letter Cancellation Task was the time in seconds from the first key-press (which coincided with the beginning of the task)

until the second key-press (which coincided with completion of the task).

Angle Matching Task. Two dependent measures, mean confidence ratings and percent angle accuracy, were used to evaluate performance on the Angle Matching Task. The subject's confidence rating on a given trial was a number ranging from 0 to 10 which reflected his or her confidence in the correctness of the angle choice on a given trial. A rating of 0 implied that the subject had no confidence, whereas a rating of 10 implied that the subject had extreme confidence in his or her choice. During both high-demand conditions of this task, subjects were each given the same, but inaccurate feedback about their performance after the fifth and tenth trials. Since arbitrary feedback was given during the first 10 trials of both high-demand situations, but not during the neutral demand situations, the mean confidence ratings for each experimental condition were computed using the last 20 of the 30 trials.

Since the subject in this task is forced to choose one of the 32 angles on the board which is either smaller or larger than the sample angle, a measure of relative, rather than absolute accuracy, was computed. However, for the sake of simplicity, the dependent measure was labelled "percent angle accuracy". The percentage of relatively correct answers was computed by defining any response that was within 2.5 degrees of the sample angle on a particular trial

as accurate and any other response as inaccurate. Since there were four angles on the board which were within 2.5 degrees of the sample, the subject's response was labelled as accurate if he or she selected any of these four angles.

Verbal Conditioning Task. In any experimental condition, the numbers of sentences beginning with the target pronoun (preselected by the investigator as being correct) in each baseline and in each conditioning phase were first calculated. A gain score was subsequently derived by subtracting the sum of the two baseline scores from the sum of the two feedback scores.

Procedure

Each of the four sessions was conducted in a quiet, well-illuminated room of the Eberhart Building containing a microcomputer and its support table, a microcassette recorder, a second table upon which rested stimulus materials for the study, a large cardboard box with a fitted lid, three chairs, and a desk at which the subject sat while completing the Letter Cancellation Task and the Angle Matching Task.

At the beginning of the first session, a brief explanation of the experimental procedure was provided. Subjects were given the opportunity to ask questions and then were asked to sign a Consent Form (Appendix H). Subjects were informed both verbally and in the consent form that they could withdraw from the study without penalty.

They were also informed both verbally and in writing that the sentences they generated during the Verbal Conditioning Task would be audiotaped, and after being transcribed would be erased. After signing the consent form, subjects were accompanied to an adjacent hallway to take a visual acuity test. They were required to possess 20/30 vision, as measured using a Snellen Eye Chart.

Each subject in the study completed the Letter Cancellation Task, the Angle Matching Task, and the Verbal Conditioning Task in each of four situational conditions (Public/Neutral Demand, Public/High Demand, Private/Neutral Demand, Private/High Demand). Sessions took place at intervals of approximately one week.

At the end of the fourth session, the subject was asked to complete a brief questionnaire which asked questions concerning the subject's understanding of the purposes of the various procedures (see Appendix I). The subject was then debriefed about the nature of the experiment (see Appendix J). The specific procedures followed in each of the conditions are listed below.

Public/Neutral Demand Situation: Letter Cancellation Task. In this situation, the experimenter, who was present as the subject performed the task, sat at a table perpendicularly to the right of the subject. Subjects were instructed to cross out every "E" on a page and to stop the task when they found it boring and no longer wished to

continue. Subjects were instructed to press a key on the computer keyboard when they commenced the task and to press another key as soon as they stopped the task, which was terminated by the experimenter after 35 minutes. Previous pilot work had suggested that it was extremely unlikely that subjects would persist any longer. More detailed instructions for this task are presented in Appendix K.

Public/Neutral Demand Situation: Angle Matching Task. In this situation, the experimenter was present as the subject performed the task. At the beginning of the session, the experimenter placed a set of sample cards in front of the subject, who was asked to pick up a new card for each trial. Subjects were then told to select the angle which they thought was identical to the one they were holding, and then to give a confidence rating as to the correctness of their choice. The experimenter recorded both the subject's choices and confidence ratings on an answer sheet. More detailed instructions for this task are presented in Appendix K.

Public/Neutral Demand Situation: Verbal Conditioning Task. At the beginning of the session, the experimenter reminded the subject that the session would be audiotaped. On this occasion, the experimenter was seated to the left of, but slightly behind the subject, who was seated facing a microcomputer screen. After providing initial instructions,

the experimenter sat quietly observing the subject throughout the procedure.

For half of the subjects in each group, the first 30 trials of the task consisted of a baseline phase, followed sequentially by 30 feedback, 30 baseline, and another 30 feedback trials. The remaining subjects in the study received the same procedure except that the order of the baseline and feedback phases was reversed. More detailed instructions for this task are presented in Appendix K.

Public/High Demand Situation: Letter Cancellation Task. In this condition, the procedure followed was identical to the procedure for the public/neutral demand situation with the exception that the experimenter provided the subject with additional information regarding his or her expectations about performance standards. Specifically, the experimenter asked the subject to persist with the task as long as possible. Once again, a time limit of 35 minutes was imposed. Complete instructions for this condition are included in Appendix K.

Public/High Demand Situation: Angle Matching Task. In this situation, the procedure followed was very similar to the procedure for the Public/Neutral Demand situation. In addition to the instructions provided in that situation, however, subjects were told that some people were very skilled at this task and did consistently better than

others. Subjects were also encouraged to do as well as possible.

After the first five trials, each subject was given arbitrary feedback by being told that they were at the 50th percentile. After the tenth trial, the experimenter informed each subject that his or her performance was a little better. Complete instructions for this situation are provided in Appendix K.

Public/High Demand Situation: Verbal Conditioning Task. The procedure followed was identical to the procedure for the public/neutral demand situation, with the exception that the experimenter provided subjects with additional information regarding the type of performance standards which were expected of him or her. Specifically, subjects were told that some people were highly skilled at this task and did consistently better than others. They were encouraged to get as many asterisks as possible. More detailed instructions for this condition are presented in Appendix K.

Private/Neutral Demand Situation: Letter Cancellation Task. In this situation the procedure followed was identical to that in the public/neutral situation, except that the experimenter was not present during completion of the task. To further promote the perception of privacy, the experimenter attempted to dissuade subjects from placing

their name or any other identifying information on the letter cancellation sheets. The subjects were also intstructed to place their completed sheets somewhere in a box (with a fitted lid) which they were led to believe contained similar unidentified data of other subjects. A time limit of 35 minutes was placed on the task, at which point the experimenter returned to the room and instructed the subject to stop the task and put the data sheets somewhere in the box. Complete instructions for this condition are provided in Appendix K.

Private/Neutral Demand Situation: Angle Matching Task. The procedure followed in this condition was identical to that in the public/neutral condition except that the experimenter was not present during performance of most of the task. On each of the first 10 trials, the experimenter recorded the subject's responses as in the public situations. The subject recorded his or her own responses for the remaining 20 trials.

To increase the credibility of the privacy manipulation, the experimenter attempted to dissuade the subject from placing his or her name on the scoring sheet before placing the data in a box with a fitted lid, which the subject was led to believe contained similar unidentified data belonging to other subjects. The subject was instructed to inform the experimenter when he or she had completed the task and had hidden the data somewhere in the

box. More detailed instructions pertaining to this condition are provided in Appendix K.

Private/Neutral Demand Situation: Verbal Conditioning Task. The instructions were identical to those provided in the public/neutral demand situation. However, the subject was led to believe that the experimenter was not interested in being able to identify the subject's data. The condition was also defined as private because the experimenter was not present during completion of the task. The subject was reminded that the session would be audiotaped and transcribed by assistants who were blind to the subject's identity. After remaining with the subject for the first two trials, the experimenter left the room. The subject was reminded that once the computer had signaled that the task was finished, he or she was to inform the experimenter, who would be sitting in a nearby waiting room. Complete instructions for this situation are provided in Appendix K.

Private/High Demand Situation: Letter Cancellation Task. In this condition, the procedure followed was identical to the procedure for the private/neutral demand situation, with the exception that the experimenter provided the subject with additional instructions regarding the expected level of performance. These additional instructions were identical to those provided in the public/high demand situation. Complete instructions for this condition are provided in Appendix K.

Private/High Demand Situation: Angle Matching Task. The procedure followed in this condition was identical to the procedure for the private/neutral demand situation, with the exception that the experimenter provided the subject with additional information regarding the expected standard of performance. These additional instructions were identical to those provided in the public/high demand situation. Complete instructions for this task are provided in Appendix K.

Private/High Demand Situation: Verbal Conditioning Task. The procedure followed was identical to the procedure for the private/neutral demand situation, with the exception that the experimenter provided the subject with additional information regarding the expected standard of performance. These additional instructions were identical to those provided in the public/high demand situation. More detailed instructions are provided in Appendix K.

Check on Manipulation of Public-Private Verbal Conditioning Task

In the Verbal Conditioning Task, subjects were instructed to generate complete sentences before depressing a key corresponding to the pronoun they had chosen. An audiotaping procedure was undertaken to determine their compliance with these instructions. In public situations, although audiotaping was carried out, the experimenter was also present to check on the subject's compliance with

instructions. For the tapes from the private condition, the principal investigator and two assistants transcribed at least one audiotape for each of 72 subjects that recorded the sentences they had generated in a private situation. A second assistant transcribed 24 randomly selected tapes from 20 subjects. With the exception of one histrionic subject and one compulsive subject, all subjects complied with the instructions and generated 120 sentences that contained more than a verb and a pronoun.

In calculating agreement between transcribers for the 24 audiotapes that were transcribed twice, there was considered to be agreement between the two transcribers if the same verb and pronoun were recorded for each subject. Reliability for each transcription was calculated as agreements on these two words divided by agreements plus disagreements. The mean reliability for the transcribed tapes was .95.

CHAPTER III

RESULTS

Multivariate Analysis of Variance

The initial analysis performed was a multivariate analysis of variance (MANOVA; Kshirsagar, 1972) using SAS statistical software. In addition to testing the significance of each main effect and interaction, this analysis also assessed the relative contributions (i.e., weightings) of the dependent measures to each of the multivariate effects.

A 3 (Group) X 4 (Order) X 2 (Demand Situation) X 2 (Audience Situation) multivariate analysis of variance was performed on the following four dependent variables: letter cancellation score, percent angle accuracy score, mean angle confidence rating, and verbal gain score. The multivariate analysis of the weighted combination of dependent measures (Table 3) revealed a significant main effect for audience situation, $F(4,206) = 10.61$, $p = .0001$, a significant main effect for demand situation, $F(4,206) = 10.66$, $p = .0001$, and a significant main effect for order of situations, $F(12,174.91) = 3.92$, $p = .0001$. The Wilks' lambdas for the previously mentioned effects were .829, .829, and .532, respectively. The MANOVA also yielded a significant Order X Demand interaction, Wilks' lambda =.802, $F(12,545.32) = 3.95$, $p = .0001$; and a significant Order X Audience X Demand

interaction, Wilks' lambda = .873, $F(12,545.32) = 2.40$, $p = .005$.

Within the significant effect for audience situation, the dependent variables were weighted in the following decreasing order of magnitude: mean angle confidence rating, letter cancellation score, percent angle accuracy score, and verbal gain score. Within the significant effect for demand situation, the variables were weighted in the following decreasing order of magnitude: mean angle confidence rating, letter cancellation score, verbal gain score, and percent angle accuracy score. The ranking of variables for this effect and the other significant MANOVA effects are listed in Table 4. A Newman-Keuls procedure was used to test the significance of post-hoc comparisons arising from the multivariate analysis.

The canonical means (CMs) for the audience effect revealed that the private situations (CM = .638) elicited significantly higher levels of responding than the public situations (CM =.587). The CM in the high-demand situation (CM = -.101) was significantly greater than the CM in the neutral situation (CM = -.141). When the significant main effect for order was examined using post hoc tests (Table 5), subjects who received Order 2 (CM = .230) or Order 4 (CM = .193) produced significantly higher CMs than those who received Order 1 (CM =.115) or Order 3 (CM = .128). Orders 2 and 4 did not differ significantly from each other.

Similarly, there was no difference between Orders 1 or 3. The post hoc comparisons of the CMs comprising the Order X Demand interaction revealed that, under neutral conditions, subjects who received Order 4 obtained a higher CM (-.077) than subjects who received Order 1 (CM = -.201) or Order 3 (CM = -.152). Also, subjects who received Order 2 (CM =-.087) scored higher than subjects who received Orders 1 or 3. Orders 2 and 4 were equally powerful under neutral situations, but Order 3 was more powerful than Order 1. When the effect of order was examined under the high-demand situations (Table 6) only Order 2 (CM = -.095) was significantly different from Order 4 (CM = -.134). Subjects who received Order 1 achieved a higher CM in the high demand situations (CM = -.117) than the neutral ones (CM = -.201). There was no difference between the performance of subjects who received Order 2 in the neutral and in the high demand situations. Subjects who received Order 3 did better in the high (CM = -.114) than in the neutral demand (CM = -.152) situations, whereas subjects who received Order 4 achieved a greater CM in the neutral (CM = .-077) than in the high demand (CM = -.134) situations (Table 7).

Post hoc tests were also performed comparing the CMs in the Order X Audience X Demand interaction. Subjects who received Order 4 (CM = -.421) obtained a higher CM than those who received Order 1 (CM= -.551) in the public/neutral situation. Likewise, subjects who received

Orders 3 (CM = -.427) and 2 (CM = -.458) performed better than subjects who received Order 1 in the public/neutral situation. There were no other significant order effects in the public/neutral situation. In the private/neutral situation, the effect of order was much more profound. Subjects who received either Order 4 (CM = -.430), Order 2 (CM = -.488), or Order 3 (CM = .-.514) respectively, performed significantly better than those who received Order 1 (CM = -.572) when all were tested in the private/neutral situation. Order 4 was also more effective than Orders 2 or 3, while Orders 2 and 3 were equally effective. When subjects were tested in the public/high situation, those who received either Order 3 (CM = -.430) or Order 4 (CM = -.404) achieved significantly higher CMs than subjects who received either Order 2 (CM = -.497) or Order 1 (CM = -.479). The CMs of Orders 3 and 4 did not differ significantly. Likewise, the CMs of Orders 1 and 2 in the public/high situation did not differ. When tested in the private/high situation, subjects who received Orders 3 (CM = -.421) and 2 (CM = -.460) obtained higher CMs than subjects who received Order 4 (CM = -.523). Subjects who received Order 3 also achieved a higher CM than subjects who received Order 1 (CM = -.485). No other comparisons for the effect of order in the private/high situation were significant (Table 8).

Subjects who received Order 1 obtained a higher CM in the public/high (CM = -.479) than in the public/neutral (CM

= -.551) situation. Subjects who received Orders 2, 3, and 4 did not differ in their performance when tested in public/neutral and public/high situations. The CM of subjects who received Order 1 in the private/high situation (CM = -.485) was greater than their CM in the private/neutral (CM = -.572) situation. The performance of subjects who received Order 3 was also superior in the private/high situation (CM = -.421) relative to their performance in the private/neutral situation (CM = -.514). In contrast, subjects who received Order 4 obtained a higher CM in the private/neutral (CM = -.430) than in the private/high (CM = -.523) situation. Subjects who received Order 2 did not differ in their performance across the private/neutral and private/high situations (Table 9).

Only subjects who received Order 3 obtained a greater CM when tested in the public/neutral (CM = -.427) than in the private/neutral situation (CM = -.514). Subjects tested under Orders 1, 2, and 4, respectively, did not differ in their performance across these two situations. Subjects who received Order 4 achieved a greater CM when tested in the public/high situation (CM = -.404) than when tested in the private/high situation (CM = -.523). The performance of subjects who received Orders 1, 2, and 3, respectively, did not differ across the public/high and private/high situations (Table 10).

Relationship Among The Dependent Measures

To determine the nature of the relationships among the dependent variables, a correlational analysis was performed on the four dependent measures. The correlational analyses (Table 11) showed that every variable was significantly correlated with every other variable, with the exception of the verbal gain measure and the letter cancellation task measure. It should be emphasized that while all but one of the correlations were significant, the actual correlations were quite low (none greater than .20). For this reason, it was considered appropriate to give interpretative weight to the univariate analyses which were performed on the four dependent measures as well as the overall multivariate analysis performed on these measures. A summary of significant effects for the MANOVA and ANOVAs is provided in Table 12.

Univariate Analyses of Variance

Because of the exploratory nature of the present research, the relatively small sample size, and problems of power, an alpha level of .10 was chosen for determining the significance of an effect. At the same time, it is recognized that by using this value the risk of a Type I error is 1 in 10. This value was employed for all four univariate analyses.

Percent angle accuracy. An analysis of variance performed on percent accuracy scores from the Angle Matching

Task (Table 13) revealed a significant Group X Audience interaction, $F(2,209) = 3.59$, $p = .029$, and a significant Group X Demand X Order interaction, $F(6,209) = 1.95$, $p = .074$.

Newman-Keuls post hoc comparisons (Table 14 and Figure 1) revealed that controls were significantly more accurate ($M = 58.661$) than the histrionics ($M = 51.429$) in public situations, but that histrionics and compulsives ($M = 54.904$) were equally accurate in these same situations. Similarly, compulsives and controls were equally accurate when performing the task in public situations. None of the groups differed from each other in the private situations. Relative to the histrionics and compulsives, control subjects were more sensitive to the presence versus absence of the experimenter. Specifically, control subjects were significantly more accurate in public situations ($M= 58.661$) than in private ones ($M = 53.929$). Neither the histrionic group nor the compulsive group showed changes in their accuracy scores when their own behavior was compared across public and private situations (Table 15 and Figure 1).

Post hoc comparisons of the means in the Group X Demand X Order interaction revealed that compulsive subjects who received Order 1 ($M = 57.083$) were significantly more accurate than histrionic subjects who received Order 1 ($M = 47.143$), but only in neutral situations. There were no other significant differences among groups of subjects who

received Order 1 when tested in neutral situations. When comparisons were made among histrionic, control, and compulsive subjects who received Orders 2, 3, or 4, there were found to be no differences in their accuracy in neutral situations. Under high demand conditions, only the control subjects who received Order 4 were significantly more accurate (M = 61.071) than compulsive subjects (M = 51.667) who received the same order (Table 16 and Figure 2).

When comparisons in neutral demand situations were made among compulsives, it was found that those who received Order 4 (M = 59.167) were significantly more accurate than those who received Order 3 (M = 49.643). However, histrionics who received Order 2 (M = 55.357) were significantly more accurate than those who received Order 1 (M = 47.143). While order of presentation did not produce differences in accuracy among controls tested in neutral situations, this was not the case when controls were tested in high demand conditions. Those controls who received Order 4 (M = 61.071) were significantly more accurate than those who received Order 1 (M = 51.071; Table 17 and Figure 2). Finally, histrionics in Order 1 were more accurate in high (M = 56.786) than in neutral demand (M = 47.143) situations, but neither the compulsives nor control subjects showed any differences in accuracy between neutral and high demand situations, for any order of presentation (Table 18 and Figure 2).

Angle confidence ratings. An analysis of variance conducted on the mean angle confidence ratings generated from the Angle Matching Task (Table 19) revealed a significant main effect for audience, $F(1,209) = 21.28$, $p = .0001$, with subjects giving higher confidence ratings in the private ($M = 6.633$) than in the public ($M = 6.355$) situations (Figure 3). The main effect for demand was also significant, $F(1,209) = 2.76$, $p = .098$, with confidence ratings being higher in neutral demand situations ($M = 6.545$) than in high demand situations ($M = 6.443$).

The ANOVA also revealed a significant Order X Audience X Demand interaction, $F(2,209) = 4.92$, $p = .0025$). Post hoc analysis of the means comprising the Order X Audience X Demand interaction (Table 20 and Figure 4) showed that in the public/neutral situation, subjects who received Orders 1 ($M = 6.745$) and 2 ($M = 6.788$) were significantly more confident than subjects who received either Orders 3 ($M = 5.774$) or 4 ($M = 6.188$). Orders 1 and 2 did not differ, but subjects who received Order 4 were more confident than those who received Order 3. In the private/neutral situation, subjects who received Orders 1 ($M = 6.973$) or 2 ($M = 7.068$) were significantly more confident in their ratings than subjects who had received either Order 3 ($M = 6.452$) or Order 4 ($M = 6.380$). In this situation, there was no difference between the mean confidence ratings of subjects who received Orders 1 or 2. Likewise, there was no

difference in the confidence ratings of subjects who received Order 3 and those who received Order 4. In the public/high demand situation, the mean confidence rating of subjects who received Order 2 ($\underline{M}$ = 6.888) was significantly higher than that of subjects who received Order 1 ($\underline{M}$ = 6.528), Order 4 ($\underline{M}$ = 5.980), or Order 3 ($\underline{M}$ = 5.952). Similarly, the mean confidence ratings of subjects who received Order 1 was significantly higher than that of subjects received either Order 3 or Order 4, but Orders 3 and 4 did not differ from each other. Subjects who received Order 2 ($\underline{M}$ = 6.960), Order 1 ($\underline{M}$ = 6.705), or Order 4 ($\underline{M}$ = 6.703) were all significantly more confident than those who received Order 3 ($\underline{M}$ = 5.803) when all were tested in the private/high situation. Subjects who received Order 2 gave ratings that were equally confident to those who received either Order 1 or Order 4. Likewise, there was no difference in the confidence ratings of participants who received Order 3 or Order 4 (Table 20 and Figure 4).

Post hoc tests also revealed that subjects who received Orders 1, 2, 3, or 4 gave confidence ratings in the public/neutral situation that did not differ from those they gave in the public/high situation. Subjects who received Order 3 were significantly more confident in the private/neutral situation ($\underline{M}$ = 6.452) than they were in the private/high situation ($\underline{M}$ = 5.803; Table 21 and Figure 4). It was found that subjects who received Order 3 were more

confident in the private/neutral situation (M = 6.452) than in the public/neutral situation (M = 5.774). Differences between these two situations were not found with respect to the remaining three orders. Only subjects who received Order 4 showed a significant difference in confidence ratings across public/high and private/high situations, with confidence ratings being higher in the private/high (M = 6.703) than in the public/high (M = 5.980) situation (Table 22 and Figure 4).

Verbal gain scores. A univariate analysis of variance was performed on the initial baseline scores from the Verbal Conditioning Task in order to evaluate the possibility of initial baseline differences between groups. The main effect for group was not significant, F(2,69) = .04, p =.96, with histrionic subjects generating a mean of 6.313 correct sentences, in comparison to the means of 6.077 and 6.000 for the compulsive and control groups, respectively. None of the other main effects or interactions from this baseline analysis were significant (Table 23).

An analysis of variance was then conducted on verbal gain scores from the Verbal Conditioning Task (Table 24). Significant main effects for demand, F(1,209) = 6.32, p =.013 and for order, F(3,69) = 7.67, p = .0002, were found. The analysis also revealed significant Order X Audience, F(3,209) = 3.13, p = .027, Demand X Order, F(3,69) = 14.20,

p = .0001, and Demand X Audience X Order, $F(3,209)$ = 4.85, p = .0028 interactions, respectively.

Regardless of group, order, or audience situation, subjects obtained higher verbal gain scores in the high demand (M = 15.742) than in the neutral demand situations (M = 12.163). Post hoc tests demonstrated that regardless of group membership, demand situation, or audience situation, subjects who received Orders 4 (M = 17.200) or 2 (M = 22.905) obtained higher verbal gain scores than subjects who received either Order 1 (M = 6.850) or Order 3 (M = 8.631). Orders 1 and 3 were equivalent with respect to verbal gain score performance, as were Orders 2 and 4 (Table 25 and Figure 6).

Post hoc analyses of the means comprising the Order X Audience interaction showed that in public situations, subjects who received Orders 2 (M = 20.071) or 4 (M = 19.625) were significantly more successful on the verbal conditioning task than subjects who received either Order 1 (M = 6.125) or Order 3 (M = 10.690). In the private situations, subjects who received Order 2 (M = 25.738) obtained higher verbal gain scores than subjects who received any of the other orders (Order 4, M = 14.775; Order 1, M = 7.575; Order 3, M = 6.571). Order 4 verbal gain scores were also higher than those for Orders 1 and 3 in these same situations, whereas Orders 1 and 3 did not differ (Table 26 and Figure 7). There was no change in the

verbal gain scores of subjects who received Order 1, 2, 3, or 4 when their own performance was compared under public and private conditions (Table 27 and Figure 7).

Post hoc tests performed on the interaction between demand and order showed that subjects who received Orders 2 ($\underline{M}$ = 23.166) and 4 ($\underline{M}$ = 21.550) obtained higher verbal gain scores than subjects who received Order 1 ($\underline{M}$ = -1.050) or Order 3 ($\underline{M}$ = 4.977) in the neutral demand situations. Subjects who received Order 3 were also more successful on this task than subjects who received Order 1. In high demand situations, subjects who received Order 2 ($\underline{M}$ = 22.643) obtained higher verbal gain scores than subjects who received Orders 1 ($\underline{M}$ = 14.750), 4 ($\underline{M}$ = 12.850), or 3 ($\underline{M}$ = 12.463) (Table 28 and Figure 8).

The mean verbal gain score of subjects who received Order 1 was higher in the high demand situations ($\underline{M}$ = 14.750) than in the neutral demand situations ($\underline{M}$ = -1.050) for these same subjects. Similarly, the mean verbal gain score for subjects who received Order 3 was significantly higher in the high demand situations ($\underline{M}$ = 12.463) than in the neutral demand situations ($\underline{M}$ = 4.977). In contrast, subjects who received Order 4 achieved a significantly higher verbal gain score for the neutral demand situations ($\underline{M}$ = 21.550) than for the high demand situations ($\underline{M}$ = 12.850; Table 29 and Figure 8).

Post hoc tests conducted on the Audience X Demand X Order interaction revealed that subjects who received Orders 2 (M = 23.524) or 4 (M = 20.300) achieved higher gain scores than subjects who received either Order 1 (M = -1.050) or Order 3 (M = 9.190) in the public/neutral demand situation. Also, Order 3 gain scores were significantly higher than those of Order 1 in this situation. A similar pattern of results emerged when the effect of order was examined for the private/neutral situation. Scores of subjects who received Orders 2 (M =22.810) or 4 (M = 22.800) were higher than those of either Order 1 (M = -1.050) or Order 3 (M = .955). When subjects performed the verbal conditioning task in the public/high demand situation, only subjects who received Order 4 (M = 18.950) were more successful than those who received Order 3 (M = 12.190). In the private/high demand situation, subjects who received Order 2 (M =28.667) obtained a higher mean verbal gain score than subjects tested under Order 4 (M = 6.750) or Order 3 (M = 12.750) Subjects who received Order 1 (M = 16.200) were also more successful on the Verbal Conditioning Task than subjects who received Order 4 when all performed the task in the private/high situation (Table 30 and Figure 9).

Post hoc tests further revealed that subjects who received Order 1 obtained higher verbal gain scores in the public/high demand situation (M = 13.300) than in the public/neutral demand (M = -1.050) situation. Subjects who

received Orders 1 or 3 achieved higher verbal gain scores in the private/high demand situation (M = 16.200, M = 12.750) than in the private/neutral demand situation (M = -1.050, M = .955). In contrast, subjects who received Order 4 were more successful on the verbal conditioning task when they performed it in the private/neutral situation (M = 22.800) than when they performed it in the private/high situation (M = 6.750; Table 31 and Figure 9).

Subjects who received Order 3 achieved higher verbal gain scores in the public/neutral demand situation (M = 9.190) than in the private/neutral demand situation (M = .955). When tested in the private/high demand situation, the mean verbal gain scores of subjects who received Order 2 (M = 28.667) was superior to the mean verbal gain score of these same subjects when they were tested in the public/high demand situation (M = 16.619). Finally, the mean verbal gain score of subjects who received Order 4 was higher when tested in the public/high demand situation (M = 18.950) than their own verbal gain score when tested in the private/high demand situation (M = 6.750; Table 32 and Figure 9).

Letter cancellation score. A univariate analysis of variance conducted on scores representing time (in seconds) spent on the Letter Cancellation Task revealed significant main effects for audience, $F(1,209) = 25.50$, $p = .0001$, demand, $F(1,209) = 34.00$, $p = .0001$, and order, $F(3,69) = 3.51$, $p = .019$ (Table 33).

Irrespective of group, order, or demand situation in which they were tested, subjects generally persisted longer on the Letter Cancellation Task in private situations ($\underline{M}$ = 1195.354) than in public ones ($\underline{M}$ = 1015.098; Figure 10). Irrespective of group, order, or the type of audience situation, subjects generally persisted longer on the letter cancellation task in high demand situations ($\underline{M}$ = 1215.006) than in neutral ones ($\underline{M}$ = 996.665; Figure 11).

Post hoc tests showed that subjects who received Orders 2 or 4 ($\underline{M}$ = 1297.262, $\underline{M}$ = 1269.468) obtained higher scores than subjects who received Order 1 ($\underline{M}$ = 847.213). There were no overall differences in the performances of subjects who received Orders 2 or 4, nor were there any differences in the the amount of time spent on the letter cancellation task by subjects who received Order 1 or Order 3 (Table 34 and Figure 12).

Correlational Analyses

In addition to the ANOVA procedures discussed above, three sets of correlational procedures were also performed. According to Millon's personality theory (1969, 1981), normality and pathology are relative concepts and can be considered as arbitrary points along a continuum. With regard to the MCMI, the higher the score elevation, the greater the probable intensity or severity of the trait or syndrome tapped by the scale. Hence, by extrapolation, it is assumed that the greater the MCMI scale score, the more

likely is the individual to display pathological traits. Because this study used an analogue population rather than a clinical population, it might be argued that the base rate scores of a clinical population would be generally higher than those of the subjects in this study. Correlational analyses were considered useful adjunct procedures to the previously reported ANOVA results since it has been proposed that valuable information is lost when a continuous measure is categorized in order to create an independent variable for the ANOVA procedure (Skinner, 1984).

As was the case for the ANOVA procedures, it was predicted that if personality disorders do show situation-specificity, they would do so in a specific manner: i.e., histrionic individuals would respond discriminatively to public and private situations, irrespective of the types of demands that were operating, while compulsive individuals would respond discriminatively to the neutral and high demand situations, irrespective of the presence or absence of an audience (experimenter). To test these predictions, eight new variables were created: LETCANH, computed by subtracting the sum of the letter cancellation scores in the two private situations from that in the two public situations; ANGACCH, computed by subtracting the sum of percent angle accuracy scores for the two private situations from that in the two public situations; ANGCONH, the sum of mean angle confidence ratings in the two public conditions

minus that in the two private conditions; VGAINH, computed by subtracting the sum of verbal gain scores in the two private situations from that in the two public situations; and LETCANC, ANGACCC, ANGCONC, and VGAINC were computed in a similar manner by subtracting the sum of scores in the two neutral demand situations from the sum of scores in the two high demand situations.

In the correlational analyses, the sign (i.e., positive or negative) of each difference score was retained so as to be consistent with the hypotheses, which were also directional. It should be noted that alpha was set at .05 for the correlational analyses, rather than the .10 level previously used for the univariate analyses, because of the large number of correlations which were computed.

In this set of Pearson's product-moment correlational analyses, the Scale 4 (histrionic) and Scale 7 (compulsive) scores of subjects were both correlated separately with the four variables reflecting the audience effect and the four variables reflecting the demand effect. When the scores of all 82 subjects were included in the analyses, no significant correlations were detected. However, when the 82 subjects were sorted by group, as in the ANOVA procedures, there was a significant correlation within the compulsive group between Scale 7 (compulsive) scores and the LETCANC variable, which reflected discriminative responding on the letter cancellation task based on the high demand-

neutral demand distinction ($r = .403$, $p = .04$). Although this correlation was in the predicted direction, it represents the only significant correlation out of the sixteen, and should be interpreted with skepticism (Table 35).

When the data of the 82 subjects were sorted by order of presentation of situations (Table 36), the Scale 4 (histrionic) scores of subjects who received Order 1 were negatively correlated with ANGACCH scores ($r = -.535$, $p = .015$), suggesting that the higher the Scale 4 scores of these subjects, the smaller the difference scores (and hence the more consistent were their angle accuracy scores) across public and private situations. In contrast, for subjects who received Order 1, Scale 7 (compulsive) scores were positively correlated with ANGACCH ($r = .505$, $p = .023$), suggesting that high Scale 7 scores were associated with discriminative responding across public and private situations. An opposite pattern of results was found for the relationship between Scale 4 and Scale 7 scores, respectively, and the ANGACCC variable. In this case, high Scale 4 scores for subjects who received Order 1 were associated with discriminative responding across the high demand and neutral demand situations ($r = .467$, $p = .038$), whereas high Scale 7 scores for subjects who received Order 1 were associated with relatively consistent responding across the high demand and neutral demand situations ($r =$-

.476, p = .034). Again, it should be noted that these four significant correlations emerged from a matrix of 64 correlations, notwithstanding the fact that each of the significant correlations occurred for subjects who received Order 1.

A second set of correlational analyses were performed in which the Scale 4 scores of the combined histrionic and control groups were correlated with each of the eight variables described above. Likewise, the Scale 7 scores of the combined compulsive and control groups were correlated with each of the eight variables. While it was hypothesized that correlational analyses between each of these dependent variables and the continuous MCMI scores would be more sensitive than correlations based on a categorical independent variable (e.g., histrionic subjects as determined by cut-off scores), it was decided to exclude the other personality analogue group to avoid possible confounding effects. For instance, excluding the compulsive group from correlations between Scale 4 scores and the LETCANH variable eliminated the possibility that the high Scale 7 scores of these subjects interacted with the relatively lower Scale 4 scores of these same subjects in such a way to obscure any possible relationship that may have existed between LETCANH and the independent variable of interest, namely, Scale 4.

No significant correlations were obtained when the Scale 4 scores of the histrionic and control groups were correlated with each of the eight variables. Similarly, correlations between the Scale 7 scores of the compulsive and control subjects and each of the eight dependent variables failed to attain significance.

The data were also sorted by order of presentation of situations in the same manner as carried out for the first set of analyses. Scale 4 scores of histrionics and controls who received Order 1 were positively correlated with VGAINH ($r = .681$, $p = .007$), indicating that high histrionic scores were predictive of discriminative responding in the verbal conditioning task across the public and private situations. In contrast, Scale 4 scores of subjects who received Order 4 were positively correlated with LETCANC ($r = .570$, $p = .042$), and hence, with discriminative responding across the high and neutral demand situations (Table 37). Regardless of order of presentation, there were no significant correlations between the Scale 7 scores (of compulsives and controls) and any of the eight dependent variables (Table 38). Again, it should be noted that the two significant correlations emerged from a matrix of 64 total correlational analyses and, thus, are very likely to be significant by chance alone.

In summary, it appears that there is little evidence to suggest that higher Scale 4 scores (implying greater

severity or intensity of the characteristics) are associated with discriminative responding across public and private situations, nor that higher Scale 7 scores (also implying greater severity or intensity of the associated characteristics) are associated with discriminative responding across high demand and neutral demand situations. Nor is there any evidence to suggest that higher Scale 4 scores or higher Scale 7 scores are associated with consistent responding across the public versus private or neutral versus high demand situations, respectively.

To further examine the relationship between Scale 4 and Scale 7 scores and relative consistency or inconsistency across situations, another set of correlational analyses were performed which also provided information at the idiographic level of analysis. First, z-scores were calculated for each subject representing their performance in a particular experimental situation with regard to one of the four dependent variables. For instance, z-scores were calculated for the 82 subjects representing their letter cancellation score in the public/neutral demand situation. Separate sets of z-scores were also calculated for subjects representing their transformed letter cancellation scores in the public/high, private/neutral, and private/high situations. Each subject, therefore, had four z-scores representing transformed letter cancellation scores for the four situations. Following this procedure, a mean and

standard deviation score was calculated for each subject based on the four z-scores. The standard deviation score represented the average deviation from the mean, and was, therefore, considered to be a measure of relative consistency across the four situations for that subject. A high standard deviation score signified relatively greater variability across the four situations, whereas a low standard deviation signified relative consistency across situations for that particular subject. This sequence of steps was repeated for the other three dependent variables. The resultant four sets of variables representing standard deviation scores were identified as SDLETCAN, SDANGACC, SDANGCON, and SDVGAIN, respectively.

A series of Pearson product-moment correlations was then performed between Scale 4 (histrionic) scores and each of the four newly derived variables, and between Scale 7 (compulsive) scores and each of these variables. There were no significant correlations between the scale scores and any of the variables when all 82 subjects were included in the analyses. Similarly, when subjects were sorted by group membership (i.e., histrionic, compulsive, or control), there were no significant correlations detected between scale scores and any of the variables. Only when subjects were sorted by order did Scale 4 scores of subjects who received Order 1 were positively correlate with SDANGCON ($r = .457$, $p = .043$), suggesting that high histrionic scores were

predictive of inconsistency or discriminative responding across the four situations with respect to angle confidence ratings. Again, these results suggest that in the present study there is little evidence of a relationship between the magnitude of Scale 4 or Scale 7 scores and consistency or inconsistency across the four experimental situations (Table 39).

In order to further evaluate potential differences across personality disorder groups in patterns of consistency versus inconsistency, the data of subjects were sorted into two categories within each group. One category consisted of 'inconsistent' responders, arbitrarily defined as those with standard deviation scores above .5. The other category, classified as 'consistent' responders, was composed of all subjects whose standard deviation scores were .5 or below. A breakdown of the number of consistent and inconsistent responders in each of the personality disorder groups and for each of the variables (SDLETCAN, SDANGACC, SDANGCON, and SDVGAIN) is included in Table 40.

Separate chi-square tests for the four variables were conducted to evaluate the relationship between personality group and the consistency categorization. None of the chi-chi-square tests reached statistical significance, SDLETCAN, $X^2 = 2.40$, $p > .10$; SDANGACC, $X^2 = 1.46$, $p > .10$; SDANGCON, $X^2 = 1.26$, $p > .10$; SDVGAIN, $X^2 = 1.23$, $p > .10$. This indicates the absence of significant differences across

groups in the number of subjects classified as consistent or inconsistent responders.

Post-Experiment Questionnaire Results

To further assess the situation by personality type interaction, subjects were asked to answer two questions at the conclusion of the study using a 7-point Likert-type scale. The first question was phrased as follows:" How important was it to you that the experimenter think positively of your performance in this experiment?" The second question asked:" How important was it for you to do well in this experiment?"

The prediction that histrionics would give significantly higher ratings in response to this question was not supported; ratings were not significantly different among the three groups, $F(2,78) = .20$, $p = .816$, with the histrionic, compulsive, and control groups generating mean ratings of 4.553, 4.712, and 4.444, respectively (Table 41). As predicted, there was a significant group effect for the univariate analysis performed on the ratings derived from Question 2, $F(2,78) = 5.95$, $p = .004$ (Table 42). Scheffe's post hoc tests showed that compulsives produced higher ratings ($M = 5.25$) than did histrionics ($M = 3.91$) in response to this question. However, compulsives did not differ in their ratings from control subjects ($M = 4.593$), so that this prediction was not entirely supported.

CHAPTER IV

DISCUSSION

The primary purpose of this study was to evaluate the degree of consistency across specific situations in the behavior of persons classified as histrionic or compulsive personality disorder analogues. A broad overview of the major findings of this investigation is presented first. Later sections focus on the specific findings and their implications. Limitations of this project, directions for future research, and lessons to be learned are also discussed.

Broad Overview and Implications

In the present investigation, the behavior of histrionic and compulsive subjects, who were analogue to personality disordered individuals, and the behavior of control subjects were assessed using four response measures collected in each of four situations. Different predictions regarding the degree to which subjects would be expected to respond differentially to the four experimental situations arise from three distinct theoretical perspectives regarding the causes of human behavior: personologism, situationism, and interactionism. Each of these models encompasses normal as well as abnormal behavior. Moreover, it should be added that each of these models can best be conceived of as

falling along a person-situation continuum, with different emphases given to the importance of personological or situational factors in determining behavior. None of these models, as they are currently understood, espouses an absolute or all-or-none position.

In essence, proponents of a trait model would assert that the behavior of subjects classified as histrionic or compulsive should be relatively consistent from one situation to the next, with an emphasis that subject (group) differences within situations should emerge. A situationist model would predict that there should not be significant differences between the histrionic, compulsive, and control groups in their behavioral reactions within situations; rather, all subjects' behavior should show variation from one situation to another.

With regard to the present study, interactionism would predict that significant interactions would be detected between personality types and situations when the behavior of histrionics, compulsives, and controls was assessed on tasks in four separate situations. Specifically, it was predicted that histrionics would respond inconsistently across situations in which an audience was present versus those without an audience, while compulsives would respond discriminatively across situations which included high demand instructions versus situations which included neutral instructions. In addition, it was predicted that control

subjects would show greater discriminative responding across all situations than either histrionics or compulsives.

Taken together, the results of the present study appear to be most consonant with the predictions from a situationist model. The results of the multivariate analysis showed that the situational factors, type of audience and type of demand, both independently and in an interactive manner with order (the significance of which is addressed below), were most important in determining subjects' performance on the four task measures when considered as a composite (Table 12). In contrast, the multivariate analysis revealed no significant overall differences in performance on the four tasks among personality types. Similarly, when the dependent measures were considered as a composite, there was no interaction between the type of personality disorder and the type of situation.

Another finding which appears to support the situationist position was that three out of four of the univariate analyses yielded significant effects for situational factors (Table 12). In the Letter Cancellation Task, all subjects persisted longer in the private situations than in the public situations. Similarly, all subjects were more confident in the correctness of their choice of angle when the experimenter was absent than when he or she was present. There was also weaker evidence

suggesting that, regardless of personality type and type of audience, subjects gave higher confidence ratings in neutral than in high demand situations. The primacy of situational factors as determinants of confidence ratings was also supported by the Audience X Demand X Order interaction (Figure 4). Subjects' verbal gain scores were higher with high demand than neutral instructions, irrespective of the type of audience that was present or the subject's personality type. The analysis also revealed that demand and audience interacted with the order of presentation of situations in determining subjects' verbal gain scores (Figure 9).

While the pattern of results obtained in the present study appeared to be most compatible with the predictions of situationism, the significant interaction between personality type and audience (Figure 1) for measures of angle accuracy provide weak support for an interactionist interpretation of the data. While it was predicted that histrionics would respond more inconsistently than compulsives in both public and private situations, this prediction was not supported. However, the results did support the prediction that controls would respond more discriminatively across situations than either compulsives or histrionics. There was also an interaction between personality types, types of demand, and the order of presentation of situations (Figure 2). Again, the

interaction effect was not in the direction expected: histrionics rather than compulsives were more inconsistent in responding across neutral and high demand situations. Contrary to prediction, controls showed more consistent responding than histrionics across neutral demand and high demand situations.

Some of the correlations that were performed (e.g., Scale 7 (compulsive) scores of compulsives with LETCANC) appeared to be consistent with an interactionist model of human behavior; however, it is possible that these correlations were significant merely by chance given the large number of correlations that were performed (Tables 35 - 38).

The pattern of results obtained in the present study was least consonant with a trait position which emphasizes the importance of personological variables in predicting behavior. Neither the MANOVA results nor the results of any of the univariate analyses support the personologist view of relative consistency in behavior across situations (Table 12). Only two of many correlations performed suggested that the personality traits of interest in the present study were predictive of consistency in responding across certain situations. On the one hand, Scale 4 scores of subjects in the three groups who received Order 1 were found to be associated with, or predictive of, relatively consistent angle accuracy scores across public and private

situations. On the other hand, Scale 7 scores of histrionic, compulsive, and control subjects who received Order 1 were found to be predictive of relatively consistent angle accuracy scores across high demand and neutral demand situations.

Specific Predictions, Findings, Speculations

Personality types. As noted above, only the univariate analyses performed on the percent angle accuracy scores yielded interactions between personality type and situational factors. Contrary to the prediction that histrionics would be more sensitive than compulsives to the presence versus absence of an audience, the Personality Types X Audience interaction (Figure 1) revealed that histrionics and compulsives were as accurate in public as they were in private situations. In contrast, control subjects were significantly more accurate in public than in private situations. Hence, with regard to the measure of accuracy, control subjects showed greater discriminative responding across public and private situations than either compulsives or histrionics. The greater variability of controls, relative to the personality disorder analogues, across public and private situations is similar to the finding by two groups of researchers (Jones, Reid & Patterson,1975; Mash & Mercer, 1979) that the behavior of deviant children was more consistent across different situations than that of nondeviant children. Similarly,

Adams (1981) and Mariotto and Paul (1975) have suggested that individuals who show relatively invariant behavior across situations may be more psychologically disturbed than individuals who respond discriminatively as a function of stimulus changes. The fact that controls respond differently to public and private situations is consistent with reported findings in the self-presentational literature for task performance reviewed by Baumeister (1982). This literature, discussed in more detail below, appears to indicate that concern with being evaluated by others leads people, under most circumstances, to perform as well as possible. Moreover, social facilitation enhances the performance of individuals relative to individuals who are performing alone.

For the dependent measure of angle accuracy, post hoc comparisons of the means comprising the triple interaction between demand, personality type, and order of presentation of situations also yielded results that were counter to those predicted (Figure 2). Histrionics who received Order 1, rather than compulsives who received Order 1, showed more discriminative responding with respect to angle accuracy across high and neutral demand situations. Specifically, these histrionics were more accurate in high than in neutral demand situations. In contrast, both compulsives and controls, regardless of the order they received, were consistent in their accuracy across high and neutral demand

situations. Since compulsives who received Order 1 were significantly more accurate than histrionics who received Order 1 under neutral conditions, it appears that they may have already been performing at a relatively high level which did not show much room for improvement. Hence, with respect to this type of behavior, it appears that for controls and compulsives, the presentation of explicit demands for a certain level of performance did not lead to an increase in their accuracy.

The effect of situational factors: Audience and demand. The situational factors, audience and demand, were both found to be important determinants of behavior in the present study. The question then arises as to how these factors exerted their influence.

Audience was a significant situational variable influencing subjects' mean angle confidence ratings and letter cancellation performance. Overall, subjects reported greater confidence levels in private than in public situations.

The finding that subjects are less confident in public situations is consistent with findings and theorizing in the self-presentational literature. For instance, Bradley (1978) has argued that subjects tend to present themselves cautiously and modestly if they are aware that they may be faced with a future "public" performance where failure is possible. In the present study, subjects were not only

asked to give confidence ratings, but were also asked to match angles. Hence, in public situations, the audience (the experimenter) was aware of the accuracy of their performance. Subjects were also aware that they would be performing this particular task over several sessions, although they did not know exactly how many of these sessions would be in the presence of an audience. Hence, their confidence ratings may have been lower in the public setting to avoid the "embarrassment resulting from public invalidation of a self-presentation that is too positive" (p. 66, Schlenker, 1975). A similar pattern of results emerged from the interaction between audience, demand, and order for angle confidence ratings (Figure 4). Subjects who received Order 3 were more confident in the private/neutral than in the public/neutral demand condition. Again, subjects who received Order 4 gave higher confidence ratings in the private/high than in the public/high demand situation.

The finding that subjects persisted longer in the Letter Cancellation Task when the experimenter was absent does not at first seem consistent with the self-presentational view (Baumeister, 1982), which maintains that one of the primary determinants of public behavior is to please the audience as a means of getting rewards, or to be one's ideal-self. However, the spontaneous verbal reports of some subjects at the conclusion of the experiment suggest

that subjects may have been concerned that the experimenter would become bored if they persisted too long with the task. It would seem, then, that subjects were still attempting to avoid social disapproval. In addition, it might be that subjects in the private condition stopped working on the Letter Cancellation Task before they pressed the computer key which was supposed to indicate that they had stopped the task.

The type of audience interacted with the order of presentation of situations in the Verbal Conditioning Task (Figure 7). Subjects who received Orders 2 and 4 obtained higher verbal gain scores in the public condition than those who received Orders 1 and 3. The verbal gain scores of subjects who received Order 1 in the public and private situations were the same. A similar pattern was found for Orders 2, 3, and 4 when compared across public and private situations. A reason for this consistent responding may have been that subjects were informed that their data would be audiotaped and transcribed, so the private situation may have been actually perceived as less private than the experimenter attempted to let them believe.

When the triple interaction (Figure 9) is considered, in which demand is included as a significant situation variable, the equivalence of the public and private situations is altered. Subjects who received Order 3 achieved higher verbal gain scores in the public/neutral

than in the private/neutral situation. Similarly, subjects who received Order 4 achieved higher verbal gain scores in the public/high situation than in the private/high situation. In contrast, subjects who received Order 2 achieved higher verbal gain scores in the private/high than in the public/high condition. While the effect of audience for subjects who received Order 2 was unexpected, the finding that subjects who received Orders 3 or 4 achieved higher verbal gain scores under public than under private versions of the same demand situation is consistent with predictions from self-presentation theory. However, it should be noted that the remaining five comparisons of verbal gain scores under public and private situations revealed no differences in responding. Hence, although subjects tended to respond differently in public and private situations on some occasions, there were also a number of comparisons which revealed that subjects responded consistently across these two types of situations. This observation suggests that the public-private dimension was not as distinct as originally intended. In fact, it could be argued that the "private" situation was really a semiprivate situation for at least two of the tasks. For the Angle Matching Task, the experimenter remained in the room as subjects gave their responses for the first 10 trials. Likewise, the Verbal Conditioning Task may also be more accurately described as semiprivate since the subject

responses were audiotaped. It might also be argued that there could not be a real "private" situation in this experiment given the nature of the sample used. It is highly unlikely that subjects who agree to participate in a laboratory experiment actually believe that the outcome of their performance will remain unknown to others.

As noted earlier, demand was also a significant variable influencing subjects' behavior. Subjects persisted on the Letter Cancellation Task longer when given high than when given neutral demand instructions. Regardless of personality type, order, and audience, subjects obtained higher verbal gain scores in the high than in the neutral demand situations. In the Verbal Conditioning Task, a high demand situation was operationally defined as giving subjects specific instructions regarding the means by which to earn asterisks. Since there were no immediate aversive consequences associated with the failure to earn asterisks, it is speculated that subjects responded discriminatively to this instruction because it is the type of instruction that has been reinforced frequently in the past. In other words, most of the subjects in this study are likely to have been rewarded in the past for following instructions for an explicit level of performance, especially when given by someone who may be perceived as an authority figure (e.g. employer, professor, researcher).

When examining the way in which type of demand interacted with order for verbal gain scores (Figure 8), the results were more ambiguous. For subjects who received Orders 1 or 3, their mean verbal gain scores were significantly higher in high demand than in low demand situations. The opposite finding was true for Order 4. However, when the triple interaction between order, audience, and demand was examined, a similar pattern of results was obtained, with subjects usually performing better in high demand than in neutral demand situations.

Order. A criticism frequently invoked against the use of a repeated-measures design is that the treatment effect that is measured reflects not just the effect of the particular condition, but also the carry-over effect from participation in previous sessions (Keppel, 1973). To control for this problem, this study counterbalanced orders in a Latin-Square design. An assumption made about such procedures is that the carry-over effect is the same for each ordering of treatments. As a check on the validity of this assumption, the order of situations was also included as a factor in the statistical analyses of data pertaining to this study.

It is clear from the results of statistical analyses that the behaviors of interest in this study were differentially sensitive to the order in which situations were experienced. Although order of presentation was not

explicitly defined at the outset of this study as an environmental variable, it can be conceived as a recent cause of behavior that lies within the environment. Both MANOVA and ANOVA results revealed that order of presentation of situations was a powerful environmental variable, irrespective of personality type, types of audience, or type of demand. In general, it appears that subjects who received either Order 2 or Order 4 manifested the most consistent and the greatest overall levels of responding across situations, while subjects who received either Order 1 or Order 3 tended to produce equivalent, but generally more discriminative responding across situations. In accounting for these differences, it should be noted that subjects who received Orders 2 or 4 participated in a high demand situation as their first situation, whereas subjects who received Orders 1 or 3 were both subjected to neutral demand conditions as their first situation. On the basis of this observation, it might be argued that experiencing a high demand condition first leads to more powerful stimulus generalization and, hence, more consistent responding than first experiencing a neutral demand situation. However, there are other commonalities which exist for the four orders on the second, third, and fourth measurement occasion. To further explore the pronounced order effect, it may be helpful to perform at a future time an additional analysis by collapsing across situational variables and

using measurement occasion (i.e., Times 1, 2, 3, and 4) as the new within-subjects factor.

Questionnaire Data. As a further test of the validity of the diagnostic categories in the present study and as a check on the relevance of the various situations selected for each personality disorder, subjects were asked to rate two questions on a Likert-type scale at the conclusion of their participation in the study.

On the basis of Millon's theory which maintains that histrionics are more other-directed than self-directed, it was predicted that they would give higher ratings than compulsives or controls to a question that asked them how important it was for them to please the experimenter. In contrast, it was predicted that compulsives, who according to Millon are postulated to place high demands on themselves, would give higher ratings than controls or histrionics to a question which asked them to rate how important it was for them to do well in this experiment. While the groups did not differ in the degree to which they considered it important to please the experimenter, the compulsives rated the importance of doing well in the experiment significantly more highly than controls or histrionics. This latter finding is consistent with clinical descriptions of compulsives' self-image as being "conscientious, selfless, loyal, dependable, prudent, and responsible" (p. 226, Millon, 1981), with their strivings

for perfectionism (DSM-III, 1980; Millon, 1986) and with their excessive devotion to work (Shapiro, 1965). Regarding the former finding, one reason why there was no difference between the mean rating given by histrionics and that given by compulsives may have been that compulsives were just as motivated as histrionics to please the experimenter, but they were motivated by an effort to resolve part of the conflict they experience between hostility towards others and avoidance of social disapproval.

Both the lack of group differences as well as the rather modest ratings that were given in response to the first question suggest that while subjects were generally sensitive behaviorally to the two types of audience in the present study, all subjects, including histrionics, found it somewhat socially unacceptable to admit that pleasing the audience was a primary determinant for their behavior. This pattern of results is analogous to the social phenomenon of "ingratiation", which is defined as trying to present an attractive image of oneself while simultaneously denying that this is what one is doing (Jones & Wortman, 1973). The finding that histrionics did not report themselves as any more other-directed than compulsives or controls is somewhat surprising, but indicates that there was agreement between the self-report and motor behavior of histrionics on this occasion.

Implications for Views of Personality Disorders

The results of the present study suggest that histrionic and compulsive analogues respond differentially to laboratory situations in the same manner as normal subjects. The failure of the present study to find results that were consistent with a personologist view of personality disorders is not necessarily a disconfirmation of this position; rather, the results underscore the limited ability of the present experimental design to address the notion of the behavioral consistency of personality disorders. It appears that the generalizability of the present findings to clinical personality disorders may be impeded by two features of the design. In essence, these problems have to do with subject selection criteria and the appropriateness of the situations selected for study.

Subject selection criteria. With regard to the subject selection criteria, the extent to which the analogue subjects in this study met an important definition criteria for personality disorders is unknown. Specifically, it is unknown whether their "inflexible and maladaptive traits" (which can be measured by the MCMI) had caused either "significant impairment in social or occupational functioning or subjective distress". Subjects in this study were unlike clinical subjects who usually are identified after coming to the clinician's attention by complaining of their impairment or subjective distress. In this study, the

principal investigator had no information regarding the extent to which volunteer subjects met the two criteria. However, this criticism should be weighed against one of the reasons for deciding not to use a clinical population. The clinical literature suggests that most personality disorders who present for treatment are also given an Axis I diagnosis. Including subjects with an Axis I diagnosis in this study would have introduced a significant confound since it would be difficult to determine the extent to which the results obtained were a function of the Axis I or Axis II disorder.

Adequacy of situations. A second weakness of the experimental design concerns the adequacy of the situations selected. It might be argued that the experimental situations which the histrionic and compulsive subjects encountered did not permit their prototypical differences to be manifested. For example, in the present study, the situation intended to discriminate between histrionics and compulsives is based upon the expectation that histrionics would be more anxious to please an audience (the experimenter) than would be compulsives. It might be argued that there is little reason to expect that histrionics would be more anxious to please this audience than compulsives, especially since the experimenter is not a significant other. Furthermore, the results of the post-experiment questionnaire suggested that there was no difference between

histrionics, compulsives, and controls in their desire to please an audience. While the direction of the manipulation may be adequate (i.e., the desire to please), the magnitude of the manipulation (relationship of audience to subject) may be too weak to allow one to conclude that histrionic and compulsive personality disorders respond to such situational manipulations in different ways. Relatedly, the manipulation of demand instructions, which were hypothesized to differentiate between compulsives and histrionics, may not have been strong enough to override the compulsives' intrinsic drive to do well and which may have led to a ceiling effect being imposed by the personal characteristics.

Both of the above criticisms are related to the analogue nature of the present study. The major advantage of an analogue study, such as the present one, is that it usually addresses carefully specified research questions under well-controlled conditions. Such questions are often highly impractical to evaluate in clinical settings. However, the external validity, or the extent to which the results of analogue research can be generalized to the clinical situation is a major source of dispute. Kazdin (1978) maintains that attempts to dichotomize research as analogue or clinical are misguided since "virtually all psychological experimentation with human subjects is

analogue research insofar as it constructs a situation in which a particular phenomenon can be studied" (p. 676).

The critical question that must be asked when evaluating the generalizability of the results is the extent to which an investigation is an analogue of the situation to which one wishes to generalize. However, as noted by Kazdin (1978), it should not be assumed that increasing resemblance between a study and a clinical situation (for a given dimension) is predictive of increased generality to the clinical situation. Rather, he asserts that the importance of a particular dimension (e.g. population, assessment procedures, setting) to the generality of the results should not be subject to speculation but rather to empirical scrutiny.

Aside from the criticisms regarding experimental design, it is also possible that individuals who receive a personality disorder diagnosis do show more consistency in their behavior relative to individuals who are not given this diagnosis; however, the behavioral consistency which is observed need not be attributed to internal dispositions; rather, the consistency may be a function of the limited range of situations that such individuals characteristically experience, or to which they are arbitrarily exposed. For example, one might speculate that histrionic individuals have been heavily reinforced in the past for seductive behavior in the presence of others. They later encounter

situations which provide similar opportunities for reinforcement. In other words, they may experience a limited range of situations, which require a restricted repertoire of behaviors and which to the outside observer appears as invariant responding. Yet, one might speculate that when individuals who receive the diagnosis of personality disorders encounter distinctive situations such as those in the present study, their behavior is as flexible as nondisordered individuals, especially when opportunity to employ their usual interpersonal strategies is not as available as it is in more representative situations.

Further Limitations of the Present Study

The generalizability of results from the present study is limited by several factors beyond those listed earlier.

A limitation to the generalizability of the present results concerns the gender ratios for each of the histrionic and compulsive groups. In the present study, both of the groups were predominantly female. However, the proportion of males and females across groups was equal. According to the investigator's observations, the gender ratio for each of the groups was adequately representative of the population of introductory psychology students from which these groups were sampled. Although statistical analyses indicated that any differences obtained between groups was not confounded by differing proportions of males and females, these proportions do not accurately reflect the

proportions found in the clinical populations to which it is hoped to generalize.

In the present study, approximately 93 percent of the histrionics were female. Reports in the literature vary, but generally indicate that 70 percent or more of those who are diagnosed histrionic are female. In contrast, DSM-III states that more males than females are diagnosed as compulsives.

The generalizability of the results obtained for controls in this study to a normal population is also limited because of the disproportionate number of females in this group. It is not known to what extent their behavior would be similar to or disparate from males with respect to factors such as demand, audience, and order.

Another limitation of the present study pertained to the selection of specific situations and their corresponding response patterns. To reiterate, the public-private dimension was chosen on the basis of Millon's (1981, 1986a) personality theory which posits that histrionics are approval-seeking and directed towards others for their reinforcement. Relatedly, the neutral demand - high demand dimension was selected primarily on the basis of Millon's (1981, 1986a) theory which posits that compulsives are interpersonally respectful and conforming. It is speculated, however, that not all histrionics and compulsives are the same in responding to these particular situations.

DSM-III and DSM-III-R are based upon a combination of a polythetic and classical classification system (Nelson & Maser, 1988), although they are often misconceived as based exclusively on a classical system. In a classical system, syndromes have clearly defined boundaries and every member of the category is expected to possess all the features that define the category. Moreover, each category differs from all other categories by one or more features common to all its members.

In a prototypal system of classification, members of a prototypal category share features, but not necessarily the same features (Nelson & Maser, 1988). Millon's (1981, 1986a) theoretically derived classification system and the MCMI, which is based on this system, are also based on a prototypal model. By way of example, according to the diagnostic criteria in DSM-III-R, it is possible for two individuals who are classified as histrionic personality disorders to have completely nonoverlapping symptoms since only four out of eight positive symptoms are required for this diagnosis. Similarly, since the DSM-III-R specifies that an individual must meet five out of nine positive symptoms to be diagnosed as compulsive, it is possible that two individuals could receive this diagnosis and only share one symptom. A similar pattern can occur in using the MCMI to diagnose various personality disorders. There are 30 MCMI test items designed to assess histrionic personality

features and 42 MCMI test items designed to assess compulsive personality features. Therefore, to the extent that the MCMI items reflect the DSM-III-R criteria, it is possible that two individuals could have both met the criteria for inclusion into either the histrionic group or compulsive group, yet show very few symptoms in common.

Hence, while the public-private situational distinction was chosen on the basis of Millon's personality schema to assess discriminative responding in histrionics with respect to approval-seeking/other-directed behavior, a subset of the subjects who were diagnosed as histrionic in this study may not have manifested this symptom as one of their constellation of covarying symptoms. Hence, personologists could argue that one would not necessarily expect consistency for histrionic behavior across settings because it does not represent a "sign" of the histrionic trait for some of those individuals.

A similar pattern of results may have occurred for compulsive subjects. The behavior or symptom being measured for these individuals was most analogous to the second positive symptom listed by DSM-III-R, namely preoccupation with rules. The high demand-neutral demand distinction is also based on Millon's (1982) description of the compulsive as being interpersonally respectful and showing adherence to social conventions and rules. In a manner analogous to the problem which may have occurred with histrionics,

individuals could be diagnosed as being high on the compulsive scale, but not manifest this as one of the cluster of behaviors which would be expected to go together. It is possible, then, that for a subset of both the histrionic and compulsive individuals, the situational dimensions selected were not particularly effective controlling variables predictive of discriminative or consistent histrionic or compulsive behavior, respectively.

Clinical Implications and Directions for Future Research

The results of the present study seem to suggest that the behavior of individuals who are diagnosed as histrionic and compulsive personality disorder analogues is relatively discriminant across situations, and that situational factors, rather than personological factors or an interaction between the two, are the primary determinants of their behavior. Nevertheless, these results must be interpreted with caution due to inherent problems of the experimental design. If the results of future studies suggest that the behavior of personality disorders is more accurately characterized as discriminative rather than as consistent across situations, then the following recommendations are offered.

If a clinician attempts to assess the dysfunctional behavior of a personality-disordered individual, he may not get an accurate picture if information is gathered from only one or two situations. By assessing behavior in a number of

situations, the clinician can more accurately identify the controlling variables of the dysfunctional behavior which, in turn, can influence the selection of treatment strategies.

According to Kazdin (1979) and Nelson and Hayes (1986), more progress is needed on the assessment of situational variables. The ultimate test of success in treating an individual's problematic behavior is whether the behavior change can be demonstrated in the natural environment. To monitor progress in the treatment endeavor, the stimulus elements that control maladaptive behaviors in the natural environment must be recreated in the treatment setting. However, this also poses the problem of how to identify critical situational elements and to create the same situation in the assessment and treatment settings.

A more ominous and pessimistic implication of the notion that situational influences are important determinants of the behavior of personality disordered individuals is that the assessment situation is never really identical to the criterion situation in the individual's own environment. Without being able to assess problematic behavior in the natural environment and under nonreactive assessment conditions, there is a significant risk that changes that occurred in the context of treatment will not generalize to a nonclinical setting (Kazdin, 1979).

One of the limitations to the present study, noted above, is the fact that it did not employ a clinical population. However, there is relatively little systematic investigation of any of the personality disorders using currently accepted classification systems such as DSM-III-R (Frances, 1986). Since DSM-III, DSM-III-R, and Millon's theoretically derived personality system are based either entirely or in part on a prototypal model in which not all symptoms (behaviors) need to be experienced by an individual in order to receive a personality disorder classification, it would seem reasonable that a future study could identify subsets of subjects within each personality disorder category by identifying specific response clusters that members share. If subjects were classified so that they all exhibited the same response clusters, then a more accurate pattern of their behavior across situations could be obtained. While DSM-III acknowledges that certain behaviors are more important than others, these reported clusters are based on clinical research and judgement rather than empirical study. Identifying important or central symptoms can also have implications for improving the effectiveness of treatment. As Hayes, Nelson, and Jarrett (1987) have noted, differential assessment can affect treatment utility. Assessment which is aimed at identifying the "keystone" behaviors in various personality disorders may improve the progress made in treatment.

Postscript: What has been learned about the debate?

Notwithstanding the problems of design, the execution of the present investigation provided useful lessons about the utility of the current person-situation debate. At a more philosophical level, this debate underscores the fact that psychology remains a preparadigmatic science. According to Kuhn (1970), this stage in the development of the life of a science occurs when the field is still divided into schools of thought. For example, in psychology there exists a schism between those researchers (empiricists) who are concerned with cause-effect relationships and who typically employ group comparison designs, and others who feel the study of individual differences and the use of correlational methods to be more fruitful. A science becomes paradigmatic (and more advanced) when a common paradigm defines the field and when the majority of the members of the discipline agree on theoretical and methodological rationales.

The debate, which is essentially a search for the most appropriate units of analysis with which to describe, predict, and explain behavior, may benefit from a reconceptualization. Rather than trying to answer the very general question about the best units of analysis, it may be more profitable to seek answers to more specific questions that take into account the context, purpose, and criteria for evaluating the utility of a particular construction

about human behavior (McFall & McDonel, 1986). Problems have arisen in the past because disputants in the controversy have drawn different conclusions about the same evidence, because they have used different evaluation criteria and have had different purposes. It is also up to the researcher to limit statements about the generalizability of results only to those conditions which are equivalent to those represented in the research design; generalizations made beyond this should be labelled as speculative (McFall & McDonel, 1986). According to McFall and McDonel (1986), relinquishing the quest for a unified science of psychology, the acceptance of diversity, and a multifaceted discipline may actually enhance the development of psychology as a science. Moreover, psychological phenomena can be divided into more than person and situation variables. These other categories may ultimately prove more useful in serving as the basic units of analysis.

With regard to the present study, a major lesson to be learned is that like so many other studies, it made a negligible contribution to the person-situation debate. As just one example, it could be argued that the study was biased in favor of finding support for the situationist view because the highly structured laboratory situations overshadowed the effect of person variables which are more easily expressed in situations that are low in constraints. At the same time, this type of experimental study can be

useful for predicting the characteristic response patterns of many individuals (both with and without personality disorders) in specific situations, but not in predicting the unique responses of one individual in a particular situation.

As Houts, Cook, and Shadish (1986) have argued, science best progresses through diverse and mutually critical attempts to understand the same set of phenomena. From this perspective, psychology should encourage the development of multiple facets, while contemporaneously demanding that each alternative demonstrate the specific limits of its utility.

BIBLIOGRAPHY

Abraham, K. (1927). Contributions to the theory of the anal character. In Selected papers in psychoanalysis. London: Hogarth Press. (Original work published in 1921).

Adams, H.E. (1981). Abnormal psychology. Dubuque, Iowa: William C.Brown.

Adelson, J., & Redmon, J. (1958). Personality differences in the capacity for verbal recall. Journal of Abnormal and Social Psychology, 57, 244-248.

Alarcon, R. D. (1973). Hysteria and hysterical personality: How come one without the other? Psychiatric Quarterly, 471 258-275.

Allport, G.W. (1937). Personality: A psychological interpretation. New York: Holt.

American Psychiatric Association. (1968). Diagnostic and statistical manual of mental disorders (2nd ed.). Washington, DC: Author.

American Psychiatric Association. (1980). Diagnostic and statistical manual of mental disorders (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1987). Diagnostic and statistical manual of mental disorders (3rd ed. rev.). Washington, DC: Author.

Andrews, J. D. (1984). Psychotherapy with the hysterical personality. Psychiatry, 47, 211-232.

Bandura, A., & Walters, R. H. (1963). Social learning and personality development, New York: Holt, Rinehart & Winston.

Baumeister, R. F. (1982). A self-presentational view of social phenomena. Psychological Bulletin, 91, 3-26.

Bem, D. J. (1972). Constructing cross-situational consistencies in behavior: some thoughts on Alker's critique of Mischel. Journal of Personality, 40, 17-26.

Bem, D. J., & Allen, A. (1974). On predicting some of the people some of the time: The search for cross-situational consistencies in behavior. Psychological Review, 81, 506-520.

Bielski, R., & Friedel, R. (1976). Prediction of tricyclic antidepressant response. Archives of General Psychiatry, 33, 1479-1489.

Block, J. (1971). Lives through time. Berkley, CA: Bancroft Books.

Block, J. (1977). Advancing the psychology of personality: Paradigmatic shift or improving the quality of research. In D. Magnusson & N. S. Endler (Eds.), Personality at the crossroads: Current issues in interactional psychology (pp. 37-63). Hillsdale, NJ: Erlbaum.

Blum, G.S. (1950). The Blacky Pictures: A technique for the exploration of personality dynamics (Manual). New York: Psychological Corporation.

Bowers, K.S. (1973). Situationism in psychology: An analysis and a critique. Psychological Review, 80, 307-338.

Bradley, G. W. (1978). Self-serving biases in the attribution process: A re-examination of the fact or fiction question. Journal of Personality and Social Psychology, 31, 567.573.

Cattell, R.B. (1957). Personality and motivation structure and measurement. Yonkers-on-Hudson, NY: World Book.

Chodoff, P. (1982). Hysteria and women. The American Journal of Psychiatry, 139, 545-551.

Chodoff, P., & Lyons, H. (1958). Hysteria, the hysterical personality, and "hysterical" conversion. American Journal of Psychiatry, 114, 734-740.

Compton, A. S. (1974). Who's hysterical? Journal of Sex and Marital Therapy, 2, 158-174.

Cooperman, M., & Child, I. (1971). Differential effects of positive and negative reinforcement on two psychoanalytic character types. Journal of Consulting and Clinical Psychology, 37, 57-59.

Crowne, D.P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 24, 349-354.

Crowne, D. P., & Strickland, B. R. (1961). The conditioning of verbal behavior as a function of the need for social approval. Journal of Abnormal and Social Psychology, 63, 395-401.

Derogatis, L. R., Lipman, R.S., & Covi, L. (1973). An outpatient rating scale. Psychopharmacological Bulletin, 9, 13-28.

Duke, D., & Nowicki, S. (1979). Abnormal Psychology: Perspectives on being different. Monterey CA: Brooks/Cole.

Easser, B. R., & Lesser, S. R. (1965). Hysterical personality: A reevaluation. Psychoanalytic Quarterly, 34, 390-405.

Ekehammer, E. (1974). Interactionism in personality from a historical perspective. Psychological Bulletin, 81, 1026-1048.

Endler, N. S. (1983). Interactionism: A personality model but not yet a theory. In M. M. Page (Ed.), Nebraska Symposium on Motivation (pp. 155-200). Lincoln: University of Nebraska Press.

Endler, N.S., & Magnusson, D. (1976). Toward an interactional psychology of personality. Psychological Bulletin, 83, 956-974.

Epstein, S. (1979). The stability of behavior: I On predicting most of the people much of the time. Journal of Personality and Social Psychology, 37, 1097-1125.

Epstein, S., & O'Brien, E. J. (1985). The person-situation debate in historical and current perspective. Psychological Bulletin, 98, 513-537.

Fenichel, O. (1945). The psychoanalytic theory of neurosis. New York: Norton.

Frances, A. (1980). The DSM-III personality disorders section: A commentary. American Journal of Psychiatry, 137, 1050-1054.

Frances, A. J. (1986). Introduction to personality disorders. In A. M. Cooper, A. J. Frances, & M. H. Sacks (Eds.), The personality disorders and neuroses (pp. 171-176). New York: Basic Books.

Frederiksen, N. (1972). Toward a taxonomy of situations. American Psychologist, 27, 114-123.

Freud, S. (1925). Character and anal eroticism. In Collected papers (Vol. 2). London: Hogarth Press. (Original work published in 1908).

Freud, S. (1953). Three essays on the theory of sexuality. In J. Strachey (Ed. and Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vol. 7, pp. 125-244). London: Hogarth Press. (Original work published 1905).

Freud, S. (1961). The ego and the id. In J. Strachey (Ed. and Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vol. 19, pp. 2-66). London: Hogarth Press. (Original work published 1923).

Freud, S. (1961). Libidinal types. In J. Strachey (Ed. and Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vol. 21, pp. 215-220). London: Hogarth Press. (Original work published 1931).

Goldstein, M. J., Baker, B. L., & Jamison, K. R. (1980). Abnormal psychology: Experiences, origins, interventions. Boston: Little, Brown.

Gittelman-Klein, R., & Klein, D. (1969). Premorbid asocial adjustment and prognosis in schizophrenia, Journal of Psychiatric Research, 7, 35-53.

Guilford, J. P. (1959). Personality. New York: Mcgraw-Hill.

Harzam, P. (1984). Experimental analysis of individual differences and personality. Journal of the Experimental Analysis of Behavior, 42, 385-395.

Hayes, S. C., Nelson, R.O., & Jarrett, R.B. (1987). The treatment utility of assessment: A functional approach to evaluating quality assessment. American Psychologist, 42, 963-974.

Haynes, S.G., Feinleib, M., & Kannel, W.B. (1980). The relationship of psychosocial factors to coronary heart disease in the Framingham study, American Journal of Epidemiology, 111, 37-51.

Herbert, J. (1986). The effects of feedback on the behavior of depressed inpatients in two structured interactions. Unpublished master's thesis. University of North Carolina at Greensboro, Greensboro, NC.

Hill, A. B. (1976). Methodological problems in the use of factor analysis: A critical review of the experimental evidence for the anal character. British Journal of Medical Psychology, 49, 145-159.

Houts, A. C., Cook, T. D., & Shadish, W. R. (1986). The person-situation debate: A critical multiplist perspective. Journal of Personality, 54, 52 - 105.

Horowitz, M. (1977). The core characteristics of hysterical personality. In M. Horowitz (Ed.) Hysterical personality (pp. 3-6). New York: Jason Aronson.

Ickes, W. (1982). A basic paradigm for the study of personality, roles, and social behavior. In W. Ickes, & E. S. Knowles (Eds.), Personality, roles, and social behavior. New York: Springer-Verlag.

Ickes, W. (1984). Personality. In A. S. Bellack, & M. Hersen (Eds.), Research methods in clinical psychology (pp. 157-178). Elmsford, NY: Pergamon Press.

Ingram, D. (1982). Compulsive personality disorder. American Journal of Psychoanalysis, 42, 189-198.

Jones, E. (1938). Anal character traits. In Papers on psychoanalysis. London: Balliere, Tindall and Cox. (Original work published 1918).

Jones, E. F., & Nisbett, R. E. (1971). The actor and observer: Divergent perceptions of the causes of behavior. New York: General Learning Press.

Jones, E. E., & Wortman, C. (1973). Ingratiation: An attributional approach. Morristown, N.J. General Learning Press.

Jones, R. R., Reid, J. B., & Patterson, G. R. (1975). Naturalistic observation in clinical assessment. In P. McReynolds (Ed.), Advances in psychological assessment (Vol.3 pp. 42 - 95). San Francisco: Jossey-Bass.

Kantor, J. R. (1924). Principles of psychology: Vol. 1. Bloomington: Principia Press.

Kass, F., Spitzer, R. L., & Williams, J. B. (1983). An empirical study of the issue of sex bias in the diagnostic criteria of DSM-III Axis II personality disorders. American Psychologist, 38, 799-801.

Kazdin, A. E. (1978). Evaluating the generality of findings in analogue therapy research. Journal of Consulting and Clinical Psychology, 46, 673 - 686.

Kazdin, A. E. (1979). Situational specificity: The two-edged sword of behavioral assessment. Behavioral Assessment, 1, 57-75.

Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), Nebraska Symposium on Motivation (pp. 192-240). Lincoln: University of Nebraska Press.

Keppel, G. (1973). Design and analysis: A researcher's handbook. Englewood Cliffs, NJ: Prentice-Hall.

Koenisberg, H. W., Kaplan, R. D., Gilmore, M. M., & Cooper, A. M. (1985). The relationship between syndrome and personality disorder in DSM-III: Experience with 2462 patients. American Journal of Psychiatry, 142, 207-212.

Krasner, L. (1958). Studies of the conditioning of verbal behavior. Psychological Bulletin, 55, 148-170.

Kshirsagar, A. M. (1972). Multivariate Analysis. New York: Marcel Dekker.

Kuhn, T. S. (1970). The structure of scientific revolutions (2nd ed.). Chicago: University of Chicago Press.

Lanyon, R. I. (1973). Psychological Screening Manual. Goshen, NY: Research Psychologist Press.

Lazare, A. (1971). The hysterical character in psychoanalytic theory: Evaluation and confusion. Archives of General Psychiatry, 25, 131-137.

Lazare, A., Klerman, G. L., & Armor, D. J. (1966). Oral, obsessive, and hysterical personality patterns: An investigation of psychoanalytic concepts by means of factor analysis. Archives of General Psychiatry, 14, 624-630.

Lazare, A., Klerman, G. L., & Armor, D. J. (1970). Oral, obsessive, and hysterical personality patterns: replication of factor analysis in an independent sample. Journal of Psychiatric Research, 7, 273-290.

Lehman, H. C., & Witty, P. A. (1934). Faculty psychology and personality traits. American Journal of Psychology, 44, 486-500.

Lezak, M. D. (1983). Neuropsychological assessment (2nd ed.). New York: Oxford University Press.

Lewin, K. A. (1935). A dynamic theory of personality. New York: McGraw Hill.

Luisada, P. V., Peele, R., Pittard, E. A. (1974). The hysterical personality in men. American Journal of Psychiatry, 131, 518-521.

Mariotto, M. J. & Paul, G. L. (1975). Persons versus situations in the real life functioning of chronic institutionalized mental patients. Journal of Abnormal Psychology, 84, 483-493.

Marmor, J. (1953). Orality in the hysterical personality. Journal of the American Psychoanalytic Association, 1, 656-675.

Mash, E. J. & Mercer, B. J. (1979). A comparison of the behavior of deviant and non-deviant boys while alone and interacting with a sibling. Journal of Child Psychology and Psychiatry, 20, 197 -207.

McFall, R. M., & McDonel, E. C. (1986). The continuing search for the units of analysis in psychology: beyond persons, situations and their interactions. In R. O. Nelson & S. C. Hayes (Eds.), Conceptual foundations of behavioral assessment. New York: Guilford.

Mellsop, G. M., Varghese, F., Joshua, S., & Hicks, A. (1982). The reliability of Axis II of DSM-III. American Journal of Psychiatry, 139, 1360-1361.

Millon, T. (1969). Modern psychopathology. Philadelphia: W. B.Saunders.

Millon, T. (1981). Disorders of personality: DSM-III: Axis II. New York: Wiley & Sons.

Millon, T. (1982) Millon Clinical Multiaxial Inventory (2nd ed). National Computer Systems, Inc.

Millon, T. (1986a). A theoretical deviation of pathological personalities. In T. Millon and G. L. Klerman (Eds.) Contemporary Directions in Psychopathology: Toward the DSM-IV (pp. 639-670), New York: Guilford Press.

Millon, T. (1986b). Social learning models. In A. M. Cooper, A. J. Frances, M. H. Sacks (Eds.), The personality disorders and neuroses (pp. 17-39). New York: Basic Books.

Mischel, W. (1968). Personality assessment. New York: Wiley & Sons.

Mischel, W. (1969). Continuity and change in personality. American Psychologist, 24, 1012-1018.

Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. Psychological Review, 80, 252-283.

Mischel, W. (1979). The interface of cognition and personality: Beyond the person-situation debate. American Psychologist, 34, 740-754.

Murray, H. A. (1938). Explorations in personality. New York: Oxford University Press.

Nelson, R. O., & Hayes, S. C. (1979). Some current dimensions of behavioral assessment. Behavioral Assessment, 1, 1-16.

Nelson, R. O., & Hayes, S. C. (1986). Nature of behavioral assessment. In R. O. Nelson & S. C. Hayes (Eds.), Conceptual foundations of behavioral assessment. New York: Guilford.

Nelson, R. O., & Maser, J.D. (1988). The DSM and depression: Potential contributions of behavioral assessment. Behavioral Assessment, 10, 45-65.

Noblin, C. D., Timmons, E. O., & Kael, H. C. (1966). Differential effects of positive and negative verbal reinforcement on psychoanalytic character types. Journal of Personality and social Psychology, 4, 224-228.

O'Brien, R. G., & Lohr, V. I. (1984). Power analysis for linear models: The time has come. Proceedings of the Ninth Annual SAS Users Group Conference, Cary, NC: SAS Institute, 840 - 846.

Olweus, D. (1977). Aggression and peer acceptance in preadolescent boys: Two short-term longitudinal studies of ratings. Child Development, 48, 1301-1313.

Peterson, D. (1968). The clinical study of social behavior. New York: Appleton-Century-Crofts.

Pollack, J. M. (1979). Obsessive-compulsive personality: A review. Psychological Bulletin, 86, 225-241.

Pollack. J. M. (1981). Hysterical personality: An appraisal in light of empirical research. Genentic Psychology Monographs, 104, 71-105.

Rado, S. (1959). Obsessive behavior. In S. Arieti (Ed.), American handbook of psychiatry: Vol. 1. (pp. 325-336). New York: Basic Books.

Raush, H. L. (1977). Paradox levels, and junctures in person-situation systems. In D. Magnusson & N. S. Endler (Eds.), Personality at the crossroads: CUrrent issues in interactional psychology. (pp. 287-304). Hillsdale, NJ: Erlbaum.

Raush, H. L., Dittman, A. T., & Taylor, T. J. (1959). Person, setting, and change in social interaction. Human Relations, 12, 361-378.

Reed, G. F. (1977a). Obsessional personality disorder and remembering. British Journal of Psychiatry, 130, 177-183.

Reed, G. F. (1977b). Obsessional cognition: Performance on two numerical tasks. British Journal of Psychiatry, 130, 184-185.

Reich, W. (1949). Character analysis (3rd ed.). New York: Farrar, Staus and Giroux.

Rotter, J. B., & Mulry, R. C. (1965). Internal versus external control of reinforcement and decision time. Journal of Personality and Social Psychology, 2, 598-604.

Sandler, J., & Hazari, A. (1960). The obsessional: On the psychological classification of obsessional character traits and symptoms. British Journal of Medical Psychology, 33, 113-122.

Schlenker, B. (1975). Self-presentation: Managing the impression of consistency when reality interferes with

self-enhancement. Journal of Personality and Social Psychology, 32, 1030-1037.

Shapiro, D. (1965). Neurotic styles. New York: Basic Books.

Shweder, R. A. (1975). How relevant is an individual difference theory of personality? Journal of Personality, 43, 455-484.

Skinner, H.A. (1984). Correlational methods in clinical research. In A. S. Bellack & M. Hersen (Eds.), Research methods in clinical psychology (pp. 139-156). New York: Pergamon Press.

Slavney, P. R. (1978). The diagnosis of hysterical personality disorder: A study of attitudes. Comprehensive Psychiatry, 19, 501-507.

Staats, A. W. (1986). Behaviorism with personality: A multilevel framework theory for behavioral assessment. In R. O. Nelson & S. C. Hayes (Eds.), Conceptual foundations of behavioral assessment. New York: Guilford.

Strober, M., Green, J., & Carlson, G. (1981). Reliability of psychiatric diagnosis in hospitalized adolescents: Interrater agreement using DSM-III. Archives of General Psychiatry, 38, 141-145.

Sue, D., Sue, D. W., & Sue, S. (1981). Understanding abnormal behavior. Boston: Houghton Mifflin.

Taffel, C. (1955). Anxiety and the conditioning of verbal behavior. Journal of Abnormal and Social Psychology, 51, 496-501.

Taylor, M. & Abrams R. (1975). Acute mania: Clinical and genetic study of responders and nonresponders to treatment, Archives of General Psychiatry, 32, 863-865.

Temoshok, L., & Heller, B. (1983) Hysteria. In R. J. Daitzman (Ed.), Diagnosis and intervention in behavior therapy and behavioral medicine: Vol. 1. (pp. 204-293). New York: Springer.

Thorndike, E. L. (1906). Principles of teaching. New York: Seiler.

Timmons, E. O., & Noblin, C. D. (1963). The different performance of orals and anals in a verbal conditioning paradigm. Journal of Consulting and Clinical Psychology, 27, 383-386.

Tribich, D., & Messer, S. (1974). Psychoanalytic character type and status of authority as determiners of suggestibility. Journal of Consulting and Clinical Psychology, 42, 842-848.

Turkat, I. D., & Levin, R. A. (1984). Formulation of personality disorders. In H. E. Adams & P. B. Sutker (Eds.), Comprehensive handbook of psychopathology (pp. 495-522). New York: Plenum Press.

Turkat, I. D., & Maisto, S. A. (1985). Personality disorders: Application of the experimental method to the formulation of personality disorders. In D. H. Barlow (Ed.), Clinical handbook of psychological disorders (pp. 502-570). New York: Guilford Press.

Turner, S. M., & Hersen, M. (1981). Disorders of social behavior: A behavioral approach to personality disorders. In S. M. Turner, K. S. Calhoun, & H. E. Adams (Eds.), Handbook of clinical behavior therapy (pp. 103-124). New York: John Wiley.

Ullman, L. P., Krasner, L., & Collins, B. J. (1961). Modification of behavior through verbal conditioning: Effects in group therapy. Journal of Abnormal and Social Psychology, 62, 128-132.

Wallach, M. A. & Leggett, M. I. (1972). Testing the hypothesis that a person will be consistent: stylistic consistency versus situational specificity in size of children's drawings. Journal of Personality, 40, 309-330.

Weissman, M., Prusoff, B., & Klerman, G. (1978). Personality and prediction of long term outcome of depressions, American Journal of Psychiatry, 135, 797-800.

Wittels, F. (1930). The hysterical character. Medical Review of Reviews, 36, 186-190.

Wolowitz, H. M. (1972). Hysterical character and feminine identity. In J. M. Bardwick (Ed.), Reading on the psychology of women (pp. 307-314). New York: Harper and Row.

Zetzel, E. R. (1968). The so called good hysteric. International Journal of Psycho-Analysis, 49, 256-260.

Appendix A

Pilot Study

Pilot Study - April, 1986.

Angle Matching Task

Dependent Variable. Percent Angle Accuracy (calculated as the percentage of trials during an experimental situation in which the subject made the closest match between a sample and one of the angles on the board).

Experimental Situations. Public/neutral demand; public/high demand (no feedback); public/high demand (feedback).

COMPULSIVES

PUBLIC SITUATION

Comp.	Neutral Demand	High Demand	High Dem. + Fbk.
D.M.	28.57	53.85	35.71
J.A.	50.00	57.14	61.15
B.O.	38.46	64.29	36.71
K.H.	28.57	35.71	69.23
B.W.	50.00	76.92	57.14
E.G.	35.71	53.85	71.15
M.C.	50.00	50.00	53.85
J.M.	57.14	71.43	78.57
X	42.31	57.89	57.94

HISTRIONICS

PUBLIC SITUATION

Histronics	Neutral Demand	High Demand	High Dem. + Fbk.
D.W.	57.14	84.61	50.00
J.W.	50.00	35.71	42.86
J.S.	35.71	35.71	84.61
S.W.	78.57	61.54	64.42
J.H.	76.92	64.29	71.14
T.B.	61.54	57.10	64.28
L.L.	50.00	84.46	57.14
C.C.	46.15	35.71	42.86
X	57.00	64.08	59.67

Results:

1) Compulsives were relatively more accurate in the public/high demand (no feedback) situation (X = 57.89) than in the public/neutral situation (X = 42.31), $t(7) = 4.35$, $p < .01$.

2) Compulsives were relatively more accurate in the public/high demand (feedback) situation (X = 57.94) than in the public/neutral demand situation (x = 42.31), $t(7) = 2.87$, $p < .05$.

Pilot Study-April, 1986.

Letter Cancellation Task

Dependent Variable. Time in seconds until subject stopped task.

Experimental Conditions. Public/neutral demand, public/high demand, public/verbal praise, private/neutral demand.

	PUBLIC			PRIVATE
Compulsives	Neutral	High	Verbal Praise	Neutral
L.M.	173	269	236	216
B.W.	266	-	247	1169
B.O.	165	513	356	121
D.M.	344	1044	1244	217
J.M.	1096	1377	858	115
E.G.	138	155	175	-
J.A.	180	325	201	-
M.P.	333	625	-	-
K.H.	275	650	222	-
M.C.	92	125	113	-
X	306.2	567.3	406.00	367.6

	PUBLIC			PRIVATE
Histrionics	Neutral	High	Praise	Neutral
J.S.	416	374	660	126
J.W.	415	677	344	-
J.H.	523	600	700	-
S.W.	108	122	197	-
D.W.	158	369	230	-
R.B.	277	277	307	-
L.L.	131	129	136	126
B.H.	353	257	327	273
C.C.	339	579	578	500
T.B.	462	753	291	341
X	318.2	413.7	377.0	273.2

Results

1) Compulsives persisted significantly longer at the letter cancellation task in the public/high demand condition ($\bar{X}$ = 567.3) than in the public/neutral demand condition ($\bar{X}$ = 306.2), $t(9) = 3.39$, $p < .01$.

2) Four of the five histronics who participated in both public and private situations, spent more time on the task in the public situation than in the private situation.

Pilot Study- April, 1986.

Verbal Conditioning Task

Dependent Variable. Number of 'targeted' pronouns.

Experimental Situations Public/neutral demand with these phases: Baseline, Conditioning, Extinction. During the conditioning phase, the subject's utterances of target pronouns were consequated by the experimenter saying "good".

PUBLIC

Compulsives	Baseline	Conditioning	Extinction
M.P.	6.00	6.50	4.00
E.G.	6.00	18.50	4.00
D.M.	3.00	25.50	9.00
J.M.	2.25	3.75	3.00
B.W.	7.00	4.00	5.00
B.O.	4.00	5.00	8.00
J.A.	4.00	10.50	10.00
M.C.	8.00	56.50	10.00
L.M.	6.00	5.50	5.00
K.H.	5.00	8.50	9.00
X	5.13	14.43	6.70

PUBLIC

Histrionics	Baseline	Conditioning	Extinction
L.L.	2.00	20.00	6.00
D.G.	5.25	8.25	9.00
S.W.	6.00	75.00	15.00
J.W.	15.00	50.00	12.00
L.S.	6.75	15.00	15.75
C.C.	13.00	51.00	17.00
T.B.	6.00	3.00	3.00
J.H.	6.00	80.00	18.00
R.B.	6.00	27.00	7.00
X	7.11	36.59	11.42

Results

1) Histrionics demonstrated a significant increase in the number of targeted pronouns from baseline (X = 7.11) to the conditioning phase (X = 36.59), $t(8) = 3.25$, $p < .02$.

2) There was no significant change in the number of targeted pronouns from baseline (X = 5.13) to the conditioning phase (X = 14.43) for compulsives.

Pilot Study: April, 1986.

Data were collected for several other tasks in a preliminary pilot study conducted during April, 1986. These tasks are described below. It should be noted that in the following descriptions, public referred to a situation where the subject performed the task with the experimenter present and private referred to a situation in which the experimenter was absent. A neutral demand situation referred to a situation in which the subject received only the basic instructions for completing the task. A high demand situation referred to a situation in which the subject received basic instructions for completing the task as well as information about certain standards of performance such as speed or accuracy.

Coding Task. This task required the subject to use symbols to code rows of numbers. The subject was asked to work on the task until he or she no longer wished to continue. The dependent measures were the time at which the subject reported the task as boring and the time at which the subject stated that he or she wished to discontinue the task. Subjects performed this task in three different situations: (1) public/neutral demand: (2) public/high demand (for speed); (3) public high/demand (for accuracy).

The data analyses which were performed revealed that there were no statistically significant results for any of the comparisons that were made either between subjects or across situations.

Sensation-Seeking Scale. Subjects were administered Form IV of the scale in the following three conditions: (1) public/neutral demand; (2) public, with the accompanying suggestion by the experimenter that the questionnaire distinguished risk-takers from the nonrisk-takers, and; (3) public, with the accompanying suggestion that the questionnaire distinguished creative, flexible people from less creative people.

The data analyses revealed that histrionics scored higher on the Sensation-Seeking Scale than compulsives in each of the three situations.

Perceptual Recognition Task. This task consisted of six sets of color slides corresponding to zoo animals. Each set contained 10 slides which were blurred to varying degrees so that the successive slides became progressively clearer and more recognizable as they were presented to the subject. A response slide contained a list of 20 zoo animals in which were embedded the names of the six test animals. At the bottom of the list of animals' names were the phrases, "I don't know" and "none of the above". Subjects were told that several series of common zoo animals would be presented on a screen in front of them and that each series would consist of repetitions of the same picture but the pictures would vary in clarity. Subjects were informed that the pictures would be presented so that they became progressively clearer. The subject controlled the presentation-time of each animal slide and of each response slide. Subjects were told that they were to try to identify the animal on every response trial and also give a rating of confidence in their answer. The major dependent variables which resulted from this task were the time spent observing the animal (standard) slides and time taken to make a response once the standard slide was presented. Confidence ratings in the accuracy of one's response were also obtained. Subjects performed the task in three situations: (1) public/neutral demand; (2) public/high demand (for speed), and; (3) public/high demand (for accuracy).

The results of the pilot study indicated that compulsive subjects had longer decision-time scores in the public/high demand (accurate) situation than in the public/neutral demand situation. Histrionics did not differ significantly in their decision-time scores when performing this task in the public/neutral demand situation or the public/high demand (accurate) situation. However, histrionics had significantly greater decision-time scores for the public/high demand (accurate) situation than for the public/high demand (speed) situation.

Moral Dilemmas Task. In each of three situations, subjects were presented with a standard Kohlberg moral dilemma. They were asked in each situation to read the dilemma and then answer three short questions about it. Subjects performed the task in three kinds of situations: (1) public/neutral demand; (2) public/high demand (speed instructions plus stopwatch clearly visible) and (3) public/high demand(stopwatch clearly visible).

The data analyses revealed that compulsives had significantly shorter decision-time scores when they performed the task in both of the public/high demand conditions than when they performed the task in the public/neutral demand condition.

Size Estimation Task. This task required making comparisons between a standard stimulus (a line drawing) and six similar line drawings that differ only from the standard in terms of size. The subject was led to believe that there was a correct match and they were asked to state their choice and also their confidence in the accuracy of their choice. The standard stimulus and the choice stimuli were presented on a screen via a projector. The task was made difficult by presenting the standard stimuli at very fast speeds. Subjects performed the task in three situations: (1) public/neutral demand; (2) public/high demand (informed that skill was required), and; (3) public/high demand (informed that skill was required and also given arbitrary feedback regarding the accuracy of their responses). The dependent variables for this task were decision-time scores and confidence ratings.

The data analyses revealed that compulsives were significantly less confident in the accuracy of their responses in the public/high demand (skill plus feedback) situation than in the public/neutral demand situation.

Appendix B

Information about Questionnaire

Prior to Consent Form

Information About Questionnaire
Prior to Consent Form

The survey that you have received is an attempt to assess some personality characteristics. Such characteristics are thought to be normally distributed in a given population. In order to participate, you must sign the consent form that you received with your questionnaire. If you choose not to participate, please turn in your questionnaire at this time.

Researchers who will have access to questionnaire data include and are limited to Dr. Nelson, Dr. Lumsden, Nancy Amodei, and Sara Schneidmiller.

Appendix C

Millon Clinical Multiaxial Inventory

Appendix D

Additional Credit

Additional Credit

Would you be willing to participate in related studies for additional credits? Such studies might include visual perception tasks, problem-solving tasks, or visual motor tasks.

YES _____ NO_____

If YES, please read the following paragraph: Only a small subset of all who wish to participate further will be chosen. Selection for participation in further studies does not indicate deviant performance on the questionnaire, but instead indicates that you have answered test items in a similar manner to other persons representing personality styles of interest in these studies. If you are selected, one of the experimenters will contact you as soon as possible, but definitely by November 15, 1987. If, at the the time you are contacted, you do not wish to participate in the experiment described to you, there is, of course, no obligation for you to participate.

If you understand and consent to the above paragraph, please provide the following information so that we can contact you:

Name:_____
Social Security #:_____

PSY 221 section #:_____
Home Phone: _____

Work Phone: _____
Address: _____

Best times to Contact _____
_____

The experimenters will provide you with further details of the tasks when they contact you. Thank you.

Appendix E

Debriefing Statement from Screening Session

Debriefing Statement

The purpose of the present study, which was conducted by researchers in the clinical area of psychology, was to further an initial assessment of the distribution of personality styles within a given college population. All individuals are thought to possess personality styles and the questionnaire which you just completed attempts to assess your particular style. This type of study helps us to increase our knowledge about the distribution of certain styles in college populations. While many personality styles and traits are thought to be normally distributed in the population, some individuals seek therapy for extreme personality styles. By understanding which factors may be of primary importance in different types of personality styles, clinical psychologists may be able to design studies to assess these more extreme styles and potentially, new treatments for such individuals can be developed. There were no independent variables in the present study since administration of this questionnaire is a means of screening potential participants for future studies. The dependent variables in this study are personality style scores.

Individual scores on the questionnaire will not be released since the questionnaire was designed to identify groups of subjects for research rather than for individual personality assessment. However, if you would like other information pertaining to this study, you are encouraged to contact the experimenters during the following semester. Selection for participation in further studies does not indicate deviant performance on the questionnaire, but instead indicates that the subject has answered test questions in a manner similar to other persons who represent personality styles of interest in these studies. Thank you for your participation.

Appendix F

Sample Letter Cancellation Sheet

F D S G U D L N S O B C L F C W O E H C E O E N W L K H S R

E F R I Y L A C S A D O I T H D P E T E R V S O U I O M E I

R V D S G P L C A I L T R Q I V R I A N W S O S N E A E T I

H E I E T E R I S O R I P O R W E V I U R P E N M T H A E P

Y A P R O F R E C N F D R L A E S B Y I W L S E J C M T C I

F M R C N H E M N H M N S F U N E M W E X C D H E F C T C A

A E F I E L S T D T C O H E Q R P E N A I E A D S E A O S B

R I N O N F S A R O T V A T N R N S O C U R A L B N O M N S

S D M Y A S A L I T H R L O I A P S D Y O G E S N E T M E A

U N W C I C P S E R N O C O F E I Y L P R I G N E R L U L I

G V R O S I N T R V G N A L O L A U S A I T E C M I T E N L

E N E I M T O I S X T E S A E L T E I S E I A G S T O G Y U

W O G A R D N W R D F A E I S S A M U T B C Y I T E R Q I N

P R T E A U S O I O T A T E N F E I L O E A O S N E F R S A

G S A V O F C O L B R T D N H T I N W E S Y H R P A W I S H

G H S E N A S D Y H S N T A D N S M O E C S O D R U E O R I

D I N D Y H P E I D N O C O E L U B T E P I A L T X W R E G

N C N E T H M N O E R A I N L I C N F E U M B S N G I E O W

C L N E T R E D N H C N R S D T N W T O L A E M R N L E R F

W O T O T I P I E O S B A O J W A N U C D N H N V M E I S E

A H S E H E B C S K V T S A N I A T O I Z S I L O F R A H E

O H E O E W H E C S N D R U B T E A L O D E G L T O B L W I

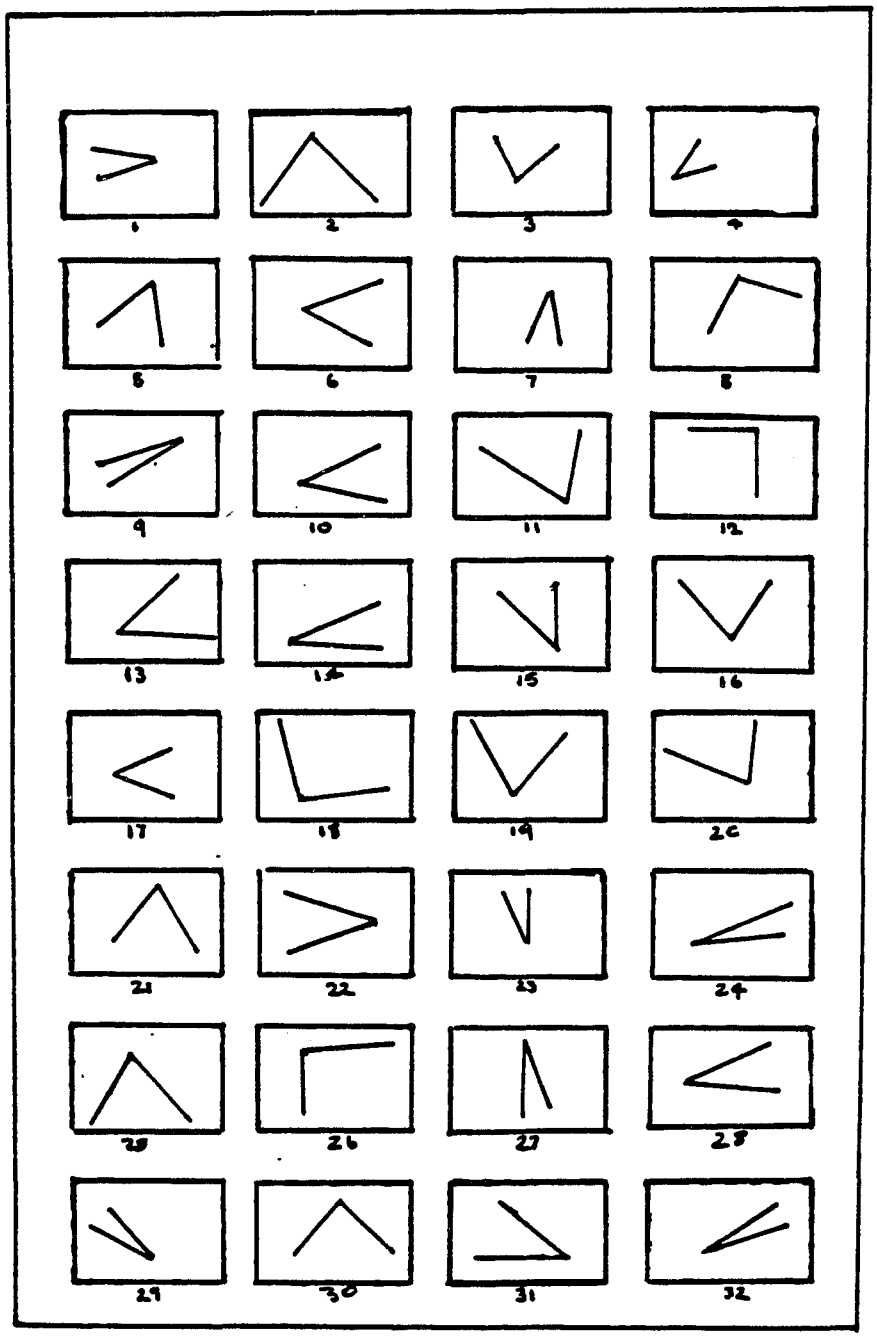
S A E A S E U R N U E F B K P S F O T N O S V R L T E S O M

L C D G V N B C L S T E I H S R L I H A S Y E S O L B D S G

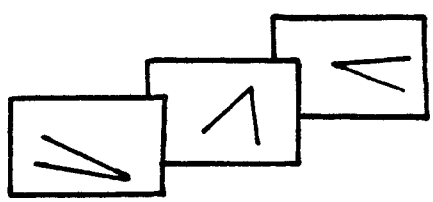
V S O V R O S E I L C D C A G V R L T E D S G I S E F W S R

Appendix G

Schematic Representation of Angle Matching Task Materials



- Angles mounted on 4 X 6' board



- Sample cards

DRAWING OF ANGLE MATCHING TASK

Appendix H

Consent Form for Participation in Study

CONSENT FOR PARTICIPATION IN STUDY

I _____, hereby agree to participate in a psychology experiment that investigates how people with different personality styles respond to different types of tasks across situations. I have been informed that this experiment will involve my participation in four individual sessions, optimally over a four week period. I am aware that this experiment will last between 60 and 90 minutes each session. On each occasion I agree that I will receive either an experimental credit or $4.00 per hour according to my needs. If my participation takes longer than 60 minutes, I will be paid an additional $2.00 for a maximum of 30 minutes of additional participation. I have been informed of the general nature of the tasks I have been asked to complete.

I have been informed and I hereby consent to being audiotaped during parts of this experiment. I have been told that the audiotaping is for data recording purposes only, and that my data will be erased from all tapes once the data collection phase of this study is completed.

I understand that any identifying information obtained from me during this study will be kept strictly confidential and will only be available to Nancy Amodei, the principal investigator and Dr. Rosemery O. Nelson, Professor of Psychology at the University of North Carolina at Greensboro.

I understand that my participation is completely voluntary, and that I may feel free to withdraw from the study at any time. I understand that I will be debriefed immediately following the experiment, and that any questions I may have regarding the specific details of the study will be addressed at that time.

Signed_____

Date _____

Witness_____

Appendix I

Post-Experiment Questionnaire

Post-Experiment Questionnaire

1a) What did you think the letter cancellation task was about?

1b) Were you trying to behave in any particular way in this task?

2a) What did you think the angle matching task was about?

2b) Was there anything unusual about this task?

3a) What did you think the computer task was about?

3b) How did you go about deciding what to say?

3c) Did you notice any change in what you were saying or typing?

4a) What did you think was the overall purpose of the study?

4b) Overall, how were you affected by the study?

5a) How important was it to you that the experimenter think positively of your performance in this experiment? Please rate your answer on the following scale.

1 2 3 4 5 6 7

not at all important — extremely important

6) How important was it for you to do well in this experiment? Please rate your answer on the following scale.

1 2 3 4 5 6 7

not at all important — extremely important

Thank you for your participation!

Appendix J

Debriefing Statement

Appendix J

Debriefing Statement

You have just participated in a study that examined how the behaviors of individuals with different personality styles change under different conditions. The questionnaire you completed earlier in the semester helped the experimenter identify three groups of subjects for the present study. These groups (which constitute one of the independent variables of this study) were: respectfuls, sociables, and controls. The control group consisted of individuals who did not seem to show one prominent style of personality, but rather a mixture of different styles.

Another two independent variables in this study pertained to the types of situations in which you performed certain tasks. One independent variable, distinguished between situations where the experimenter simply gave you instructions for completing the task, or gave you instructions, but also some idea of how well you were expected to do. The other independent variable in this situation referred to whether you did the various tasks with the experimenter present or absent. The measures derived from the Sentence Generation Task, The Letter Cancellation Task, and the Angle Matching Task were the dependent variables in this study.

It was hypothesized that irrespective of the task performed, an individual's behavior would be differentially affected by different situations. It was predicted that sociable subjects would behave differently in situations where the experimenter was present when compared with situations where the experimenter was absent. It was predicted that the behavior of respectful subjects, in situations where expectations about performance standards were suggested by the experimenter, would differ from their behavior in situations where no such expectations were suggested.

The present research has implications for our understanding of the behavior of individuals who show prominent personality styles. If it is found that behavior does vary from situation to situation, then in order to have a better understanding of some of the behaviors shown by individuals with prominent styles and/or if these behaviors were to present difficulty to the individual, we need to know what are the critical aspects of the situation which

affect responding in order to change these behaviors.

Important Note. The present study involved some procedures that were not fully explained to you at the beginning of the study and were not what they may have seemed. For instance, in some situations where the experimenter was not present, it was also suggested that the experimenter was not interested in individual data and so did not know which data belonged to you. The experimenter did have access to all subject's data and was trying to assess how people behave when someone is present, in contrast to how they behave when they believe that they are alone. In some conditions of the Angle Matching Task, the experimenter gave you feedback on certain trials as to whether you had been correct or incorrect. In fact, there were no correct answers as there were no perfect matches between the sample angles and the angles on the board. The purpose of providing feedback was to assess how people respond to an evaluation component of a task. Finally, the instructions in both the Angle Matching and Sentence Generation tasks, which suggested that "some people have a special skill" at those tasks, were also included for the purpose of creating expectations about performance standards.

The reason for withholding some information from subjects in this study was to ensure that the data collected were valid and were not influenced by subject expectancies and biases. I would like to remind you that you are free to withdraw your data from the study without penalty. If you have any concerns about the procedures employed in this study, I would be happy to discuss them with you further.

Appendix K

Instructions for Letter Cancellation Task, Angle Matching Task and Verbal Conditional Task in the Four Experimental Situations

Appendix K

Public/Neutral Demand Situation: Letter Cancellation Task

At the beginning of the session, the experimenter was seated near the subject and gave the following instructions:

> This task is designed to assess concentration and attention to detail. You are to cross out each "E" on a page. When I say begin, do one line at a time and only put a single stroke through each letter, "E". When you find the task boring and have had enough, say stop and we will stop the task. Please be as honest as you can in your reactions. I would also like you to press any key (experimenter waved hand over key display) as soon as you begin, and to press any key as soon as you stop.

The experimenter then asked the subject if he or she had understood the instructions. The subject was asked to paraphrase the instructions to make sure he or she had understood them. If it appeared that the subject did not understand a portion of the instructions, the relevant portion was repeated. A 35-minute time limit was imposed on the task. The subject was asked to stop the task at this point if he or she was still working on it.

Public/Neutral Demand: Angle Matching Task

The experimenter was seated diagonally to the right of the subject and both were seated at a table. The subject was seated facing a board exhibiting 32 angles. The board was five feet away from the subject. The experimenter gave the subject the following instructions:

> We are doing a series of experiments to test visual discrimination under conditions of perceptual confusion. In this experiment, we are concerned with judgements of degrees of angles when the differences between them are small and when there are a number of confusing elements present. There are a number of angles on this board. They are of different degrees and are set in varying positions. As you can see, some of the angles on the board are very similar to each other. I also have here a series of cards, such as this one (experimenter showed sample card), with various angles on them. The angles on these cards are of different degrees and are placed in varying

positions on the cards. On each trial, you will take a card such as this. Thus, if you think this angle (experimenter held up sample card) is the same degree as the one on this board (experimenter pointed to the "C" card, you would say "C". (pause) Do you have any questions? (If the subject asked a question, the relevant parts of the instructions were repeated to him/her.) There is something else I would like you to do. I would like you to state the probability of your being right on a trial after you have given your answer. You can rate this on a scale going from 0 to 10. For example, if you feel sure that you would be right, you would state a high number like 9 or 10. If you feel only moderately that you would be right, you would state a lower number like 5 or 6. If you feel that you won't be right, you would state the lowest numbers like 0 or 1. You might consider these numbers that you state as being estimates that you are making on the degree of confidence that you have that you will be right.

The subject was then asked if he or she had understood the instructions, and to paraphrase the instructions to make sure that they had understood them. If a subject had not understood the instructions, relevant portions were repeated. The experimenter recorded the subjects' responses and confidence ratings on a trial-by-trial basis for 30 trials.

Public/Neutral Demand Situation: Verbal Conditioning Task

At the beginning of the session, the experimenter was seated to the left of, but slightly behind the subject, who faced a computer screen. The task was presented as follows:

> In a few minutes, you will be participating in a task which involves your interaction with the computer. This task involves a series of trial presentations. On each trial, a verb will appear in the center of the screen and some pronouns down below. Your task is to say a sentence out loud using the verb and one of the pronouns below it; also your sentence should start with a pronoun. After you have done this, you are to type the first letter of your sentence on this keyboard. This letter will appear on the screen. Then, there will be a short pause and another verb with pronouns will appear on the screen. You will continue with this procedure until the computer lets you know the task is finished.

The experimenter then asked the subject if he or she had understood the instructions, and to paraphrase the

instructions to make sure that they had been understood. If a subject did not understand any part of the instructions, the relevant portions were repeated.

Public/High Demand Situation: Letter Cancellation Task

At the beginning of the session, the experimenter, who was seated next to the subject, said the following:

> This task is designed to assess concentration and attention to detail. You are to cross out each"E" on a page. When I say begin do one line at a time, and only put a single stroke through each letter "E". Even though you may find the task somewhat boring, try to go as far as you can. When you really can't stand it any more, let me know by saying stop and we will stop the task. Please be as honest as you can in your reactions.

The experimenter asked the subject if he or she had understood the instructions. The subject was asked to paraphrase the instructions to make sure they had been understood. If the subject had not understood the instructions, the relevant portions were repeated. The experimenter concluded the instructions by saying:

> Remember, even though you may find the task somewhat boring, try to go as far as you can. When you really can't stand it anymore, let me know, and we will stop the task. Also, I would like you to press any key (experimenter waves hand over display) as soon as you begin, and to press any key as soon as you stop.

A time limit of 35 minutes was be imposed on the task, at which point the experimenter stopped the subject if he or she was still working on the task.

Public/High Demand Situation: Angle Matching Task

The experimenter was seated perpendicularly to the right of the subject at a table. The subject faced the board with angles on it. The experimenter gave the subject the following instructions:

> We are doing a series of experiments to test visual discrimination under conditions of perceptual confusion. In this experiment, we are concerned with the judgements of degrees of angles when the differences between them are small, and when there are a number of confusing elements present. We have found

that some people have a special skill at this and do consistently better than others. Do as well as you can and we will see if you have some skill at this. There are a number of angles on this board. They are of different degrees and are set in varying positions. As you can see, some of the angles on this board are very

similar to each other. I also have a series of cards such as this one (experimenter showed sample card) with various angles on them. The angles on these cards are of different degrees and are placed in varying positions on the cards. On each trial, you will take a card such as this. The idea is to look at the angle on the card and to choose from the angles on the board, the angle which you think is the same degree as the one in your hand. Thus, if you think this angle (experimenter held up sample card) is the same degree as the one on the board (experimenter pointed to the "C" card) you would say "C". Do you have any questions? (If the subject asked a question, the relevant parts of the instructions were repeated.) There is something else I would like you to do. I would like you to state what you feel is the probability of your being right on a particular trial after you have given your answer. You can rate this on a scale from 0 to 10. For example, if you feel sure that you would be right, you would state a high number like 9 or 10. If you feel only moderately sure that you would be right, you would state a lower number like 5 or 6. If you feel that you won't be right, you would state the lowest numbers like 0 or 1. You might consider these numbers which you state as being estimates that you are making on the degree of confidence that you have that you will be right.

The experimenter then asked the subject if he or she had understood the instructions, and to paraphrase them in order to verify that they had been understood. If the subject had not fully understood the instructions, the relevant portions were repeated.

The experimenter then recorded the subjects' responses and confidence ratings for 30 trials. After 5 trials the experimenter commented, "O.K., let's see how you are doing (experimenter pretended to look for approximately 10 seconds at a sheet in the subject's folder that appeared to have percentile rankings on it). You are at the 50th percentile". After the next 5 trials, the experimenter commented, "Well, you seem to have improved a little. After this I will not give you further feedback. Although the discriminations required here are at a difficult level, we have found that some people are highly skilled at this and

are able to get consistently high scores; the results depend entirely on your ability".

Public/High Demand Situation: Verbal Conditioning Task

At the beginning of the session, the experimenter was seated to the left of, but slightly behind the subject who sat facing a computer screen. The task was presented as follows:

> In a few minutes you will be participating in a task which involves your interaction with the computer. During part of the task, asterisks will appear on the screen. See if you can increase the number of asterisks. We have found that some people have a special skill at this and do consistently better than others. These people can get positive feedback on almost every trial. Do as well as you can, and we will see if you have some skill at this. The task will involve a series of trial presentations. On each trial a verb will appear in the center of the screen and some pronouns will appear down below it. Your task is to say a sentence out loud using the verb and one of the pronouns below it; also, your sentence should start with the pronoun you select. After you have done this, you are to type in the first letter of your sentence on the keyboard. This letter will appear on the screen, hit the return key and a new verb with pronouns will appear on the screen. Remember, during part of the task asterisks will appear on the screen. See if you can increase the number of asterisks. We have found that some people have a special skill at this and do consistently better than others. These people can get positive feedback on every trial. Do as well as you can, and we will see if you have a special skill at this.

The experimenter then proceeded to ask the subject if he or she had understood the instructions and to paraphrase them as a means of verification. If the instructions were not fully understood, the relevant portions were repeated.

Private/Neutral Demand Situation: Letter Cancellation Task

The experimenter was seated near the subject as the following instructions were given:

> In a few minutes, I will leave the room and you will

complete this task alone, but first let me tell you how the task works. This task is designed to assess concentration and attention to detail. You are to cross out each "E" on each page. When you are ready to begin, you are to do one line at a time and only put a single stroke through each letter "E". When you find the task boring and have had enough, you can stop the task. Please be as honest as you can in your reactions. Since you will be doing this task alone, I would like you to press any key (experimenter showed subject typing keys) as soon as you start and as soon as you stop. Since I am collecting both individual and group data in this study, it is not necessary for you to put your name on these sheets; in fact, I prefer that you don't. When you have finished the task, I would like you to put your data in this box. (Experimenter lifted the lid from the box and showed the subject its contents). You see, there are similar data from other subjects with no identifying information.

The experimenter then asked the subject if he or she had understood the instructions, and to paraphrase them as a form of verification. If the instructions were not fullu understood, the experimenter repeated the relevant parts. The experimenter then left the subject alone to complete the task. The subject was instructed to call the experimenter who was seated in a nearby waiting-room when he or she had completed the task. A time-limit of 35 minutes was imposed on the task.

Private/Neutral Demand Situation: Angle Matching Task

The experimenter was seated perpendicularly to the right of the subject who faced the board on which were displayed the angles. The experimenter gave the subject the following instructions:

We are doing a series of experiments to test visual discrimination under conditions of perceptual confusion. In this experiment we are concerned with the judgements of degrees of angles when the differences between them are small and when there are a number of confusing elements present. In a moment I am going to explain the task to you. I would like you to listen carefully and make sure that you understand the instructions because you will be doing part of the task alone. There are a number of angles on this board. They are of different degrees and are set in varying positions. As you can see, some of the angles on this board are very similar to each other. I also have here a series of cards such as this one (experimenter showed

sample card) with various angles on them. The angles on these cards are of different degrees and are placed in varying positions on the cards. On each trial, you will take a card such as this; the idea is to look at the angle on the card and to choose from the angles on the board, the angle which you think is the same degree as the one you have in your hand. Thus, if you think this angle (experimenter held up sample card) is the same degree as this one on the board (experimenter pointed to card "C") you would choose "C". Do you have any questions? (If the subject asked a question, the

relevant parts of the instructions were repeated). I will record your responses for the first 10 trials, but after this I will leave you to complete the task alone. This is where you record your responses (experimenter showed the subject the appropriate columns on the recording sheet). There is something else I would like you to do. I would like you to state what you feel is the probability of your being right on a particular trial after you have given your answer. You can rate this on a scale from 0 to 10. For example, if you feel sure that you are right, you would state a number like 9 or 10. If you only feel moderately sure that you are right, you would state a lower number like 5 or 6. If you feel that you won't be right, you would state the lowest numbers like 0 or 1. You might consider these numbers that you state as being estimates that you are making on your degree of confidence that you have that you will be right.

The experimenter then asked the subject if he or she had understood the instructions, and to paraphrase them as a form of verification. If the instructions were not completely understood, the relevant portions were repeated. After recording the first 10 responses of the subject, the experimenter stated:

O.K., I'm going to leave you to complete the task. Since I am collecting both individual and group data in this study, it is not necessary for you to put your name on this sheet: in fact, I prefer that you don't. When you have finished the task, I would like you to put your data in this box. (The experimenter lifted the lid from the box and showed the subject its contents). You see there are similar data from other subjects with no identifying information.

The subject was left to complete the task and was instructed to call the experimenter who was seated in a nearby waiting-room when the materials had been hidden in

the box.

Private/Neutral Demand Situation: Verbal Conditioning Task

At the beginning of the session, the experimenter was seated to the left of, but slightly behind the subject, who faced a computer screen. The task was presented as follows:

> In a few minutes I will leave the room and you will complete this task alone, but first let me tell you how the task works. This task will involve your interaction with the computer. The task will involve a series of trial presentations. On each trial a verb will appear in the center of the screen and some pronouns down below. Your task is to say a sentence out loud using the verb and one of the pronouns below it; also your sentence should start with a pronoun. After you have done this, you are to type the first letter of your sentence on the keyboard. This letter will appear on the screen. You will continue this procedure until the computer lets you know that the task is finished.

The experimenter asked the subject if he or she had understood the instructions, then asked him or her to paraphrase the instructions to make sure that they had been understood. If the subject had not completely understood the instructions, the relevant portions were repeated. The subject was left to complete the task and was instructed to call the experimenter, who was seated in a nearby waiting-room, when the task had been completed.

Private/High Demand Situation: Letter Cancellation Task

The experimenter, who was seated near the subject at the commencement of the session, instructed the subject in the following manner:

> In a few minutes I will leave the room and you will complete the task alone, but first let me tell you how the task works. This task is designed to assess attention to detail and concentration. You are to cross out each "E" on each page. Even though you may find the task somewhat boring, try to go as far as you can. When you really can't stand it any more, stop the task. Please be as honest as you can in your reactions. Since you will be doing this task alone, I would like you to press any key on the keyboard as soon as you start the task and to press any key as soon as you stop. Since I am collecting both individual and group data in this study, it is not necessary for you to put your name on these sheets; in fact, I prefer

that you don't. When you have finished the task, I would like you to put your data in this box. (Experimenter lifted the lid from the box and showed the subject its contents). You see, there are similar data from other subjects with no identifying information.

The experimenter asked the subject if he or she had understood the instructions and,then asked the subject to paraphrase the instructions to make sure that he or she had understood them. If the subject had not, the relevant portions were repeated. The experimenter concluded the instructions by saying, "Remember, even though you may find the task somewhat boring, try to go as far as you can. When you really can't stand it any more, then stop the task."

The experimenter left the subject alone to complete the task. The subject was instructed to call the experimenter when he or she had finished the task.

Private/High Demand Situation: Angle Matching Task

The experimenter was seated perpendicularly to the right of the subject at a table. The subject faced the board with the angles on it. The experimenter gave the subject the following instructions:

> We are doing a series of experiments to test visual discrimination under conditions of perceptual confusion. In this experiment we are concerned with the judgements of degrees of angles when the differences between them are small and when there are a number of confusing elements present. In a moment I am going to explain the task to you. I would like you to listen carefully and make sure that you understand the instructions because you will be doing part of this task alone. We have found that some people have a special skill at this and do consistently better than others. Do as well as you can. There are a number of angles on this board. They are of different degrees and are placed in varying positions on the cards. As you can see, some of the angles on this board are very similar to each other. I also have here a series of cards such as this one (experimenter showed subject sample card) with various angles on them. The angles on these cards are of different degrees and are placed in varying positions on the cards. On each trial, you will take a card such as this. The idea is to look at the angle on the card and to choose from the angles on the board, the angle which you think is the same degree as the one you have in your hand. Thus, if you think this angle (experimenter held up sample card) is the

same degree as this one on the board (experimenter pointed to card "C") you would choose "C". Do you have any questions? (If the subject asked a question, the relevant portions of the instructions were repeated). There is something else I would like you to do. I would like you to state what you feel is the probability of your being right on a trial after you have given your answer. You can rate this on a scale from 0 to 10. For example, if you feel sure that you would be right, you would state a high number like 9 or 10. If you feel only moderately that you would be right, you would state a lower number like 5 or 6. If you feel that you won't be right, you would state the lowest numbers like 0 or 1. You might consider these numbers which you state as being estimates that you are making on the degree of confidence that you have that you will be right.

The experimenter then asked the subject if he or she had understood the instructions, and asked that these instructions be paraphrased to verify that they had been understood. If the subject had not fully understood the instructions, the relevant portions were repeated. The experimenter then added the following instructions:

Now, one more thing, I will record your responses for the next 10 trials, but after this I will leave you to complete the task alone. This is where you record your responses (experimenter showed subject appropriate columns on scoring sheet).

The experimenter then recorded the subject's responses and confidence ratings for the next 10 trials. After the first 5 trials, the experimenter commented,"O.K., let's see how you are doing (experimenter pretended to look for approximately 10 seconds at a sheet in the subject's folder that appeared to have percentile rankings on it). You are at the 50th percentile". After the next 5 trials, the experimenter commented:

Well, you seem to have improved a little. After this, I will not give you further feedback. Although the discriminations required here are at a difficult level, we have found that some people are highly skilled at this and are able to get consistently high scores; the results depend entirely on your ability. In a moment I am going to leave you to complete the task. Since I am collecting both individual and group data in this study it is not necessary for you to put your name on this sheet; in fact, I prefer that you don't. When you have finished the task, I would like you to put your data in this box. (The experimenter lifted the lid from the

box and showed the subject its contents). You see there are similar data from other subjects, also without any identifying information.

The subject was left to complete the task and was instructed to call the experimenter, who was seated in a nearby waiting-room, when the materials had been hidden in the box.

Private/High Demand Situation: Verbal Conditioning Task

At the beginning of the session, the experimenter was seated to the left of, but slightly behind the subject who sat facing a computer screen. The task was presented as follows:

> In a few minutes, I will leave the room and you will complete this task alone, but first let me tell you how the task works. This task will involve your interaction with the computer. During part of the task, asterisks will appear on the screen. See if you can increase the number of asterisks. We have found that some people have a special skill at this and do consistently better than others. Do as well as you can and we will see if you have some skill at this. The task involves a series of trial presentations. On each trial a verb will appear in the center of the screen and some pronouns down below. Your task is to say a sentence out loud using the verb and one of the pronouns below it; also, your sentence should start with a pronoun. After you have done this, you are to type in the first letter of your sentence on the keyboard. This letter will appear on the screen. Hit the return key and a new verb with pronouns will appear. You will continue this procedure until the computer lets you know that the task is finished. Remember, during part of the task, asterisks will appear on the screen. See if you can increase the number of asterisks. We have found that some people have a special skill at this and do consistently better than others. These people can get positive feedback on almost every trial. Do as well as you can and we will see if you have a special skill at this.

The experimenter asked the subject if he or she had understood the instructions, and then asked him or her to paraphrase the instructions to make sure that they had been understood. If the instructions were not fully comprehended, the relevant portions were repeated. The subject was asked to call the experimenter, who was seated in a nearby waiting-room, when the task was completed.

Appendix L

Tables

Table 1

Descriptive Data on Subjects Completing Study

Subject Number	Group	Sex	Age	Race	Order	Scale 7	Scale 4
1	H[a]	F	17	W	3	54	115
2	H	M	18	W	1	49	102
3	H	F	19	W	1	65	97
4	H	F	24	W	3	42	109
5	H	F	18	W	4	48	109
6	H	F	18	W	2	68	102
7	H	F	18	W	4	33	105
8	H	F	18	W	4	54	102
9	H	F	18	W	3	64	97
10	H	F	19	W	3	67	97
11	H	F	18	W	1	70	102
12	H	F	17	W	4	58	105
13	H	F	18	W	1	62	97
14	H	F	18	W	4	42	97
15	H	F	18	W	1	65	105
16	H	F	19	W	3	37	115
17	H	F	20	W	2	33	115
18	H	F	18	W	2	70	97
19	H	F	21	W	2	65	105
20	H	M	18	W	2	54	107
21	H	F	22	W	1	58	97
22	H	F	18	W	1	54	102
23	H	F	19	W	2	70	97
24	H	F	19	W	3	14	115
25	H	F	18	W	4	58	115
26	H	F	18	W	4	48	105
27	H	F	18	W	2	33	115
28	H	F	18	W	3	29	115
30	C[b]	F	19	W	4	80	58
31	C	F	18	W	3	90	30
32	C	M	22	W	2	93	49
33	C	F	18	W	4	80	78
34	C	F	18	W	1	80	45
35	C	F	18	W	4	90	45
36	C	F	25	B	1	80	75
37	C	F	18	W	1	110	18
38	C	F	-	W	3	85	58
39	C	F	18	W	3	90	30
40	C	F	20	W	3	105	18
41	C	F	18	W	3	85	45

Table 1 continued

Descriptive Data on Subjects Completing Study

Subject Number	Group	Sex	Age	Race	Order	Scale 7	Scale 4
42	C	M	31	W	2	80	49
43	C	F	18	B	2	80	50
44	C	F	18	W	2	80	58
45	C	F	18	W	1	85	30
46	C	F	41	W	2	95	52
47	C	F	18	W	4	100	58
48	C	F	19	W	1	90	52
49	C	F	18	W	2	80	58
50	C	F	18	W	3	80	78
51	C	F	26	W	1	95	15
52	C	F	20	W	3	85	45
53	C	F	18	W	2	85	78
54	C	F	35	W	4	80	58
55	C	M	19	W	4	93	58
60	CT[c]	F	18	W	2	69	52
61	CT	F	18	W	3	65	78
62	CT	F	18	W	2	67	88
63	CT	F	17	W	1	68	75
64	CT	F	18	W	4	69	82
65	CT	F	19	B	1	64	82
66	CT	F	18	W	2	29	78
68	CT	F	19	B	3	63	82
69	CT	F	38	W	2	65	78
70	CT	F	18	W	1	68	78
71	CT	M	19	B	2	68	71
72	CT	F	18	W	3	65	82
73	CT	F	18	W	4	73	67
74	CT	F	19	W	4	65	45
75	CT	M	18	W	4	49	81
76	CT	M	32	W	3	70	61
77	CT	M	23	W	4	64	71
78	CT	M	19	W	3	68	90
80	CT	F	19	W	3	70	85
81	CT	F	18	W	2	67	85
82	CT	F	18	W	1	67	85
83	CT	F	18	W	4	20	52
84	CT	F	18	W	1	70	82
86	CT	F	20	W	4	78	65
87	CT	F	18	B	1	65	77
88	CT	M	20	W	3	54	74

Table 1 continued

Descriptive Data on Subjects Completing Study

Subject Number	Group	Sex	Age	Race	Order	Scale 7	Scale 4
89	CT	M	18	W	1	69	49
97	CT	F	18	W	2	54	78

[a]H = Histrionic Group
[b]C = Compulsive Group
[c]CT=Control Group

Table 2

Table of Means and Standard Deviations of Millon Clinical Multiaxial Inventory (MCMI) Scale Scores of 1063 Introductory Psychology Students

Scale	M BR Score	Standard Deviation
1 (Schizoid)	32.5945	21.5659
2 (Avoidant)	38.9182	24.7246
3 (Dependent)	57.6265	26.3737
4 (Histrionic)	74.8420	22.3486
5 (Narcissistic)	70.8288	20.5675
6 (Antisocial)	60.0263	19.8523
7 (Compulsive)	60.1693	15.7889
8 (Passive Aggressive)	41.2728	25.1898
S (Schizotypal)	43.0094	16.3081
C (Borderline)	51.2352	17.5518
P (Paranoid)	62.6322	16.0013
A (Anxiety)	62.6952	22.0426
H (Somatoform)	64.8241	17.0981
N (Hypomanic)	54.5127	26.6157
D (Dysthymic)	50.9897	24.6134
B (Alcohol Abuse)	45.1496	16.9280
T (Drug Abuse)	59.1496	19.3080
SS (Psychotic Thinking)	50.9370	10.3497
CC (Psychotic Depression)	46.3321	12.1265
PP (Psychotic Delusion)	53.7159	18.0744

Table 3

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Multivariate Analysis of Variance for the Task Measures (Letter Cancellation, Angle Accuracy, Angle Confidence, Verbal Gain)

	Wilks' Lambda	df	F
Group	.919	8, 132	.71
Order	.532	12, 174.91	3.92****
Group x order	.802	24, 231.46	.63
Subjects (Group x Order)	.006	276,825.86	
Audience	.829	4, 206	10.61****
Demand	.829	4, 206	10.66****
Audience x Demand	.993	4, 206	.34
Group x Audience	.949	8, 412	1.37
Order x Audience	.916	12, 545.32	1.53
Group x Demand	.954	8, 412	1.22
Order x Demand	.802	12, 545.32	3.95****
Group x Order x Audience	.928	24,719.86	.65
Group x Order x Demand	.865	24, 719.86	1.28
Group x Audience x Demand	.976	8, 412	.62
Order x Audience x Demand	.873	12, 545.32	2.4**
Group x Audience x Order x Demand	.942	24, 719.86	.52

**p < .01

****p < .0001

Table 4

Weighting of Variables for Significant

MANOVA Effects

	Angle Confidence	Letter Cancellation	Angle Accuracy	Verbal Gain
Audience	1[a]	2	3	4
Demand	1	2	4	3
Order	4	2	3	1
Order x Demand	2	3	4	1
Order x Demand x Audience	1	4	3	2

[a]1: 1 = highest weighting, 2 = second highest weighting

Table 5

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Order

	.115 (Order 1)	.128 (Order 3)	.193 (Order 4)	.230 (Order 2)
.115 (Order 1)	-	.013	.078**	.115**
.128 (Order 3)	-	-	.065**	.102**
.193 (Order 4)	-	-	-	.037
.230 (Order 2)	-	-	-	-

**$p < .01$

Table 6

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Demand and Order

		-.201 (Order 1)	-.152 (Order 3)	-.087 (Order 2)	-.077 (Order 4)
Neutral Demand					
-.201 (Order 1)	-		.049*	.114**	.124**
-.152 (Order 3)	-		-	.065**	.075**
-.087 (Order 2)	-		-	-	.01
-.077 (Order 4)	-		-	-	-
High Demand					
		-.134 (Order 4)	-.117 (Order 1)	-.114 (Order 3)	-.095 (Order 2)
-.134 (Order 4)	-		.017	.02	.039*
-.117 (Order 1)	-		-	.003	.022
-.114 (Order 3)	-		-	-	.019
-.095 (Order 2)	-		-	-	-

*$p < .05$

**$p < .01$

Table 7

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Order and Demand

Order 1		
	-.201 (Neutral)	-.117 (High)
-.201 (Neutral)	-	.084**
-.117 (High)	-	-
Order 2		
	-.095 (High)	-.087 (Neutral)
-.095 (High)	-	.008
-.087 (Neutral)	-	-
Order 3; Public		
	-.152 (Neutral)	-.114 (High)
-.152 (Neutral)	-	.038*
-.114 (High)	-	-
Order 4		
	-.134 (High)	-.077 (Neutral)
-.134 (High)	-	.057**
-.077 (Neutral)	-	-

*$p < .05$

**$p < .01$

Table 8

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Audience, Demand and Order

Public/Neutral Demand				
	-.551 (Order 1)	-.458 (Order 2)	-.427 (Order 3)	-.421 (Order 4)
-.551 (Order 1)	-	.093**	.124**	.130**
-.458 (Order 2)	-	-	.031	.037
-.427 (Order 3)	-	-	-	.006
-.421 (Order 4)	-	-	-	-
Private/Neutral Demand				
	-.572 (Order 1)	-.514 (Order 3)	-.488 (Order 2)	-.430 (Order 4)
-.572 (Order 1)	-	.058*	.084**	.142**
-.514 (Order 3)	-	-	.026	.084**
-.488 (Order 2)	-	-	-	.058*
-.430 (Order 4)	-	-	-	-
Public/High Demand				
	-.497 (Order 2)	-.479 (Order 1)	-.430 (Order 3)	-.404 (Order 4)
-.497 (Order 2)	-	.018	.067**	.093**
-.479 (Order 1)	-	-	.049*	.075**
-.430 (Order 3)	-	-	-	.026
-.404 (Order 4)	-	-	-	-

Table 8 continued

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Audience, Demand and Order

Private/High Demand

	-.523 (Order 4)	-.485 (Order 1)	-.460 (Order 2)	-.421 (Order 3)
-.523 (Order 4)	-	.038	.063**	.102**
-.485 (Order 1)	-	-	.025	.064**
-.460 (Order 2)	-	-	-	.039
-.421 (Order 3)	-	-	-	-

*p < .05

**p < .01

Table 9

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Order, Audience and Demand

Order 1; Public		
	-.551 (Neutral)	-.479 (High)
-.551 (Neutral)	-	.072*
-.479 (High)	-	-
Order 2; Public		
	-.497 (High)	-.458 (Neutral)
-.497 (High)	-	.039*
-.458 (Neutral)	-	-
Order 3; Public		
	-.430 (High)	-.427 (Neutral)
-.430 (High)	-	.003
-.427 (Neutral)	-	-
Order 4; Public		
	-.421 (Neutral)	-.404 (High)
-.421 (Neutral)	-	.017
-.404 (High)	-	-

Table 9 continued
Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Order, Audience and Demand

Order 1; Private		
	-.572 (Neutral)	-.485 (High)
-.572 (Neutral)	-	.087**
-.485 (High)	-	-
Order 2; Private		
	-.488 (Neutral)	-.460 (High)
-.488 (Neutral)	-	.028
-.460 (High)	-	-
Order 3; Private		
	-.514 (Neutral)	-.421 (High)
-.514 (Neutral)	-	.093**
-.421 (High)	-	-
Order 4; Private		
	-.523 (High)	-.430 (Neutral)
-.523 (High)	-	.093**
-.430 (Neutral)	-	-

*p < .05
**p < .01

Table 10

Newman-Keuls Post Hoc Tests: Canonical Means of the Weighted Combination of Dependent Variables for Order, Demand and Audience

Order 1; Neutral Demand		
	-.572 (Private)	-.551 (Public)
-.572 (Private)	-	.021
-.551 (Public)	-	-
Order 2; Neutral Demand		
	-.489 (Private)	-.458 (Public)
-.489 (Private)	-	.031
-.458 (Public)	-	-
Order 3; Neutral Demand		
	-.514 (Private)	-.427 (Public)
-.514 (Private)	-	.087**
-.427 (Public)	-	-
Order 4; Neutral Demand		
	-.430 (Private)	-.421 (Public)
-.430 (Private)	-	.009
-.421 (Public)	-	-

Table 10 continued
Newman-Keuls Post Hoc Tests: Canonical Means of the
Weighted Combination of Dependent Variables
for Order, Demand and Audience

Order 1; High Demand		
	-.485 (Private)	-.479 (Public)
-.485 (Private)	-	.006
-.479 (Public)	-	-
Order 2; High Demand		
	-.497 (Public)	-.460 (Private)
-.497 (Public)	-	-.037
-.460 (Private)	-	-
Order 3; High Demand		
	-.430 (Public)	-.421 (Private)
-.430 (Public)	-	.009
-.421 (Private)	-	-
Order 4; High Demand		
	-.523 (Private)	-.404 (Public)
-.523 (Private)	-	.119**
-.404 (Public)	-	-

**$p < .01$

Table 11

Correlations Between all Dependent Measures for all Experimental Situations (public/neutral demand, public/high demand, private/neutral demand, private/high demand)

	Letter Cancellation Scores	Angle Confidence Ratings	Percent Angle Accuracy Scores	Verbal Gain Scores
Letter Cancellation Scores	-	.200***	.115*	-.097
Mean Angle Confidence Ratings	-	-	.123*	-.182**
Percent Angle Accuracy Scores	-	-	-	.121*
Verbal Gain Scores	-	-	-	-

*$p < .05$

**$p < .01$

***$p < .001$

Table 12

Summary of Statistically Significant Effects

for the MANOVA and ANOVAs

	MANOVA	Angle Accuracy	Angle Confidence	Verbal Gain	Letter Cancellation
Group					
Order	X[a]			X	X
Group x Order					
Subjects (Group x Order)					
Audience	X		X		X
Demand	X		X	X	X
Audience x Demand					
Group x Audience		X			
Order x Audience				X	
Group x Demand					
Order x Demand	X			X	
Group x Order x Audience					
Group x Order x Demand		X			
Group x Audience x Demand					
Order x Audience x Demand	X		X	X	
Group x Audience x Demand x Order					

[a]X: Statistically significant effect.

Table 13

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Univariate Analysis of Variance for the Percent Angle Accuracy Scores from Angle Matching Task

Source	df	MS	F
Group	2	81.120	.14
Order	3	64.559	.11
Group x Order	6	171.277	.29
Subject (Group x Order)	69	589.278	
Audience	1	189.330	1.40
Demand	1	42.326	.31
Audience x Demand	1	2.17	.02
Group x Audience	2	485.470	3.59**
Order x Audience	3	49.433	.37
Group x Order x Audience	6	192.569	1.43
Group x Demand	2	214.495	1.59
Order x Demand	3	87.756	.65
Group x Order x Demand	6	263.831	1.95 *
Group x Audience x Demand	2	111.462	.83
Order x Audience x Demand	3	25.41	.19
Group x Order x Audience x Demand	6	81.51	.60

*p< .10

**p< .05

Table 14

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Audience and Group

Public			
	51.429 (Histrionics)	54.904 (Compulsives)	58.661 (Controls)
51.429 (Histrionics)	-	3.475	7.232**
54.904 (Compulsives)	-	-	3.757
58.661 (Controls)	-	-	-
Private			
	52.115 (Compulsives)	53.928 (Controls)	54.643 (Histrionics)
52.115 (Compulsives)	-	1.813	2.528
53.928 (Controls)	-	-	.715
54.643 (Histrionics)	-	-	-

**$p < .01$

Table 15

Newman-Keuls Post Hoc Tests: Means of the
Percent Angle Accuracy Scores for Group and Audience

Histrionics		
	51.429 (Public)	54.643 (Private)
51.429 (Public)	-	3.214
54.643 (Private)	-	-
Compulsives		
	52.115 (Private)	54.904 (Public)
52.115 (Private)	-	2.788
54.904 (Public)	-	-
Controls		
	53.929 (Private)	58.661 (Public)
53.929 (Private)	-	4.732*
58.661 (Public)	-	-

*$p < .05$

Table 16

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Order, Demand and Group

Order 1; Neutral Demand			
	47.143 (Histrionics)	56.786 (Controls)	57.083 (Compulsives)
47.143 (Histrionics)	-	9.643	9.940*
56.786 (Controls)	-	-	.298
57.083 (Compulsives)	-	-	-
Order 2; Neutral Demand			
	55.357 (Histrionics)	55.714 (Compulsives)	60.714 (Controls)
55.357 (Histrionics)	-	.353	5.357
55.714 (Compulsives)	-	-	5.000
60.714 (Controls)	-	-	-
Order 3; Neutral Demand			
	49.643 (Compulsives)	53.333 (Controls)	55.000 (Histrionics)
49.643 (Compulsives)	-	3.690	5.357
53.333 (Controls)	-	-	1.667
55.000 (Histrionics)	-	-	-
Order 4; Neutral Demand			
	50.714 (Histrionics)	56.429 (Controls)	59.167 (Compulsives)
50.714 (Histrionics)	-	5.714	8.452
56.429 (Controls)	-	-	2.738
59.167 (Compulsives)	-	-	-

Table 16 continued

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Order, Demand and Group

Order 1; High Demand			
	49.167 (Compulsives)	51.071 (Controls)	56.786 (Histrionics)
49.167 (Compulsives)	-	1.905	7.619
51.071 (Controls)	-	-	5.714
56.786 (Histrionics)	-	-	-
Order 2; High Demand			
	51.786 (Histrionics)	55.000 (Controls)	56.071 (Compulsives)
51.786 (Histrionics)	-	3.214	4.286
55.000 (Controls)	-	-	1.071
56.071 (Compulsives)	-	-	-
Order 3; High Demand			
	50.000 (Compulsives)	55.00 (Histrionics)	56.154 (Controls)
50.000 (Compulsives)	-	5.000	6.154
55.000 (Histrionics)	-	-	1.154
56.154 (Controls)	-	-	-
Order 4; High Demand			
	51.666 (Compulsives)	52.500 (Histrionics)	61.071 (Controls)
51.666 (Compulsives)	-	.834	9.405*
52.500 (Histrionics)	-	-	8.571
61.071 (Controls)	-	-	-

*$p < .05$

Table 17

Newman-Keuls Post Hoc Tests: Means of the Percent

Angle Accuracy Scores for Group, Demand and Order

Compulsives; Neutral Demand				
	49.643 (Order 1)	55.714 (Order 2)	57.083 (Order 1)	59.167 (Order 4)
49.643 (Order 3)	-	3.810	7.441	9.524*
55.714 (Order 2)	-	-	1.369	3.452
57.083 (Order 1)	-	-	-	2.083
59.167 (Order 4)	-	-	-	-
Histrionics; Neutral Demand				
	47.143 (Order 1)	50.714 (Order 4)	55.000 (Order 3)	55.357 (Order 2)
47.143 (Order 1)	-	3.571	7.857	8.214*
50.714 (Order 4)	-	-	4.286	4.643
55.000 (Order 3)	-	-	-	.357
55.357 (Order 2)	-	-	-	-
Controls; Neutral Demand				
	53.333 (Order 3)	56.429 (Order 4)	56.786 (Order 1)	60.714 (Order 2)
53.333 (Order 3)	-	3.096	3.453	7.381
56.429 (Order 4)	-	-	.358	4.286
56.786 (Order 1)	-	-	-	3.929
60.714 (Order 2)	-	-	-	-

Table 17 continued

Newman-Keuls Post Hoc Tests: Means of the Percent Angle

Accuracy Scores for Group, Demand and Order

Compulsives; High Demand				
	49.167 (Order 1)	50.000 (Order 3)	51.667 (Order 4)	56.071 (Order 2)
49.167 (Order 1)	-	.833	2.500	6.905
50.000 (Order 3)	-	-	1.667	6.071
51.667 (Order 4)	-	-	-	4.405
56.071 (Order 2)	-	-	-	-
Histrionics; High Demand				
	51.786 (Order 2)	52.500 (Order 4)	55.000 (Order 3)	56.786 (Order 1)
51.786 (Order 2)	-	.714	3.214	5.000
52.500 (Order 4)	-	-	2.500	4.286
55.000 (Order 3)	-	-	-	1.786
56.786 (Order 1)	-	-	-	-
Controls; High Demand				
	51.071 (Order 1)	55.000 (Order 2)	56.154 (Order 3)	61.071 (Order 4)
51.071 (Order 1)	-	3.929	5.082	9.999*
55.000 (Order 2)	-	-	1.154	6.071
56.154 (Order 3)	-	-	-	4.918
61.071 (Order 4)	-	-	-	-

*$p < .05$

Table 18

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Group, Order and Demand

Compulsives; Order 1		
	49.167 (High)	57.083 (Neutral)
49.167 (High)	-	7.916
57.083 (Neutral)	-	-
Compulsives; Order 2		
	55.714 (Neutral)	56.072 (High)
55.714 (Neutral)	-	.358
56.071 (High)	-	-
Compulsives; Order 3		
	49.643 (Neutral)	50.000 (High)
49.643 (Neutral)	-	.357
50.000 (High)	-	-
Compulsives; Order 4		
	51.667 (High)	59.167 (Neutral)
51.667 (High)	-	7.500
59.167 (Neutral)	-	-
Histrionics; Order 1		
	47.143 (Neutral)	56.786 (High)
47.143 (Neutral)	-	9.643*
56.786 (High)	-	-

Table 18 continued

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Group, Order and Demand

Histrionics; Order 2		
	51.786 (High)	55.357 (Neutral)
51.786 (High)	-	3.571
55.357 (Neutral)	-	-
Histrionics; Order 3		
	55.000 (Neutral)	55.000 (High)
55.000 (Neutral)	-	0.000
55.000 (High)	-	-
Histrionics; Order 4		
	50.714 (Neutral)	52.500 (High)
50.714 (Neutral)	-	1.786
52.500 (High)	-	-
Controls; Order 1		
	51.071 (High)	56.786 (Neutral)
51.071 (High)	-	5.715
56.786 (Neutral)	-	-
Controls; Order 2		
	55.000 (High)	60.714 (Neutral)
55.000 (High)	-	5.714
60.714 (Neutral)	-	-

Table 18 continued

Newman-Keuls Post Hoc Tests: Means of the Percent Angle Accuracy Scores for Group, Order and Demand

Controls; Order 3		
	53.333 (Neutral)	56.154 (High)
53.333 (Neutral)	-	2.821
56.154 (High)	-	-
Controls; Order 4		
	56.429 (Neutral)	61.071 (High)
56.429 (Neutral)	-	4.642
61.071 (High)	-	-

*$p < .05$

Table 19

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Univariate Analysis of Variance for Mean Angle Confidence Ratings from Angle Matching Task

Source	DF	SS	F
Group	2	2.874	.21
Order	3	44.523	2.15
Group x Order	6	42.845	1.03
Subject (Group x Order)	69	476.720	
Audience	1	6.057	21.28*****
Demand	1	.785	2.76*
Audience x Demand	1	.205	.72
Group x Audience	2	.117	.21
Order x Audience	3	1.013	1.19
Group x Order x Audience	6	1.272	.74
Group x Demand	2	.237	.42
Order x Demand	3	1.129	1.32
Group x Order x Demand	6	2.123	1.24
Group x Audience x Demand	2	.495	.87
Order x Audience x Demand	3	4.204	4.92***
Group x Audience x Order x Demand	6	.377	.22

*$p < .10$

***$p < .01$

*****$p < .0001$

Table 20

Newman-Keuls Post Hoc Tests: Means of Mean Angle

Confidence Ratings for Audience, Demand and Order

Public/Neutral Demand				
	5.774 (Order 3)	6.188 (Order 4)	6.745 (Order 1)	6.788 (Order 2)
5.774 (Order 3)	-	.414**	.971**	1.014**
6.188 (Order 4)	-	-	.557**	.600**
6.745 (Order 1)	-	-	-	.043
6.788 (Order 2)	-	-	-	-
Private/Neutral Demand				
	6.380 (Order 4)	6.452 (Order 3)	6.973 (Order 1)	7.068 (Order 2)
6.380 (Order 4)	-	.072	.593**	.688**
6.452 (Order 3)	-	-	.521*	.616**
6.973 (Order 1)	-	-	-	.095
7.068 (Order 2)	-	-	-	-
Public/High Demand				
	5.952 (Order 3)	5.980 (Order 4)	6.528 (Order 1)	6.888 (Order 2)
5.952 (Order 3)	-	.028	.576**	.936**
5.980 (Order 4)	-	-	.548**	.908**
6.528 (Order 1)	-	-	-	.360*
6.888 (Order 2)	-	-	-	-

Table 20 continued

Newman-Keuls Post Hoc Tests: Means of Mean Angle

Confidence Ratings for Audience, Demand and Order

Private/High Demand

	5.803 (Order 3)	6.703 (Order 4)	6.705 (Order 1)	6.960 (Order 2)
5.803 (Order 3)	-	.900**	.902**	1.157**
6.703 (Order 4)	-	-	.002	.257
6.705 (Order 1)	-	-	-	.255
6.960 (Order 2)	-	-	-	-

*p < .05

**p < .01

Table 21

Newman-Keuls Post Hoc Tests: Means of Mean Angle Confidence Ratings for Order, Audience and Demand

Order 1; Public		
	6.528 (High)	6.745 (Neutral)
6.528 (High)	-	.217
6.745 (Neutral)	-	-
Order 2; Public		
	6.788 (Neutral)	6.888 (High)
6.788 (Neutral)	-	.100
6.888 (High)	-	-
Order 3; Public		
	5.774 (Neutral)	5.952 (High)
5.774 (Neutral)	-	.178
5.952 (High)	-	-
Order 4, Public		
	5.980 (High)	6.188 (Neutral)
5.980 (High)	-	.208
6.188 (Neutral)	-	-
Order 1; Private		
	6.705 (High)	6.973 (Neutral)
6.705 (High)	-	.268
6.973 (Neutral)	-	-

Table 21 continued

Newman-Keuls Post Hoc Tests: Means of Mean Angle

Confidence Ratings for Order, Audience and Demand

Order 2; Private		
	6.960 (High)	7.068 (Neutral)
6.960 (High)	-	.108
7.068 (Neutral)	-	-
Order 3; Private		
	5.803 (High)	6.452 (Neutral)
5.803 (High)	-	.649**
6.452 (Neutral)	-	-
Order 4; Private		
	6.380 (Neutral)	6.703 (High)
6.380 (Neutral)	-	.323
6.703 (High)	-	-

**$p < .01$

Table 22

Newman-Keuls Post Hoc Tests: Means of Mean Angle Confidence Ratings for Order, Demand and Audience

Order 1; Neutral Demand		
	6.745 (Public)	6.973 (Private)
6.745 (Public)	-	.228
6.973 (Private)	-	-
Order 2; Neutral Demand		
	6.788 (Public)	7.068 (Private)
6.788 (Public)	-	.280
7.068 (Private)	-	-
Order 3; Neutral Demand		
	5.774 (Public)	6.452 (Private)
5.774 (Public)	-	.678**
6.452 (Private)	-	-
Order 4; Neutral Demand		
	6.188 (Public)	6.380 (Private)
6.188 (Public)	-	.192
6.380 (Private)	-	-
Order 1; High Demand		
	6.528 (Public)	6.705 (Private)
6.528 (Public)	-	.177
6.705 (Private)	-	-

Table 22 continued

Newman-Keuls Post Hoc Tests: Means of Mean Angle

Confidence Ratings for Order, Demand, and Audience

Order 2; High Demand		
	6.888 (Public)	6.960 (Private)
6.880 (Public)	-	.072
6.960 (Private)	-	-
Order 3; High Demand		
	5.803 (Private)	5.952 (Public)
5.803 (Private)	-	.149
5.952 (Public)	-	-
Order 4; High Demand		
	5.980 (Public)	6.703 (Private)
5.980 (Public)	-	.723**
6.703 (Private)	-	-

**$p < .01$

Table 23

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Univariate Analysis of Variance Analysis of Variance on Initial Baseline Scores of Verbal Conditioning Task

Source	DF	SS	F
Group	2	2.916	.04
Order	3	51.251	.46
Group x Order	6	126.032	.56
Subjects (Group x Order)	69	2568.582	
Audience	1	21.887	1.21
Demand	1	0.087	0.00
Audience x Demand	1	38.499	2.12
Group x Audience	2	17.254	.48
Order x Audience	3	99.744	1.83
Group x Order x Audience	6	84.412	.78
Group x Demand	2	27.482	.76
Order x Demand	3	63.450	1.17
Group x Order x Demand	6	1113.253	1.04
Group x Audience x Demand	2	87.943	2.42
Order x Audience x Demand	3	62.760	1.15
Group x Order x Audience x Demand	6	23.202	.21

Table 24

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Univariate Analysis of Variance for Verbal Gain Scores from Verbal Conditioning Task

Source	DF	SS	F
Group	2	188.464	.16
Order	3	13172.072	7.67**
Group x Order	6	1718.188	.50
Subjects (Group x Order)	69	39474.000	
Audience	1	10.878	.07
Demand	1	970.113	6.32*
Audience x Demand	1	109.761	.72
Goups x Audience	2	489.673	1.60
Order x Audience	3	1441.711	3.13*
Group x Order x Audience	6	41.044	0.04
Group x Demand	2	317.214	1.03
Order x Demand	3	6538.584	14.20****
Group x Order x Demand	6	887.374	.96
Group x Audience x Demand	2	45.757	.15
Order x Audience x Demand	3	2234.589	4.85**
Group x Audience x Demand	6	455.342	.49

*$p < .05$
**$p < .01$
****$p < .0001$

Table 25

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order

	6.850 (Order 1)	8.631 (Order 3)	17.200 (Order 4)	22.905 (Order 2)
6.850 (Order 1)	-	1.781	10.350*	16.055**
8.631 (Order 3)	-	-	8.569*	14.274**
17.200 (Order 4)	-	-	-	5.705
22.905 (Order 2)	-	-	-	-

*$p < .05$

**$p < .01$

Table 26

Newman-Keuls Post Hoc Tests: Means of the Verbal

Gain Scores for Audience and Order

Public				
	6.125 (Order 1)	10.690 (Order 3)	19.625 (Order 4)	20.071 (Order 2)
6.125 (Order 1)	-	4.565	13.500**	13.946**
10.690 (Order 3)	-	-	8.935*	9.381**
19.625 (Order 4)	-	-	-	.446
20.071 (Order 2)	-	-	-	-
Private				
	6.571 (Order 3)	7.575 (Order 1)	14.775 (Order 4)	25.738 (Order 2)
6.571 (Order 3)	-	1.004	8.204**	19.167**
7.575 (Order 1)	-	-	7.200*	18.163**
14.775 (Order 4)	-	-	-	10.963**
25.738 (Order 2)	-	-	-	-

*$p < .05$

**$p < .01$

Table 27

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order and Audience

Order 1		
	6.125 (Public)	7.575 (Private)
6.125 (Public)	-	1.450
7.575 (Private)	-	-
Order 2		
	20.071 (Public)	25.738 (Private)
20.071 (Public)	-	5.670
25.738 (Private)	-	-
Order 3		
	6.571 (Private)	10.690 (Public)
6.571 (Private)	-	4.119
10.690 (Public)	-	-
Order 4		
	14.775 (Private)	19.625 (Public)
14.775 (Private)	-	4.850
19.625 (Public)	-	-

Table 28

Newman-Keuls Post Hoc Tests: Means of the

Verbal Gain Scores for Demand and Order

Neutral Demand				
	-1.050 (Order 1)	4.977 (Order 3)	21.550 (Order 4)	23.166 (Order 2)
-1.050 (Order 1)	-	6.027*	22.600**	24.216**
4.977 (Order 3)	-	-	16.573**	18.189**
21.550 (Order 4)	-	-	-	1.616
23.167 (Order 2)	-	-	-	-
High Demand				
	12.463 (Order 3)	12.850 (Order 4)	14.750 (Order 1)	22.643 (Order 2)
12.463 (Order 3)	-	.397	2.287	10.180**
12.850 (Order 4)	-	-	1.900	9.793**
14.750 (Order 1)	-	-	-	7.893*
22.643 (Order 2)	-	-	-	-

*$p < .05$

**$p < .01$

Table 29

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order and Demand

Order 1		
	-1.050 (Neutral)	14.750 (High)
-1.050 (Neutral)	-	15.80**
14.750 (High)	-	-
Order 2		
	22.643 (High)	23.166 (Neutral)
22.643 (High)	-	.523
23.166 (Neutral)	-	-
Order 3		
	4.977 (Neutral)	12.463 (High)
4.977 (Neutral)	-	7.486*
12.463 (High)	-	-
Order 4		
	12.850 (High)	21.550 (Neutral)
12.850 (High)	-	8.700*
21.550 (Neutral)	-	-

*$p < .05$

**$p < .01$

Table 30

Newman-Keuls Post Hoc Tests: Means of theVerbal

Gain Scores for Audience, Demand and Order

Public/Neutral Demand				
	-1.050 (Order 1)	9.190 (Order 3)	20.300 (Order 4)	23.524 (Order 2)
-1.050 (Order 1)	-	10.240*	21.350**	24.574**
9.190 (Order 3)	-	-	11.110*	14.334**
20.300 (Order 4)	-	-	-	3.224
23.524 (Order 2)	-	-	-	-
Private/Neutral Demand				
	-1.050 (Order 1)	.955 (Order 3)	22.800 (Order 4)	22.810 (Order 2)
-1.050 (Order 1)	-	2.005	23.850**	23.860**
.955 (Order 3)	-	-	21.845**	21.855**
22.800 (Order 4)	-	-	-	.010
22.810 (Order 2)	-	-	-	-
Public/High Demand				
	12.190 (Order 3)	13.300 (Order 1)	16.619 (Order 2)	18.950 (Order 4)
12.190 (Order 3)	-	1.110	4.429	6.760*
13.300 (Order 1)	-	-	3.319	5.650
16.619 (Order 2)	-	-	-	2.331
18.950 (Order 4)	-	-	-	-
Private/High Demand				
	6.750 (Order 4)	12.750 (Order 3)	16.200 (Order 1)	28.667 (Order 2)
6.750 (Order 4)	-	6.000	9.450*	21.917**
12.750 (Order 3)	-	-	3.450	15.917**
16.200 (Order 1)	-	-	-	12.467*
.667 (Order 2)	-	-	-	-

*p < .05

**p < .01

Table 31

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order, Audience and Demand

Order 1; Public		
	-1.050 (Neutral)	13.330 (High)
-1.050 (Neutral)	-	14.350**
13.300 (High)	-	-
Order 2; Public		
	16.619 (High)	23.523 (Neutral)
16.619 (High)	-	6.904
23.523 (Neutral)	-	-
Order 3; Public		
	9.190 (Neutral)	12.190 (High)
9.190 (Neutral)	-	3.000
12.190 (High)	-	-
Order 4; Public		
	18.950 (High)	20.300 (Neutral)
18.950 (High)	-	1.350
20.300 (Neutral)	-	-
Order 1; Private		
	-1.050 (Neutral)	16.200 (High)
-1.050 (Neutral)	-	17.250**
16.200 (High)	-	-

Table 31 continued

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order, Audience and Demand

Order 2; Private		
	22.810 (Neutral)	28.667 (High)
22.810 (Neutral)	-	5.857
28.667 (High)	-	-
Order 3; Private		
	.955 (Neutral)	12.750 (High)
.955 (Neutral)	-	11.795*
12.750 (High)	-	-
Order 4; Private		
	6.750 (High)	22.800 (Neutral)
6.750 (High)	-	16.050**
22.800 (Neutral)	-	-

*p < .05

**p < .01

Table 32

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order, Demand and Audience

Order 1; Neutral Demand		
	-1.050 (Public)	-1.050 (Private)
-1.050 (Public)	-	.000
-1.050 (Private)	-	-
Orders 2; Neutral Demand		
	22.809 (Private)	23.523 (Public)
22.809 (Private)	-	.714
23.523 (Public)	-	-
Order 3; Neutral Demand		
	.955 (Private)	9.190 (Public)
.995 (Private)	-	8.235*
9.190 (Public)	-	-
Order 4; Neutral Demand		
	20.300 (Public)	22.800 (Private)
20.300 (Public)	-	2.500
22.800 (Private)	-	-
Order 1; High Demand		
	13.300 (Public)	16.200 (Private)
13.300 (Public)	-	2.900
16.200 (Private)	-	-

Table 32 continuted

Newman-Keuls Post Hoc Tests: Means of the Verbal Gain Scores for Order, Demand and Audience

Order 2; High Demand		
	16.619 (Public)	28.667 (Private)
16.619 (Public)	-	12.048*
28.667 (Private)	-	-
Order 3; High		
	12.190 (Public)	12.750 (Private)
12.190 (Public)	-	.560
12.750 (Private)	-	-
Order 4; High		
	6.750 (Private)	18.950 (Public)
6.750 (Private)	-	12.200*
18.950 (Public)	-	-

*$p < .05$

Table 33

Group (3) x Order (4) x Audience Situation (2) x Demand Situation (2): Univariate Analysis of Variance for Letter Cancellation Scores from Letter Cancellation Task

Source	DF	SS	F
Group	2	4408979.502	2.34
Order	3	9911804.146	3.51*
Group x Order	6	2555882.402	.45
Subject (Group x Order)	69	64957829.053	
Audience	1	2797603.303	25.50****
Demand	1	3729249.900	34.00****
Audience x Demand	1	2291.555	.02
Group x Audience	2	38690.312	.18
Order x Audience	3	534513.853	1.62
Group x Order x Audience	6	348865.523	.53
Group x Demand	2	407057.539	1.86
Order x Demand	3	243726.487	.74
Group x Order x Demand	6	711760.400	1.08
Group x Audience x Demand	2	150617.316	.69
Order x Audience x Demand	3	83873.698	.25
Group x Order x Audience x Demand	6	536977.256	.82

*$p < .05$

****$p < .0001$

Table 34

Newman-Keuls Post Hoc Tests: Means of Letter

Cancellation Scores for Order

	847.213 (Order 1)	1005.523 (Order 3)	1269.468 (Order 4)	1297.262 (Order 2)
847.213 (Order 1)	-	158.310	422.255*	450.049**
1005.523 (Order 3)	-	-	263.945	291.738
1269.468 (Order 4)	-	-	-	27.794
1297.262 (Order 2)	-	-	-	-

*p < .05

**p < .01

Table 35

Correlations by Group of Scales 4 and 7 with ANGCONH, ANGACCH, LETCANH, VGAINH, ANGCONC, ANGACCC, LETCANC, AND VGAINC

				Compulsives				
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4	-.0104	-.032	-.088	-.201	.247	.136	.003	-.244
Scale 7	-.109	.055	-.277	.304	.031	-.133	.403*	.175
				Histrionics				
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4	.365	.144	.080	.199	-.026	-.250	.138	-.323
Scale 7	-.344	-.021	-.074	-.281	-.103	-.004	-.236	.035
				Controls				
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4	-.035	.281	-.240	.020	-.364	-.108	.005	.190
Scale 7	-.094	-.013	.178	-.029	-.147	.135	.024	.052

*$p < .05$

Table 36

Correlations by Order of Scales 4 and 7 with ANGCONH, ANGACCH, LETCANH, VGAINH, ANGCONC, ANGACCC, LETCANC, AND VGAINC

ORDER 1

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	-.208	-.535*	.049	.092	.179	.467*	.122	-.020
Scale 7 (Compulsive)	.428	.505*	-.089	.221	-.248	-.476*	-.142	-.053

ORDER 2

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	-.007	.182`	.028	.132	.083	-.064	-.016	-.133
Scale 7 (Compulsive)	.014	.056	-.028	-.107	-.263	.248	-.312	.147

ORDER 3

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.113	.170	-.344	.003	-.157	-.015	.146	-.215
Scale 7 (Compulsive)	-.306	-.029	.295	.003	.155	-.079	.197	.183

Table 36 continued

Correlations by Order of Scales 4 and 7 with ANGCONH, ANGACCH, LETCANH, VGAINH, ANGCONC, ANGACCC, LETCANC, AND VGAINC

	ORDER 4							
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.253	-.227	.018	-.136	.071	.120	.392	.091
Scale 7 (Compulsive)	-.376	.038	-.283	.041	-.072	-.228	-.229	-.056

*p < .05

Table 37

Correlations by Order of Scale 4 Scores of Histrionics and Controls with

ANGCONH, ANGACCH, LETCANH, VGAINH, ANGCONC,

ANGACCC, LETCANC, AND VGAINC

	ORDER 1							
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.072	-.368	.013	.681**	.206	.345	.270	-.082
	ORDER 2							
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.297	.117	.259	.260	-.040	.186	-.277	-.122
	ORDER 3							
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.078	-.110	-.248	.362	.021	-.084	.294	-.481
	ORDER 4							
	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 4 (Histrionic)	.182	-.257	-.161	.107	-.097	-.282	.570*	-.056

*p < .05

**p < .01

Table 38

Correlations by Order of Scale 7 Scores of Compulsives and Controls with

ANGCONH, ANGACCH, LETCANH, VGAINH, ANGCONC,

ANGACCC, LETCANC, AND VGAINC

ORDER 1

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 7 (Compulsive)	.274	.253	-.141	.515	.116	-.295	.318	-.044

ORDER 2

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 7 (Compulsive)	.251	-.031	.340	.192	-.359	.208	-.316	.254

ORDER 3

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 7 (Compulsive)	-.030	-.396	.343	.190	.360	-.145	.082	-.064

ORDER 4

	ANGCONH	ANGACCH	LETCANH	VGAINH	ANGCONC	ANGACCC	LETCANC	VGAINC
Scale 7 (Compulsive)	-.429	-.155	-.365	.200	-.060	-.135	.479	-.193

Table 39

Correlations by Order of Scales 4 and 7 with SDANGCON, SDANGACC, SDLETCAN AND SDVGAIN

	Order 1			
	SDANGCON	SDANGACC	SDLETCAN	SDVGAIN
Scale 4	.457*	.159	.267	-.215
Scale 7	-.407	-.121	-.299	.058
	Order 2			
	SDANGCON	SDANGACC	SDLETCAN	SDVGAIN
Scale 4	-.096	-.248	.057	-.133
Scale 7	.024	.168	-.151	.224
	Order 3			
	SDANGCON	SDANGACC	SDLETCAN	SDVGAIN
Scale 4	.218	.259	-.038	-.418
Scale 7	-.155	-.246	-.059	.248
	Order 4			
	SDANGCON	SDANGACC	SDLETCAN	SDVGAIN
Scale 4	.035	-.018	-.142	-.318
Scale 7	.290	.173	.331	-.148

*$p < .05$

Table 40

Consistent and Inconsistent Responders Among Compulsives, Histrionics and Controls for SDANGACC, SDANGCON, SDLETCAN and SDVGAIN

	Consistent			Inconsistent		
	Histrionics	Compulsives	Controls	Histrionics	Compulsives	Controls
SDANGACC	8	8	12	20	18	16
SDANGCON	26	23	27	2	3	1
SDLETCAN	16	20	19	12	6	9
SDLGAIN	13	13	10	15	13	18

Table 41

Univariate Analysis of Variance on Post-Experiment Question 1[a]

Source	DF	SS	F
Group	2	.954	.20
Error	78	181.923	

[a]Q1: How important was it to you that the experimenter think positively of your performance in this experiment?

Table 42

Univariate Analysis of Variance on Ratings from Experiment

Question 2[a]

Source	DF	SS	F
Group	2	24.203	5.95**
Error	78	158.670	

**$p < .01$

[a]Q2: How important was it for you to do well in this experiment?

Appendix M

Figures

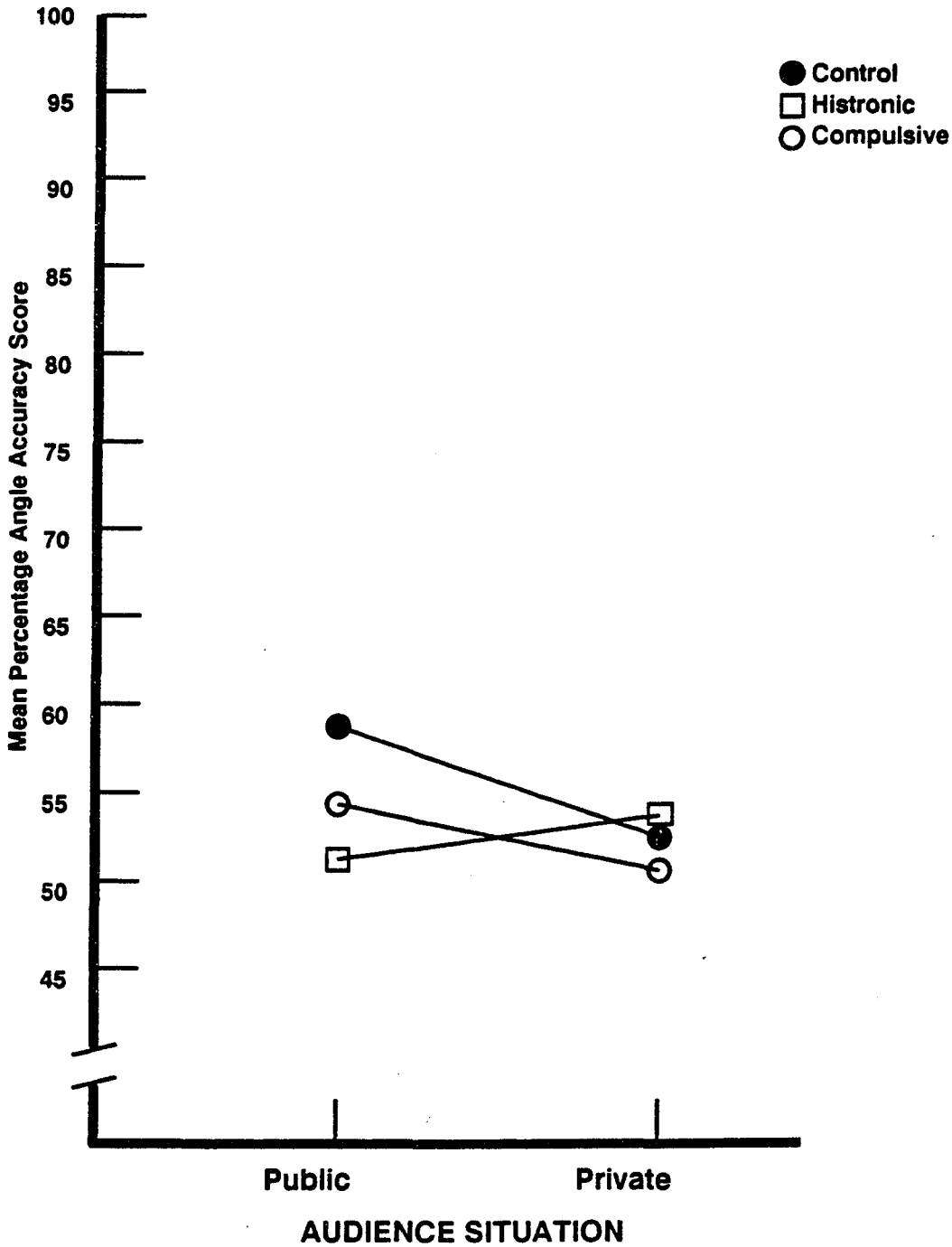


Figure 1: Mean Percent Accuracy Scores from the Angle Matching Task for the Significant Group X Audience Interaction

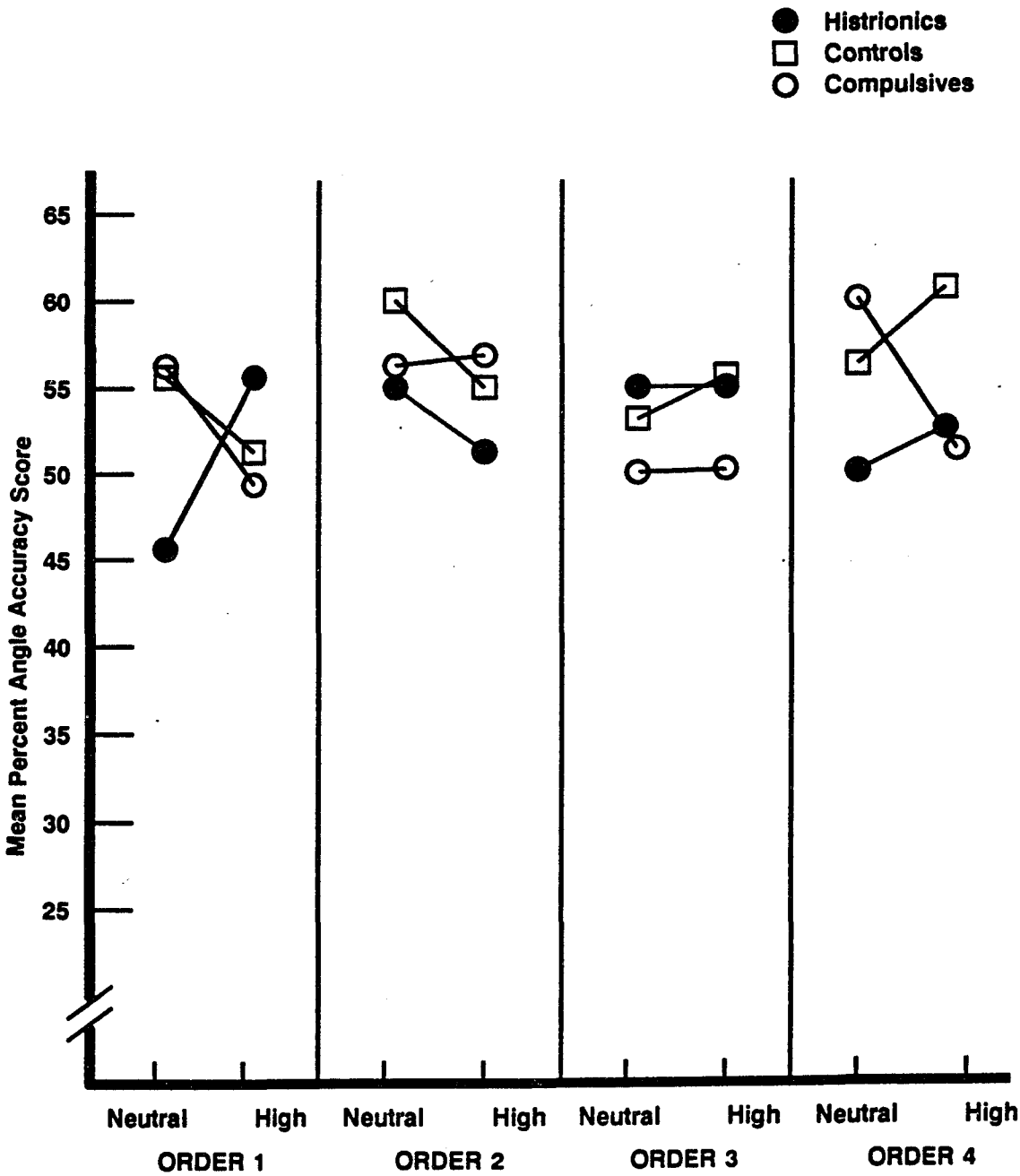


Figure 2: Mean Percent Accuracy Scores from the Angle Matching Task for the Significant Group X Demand X Order Interaction

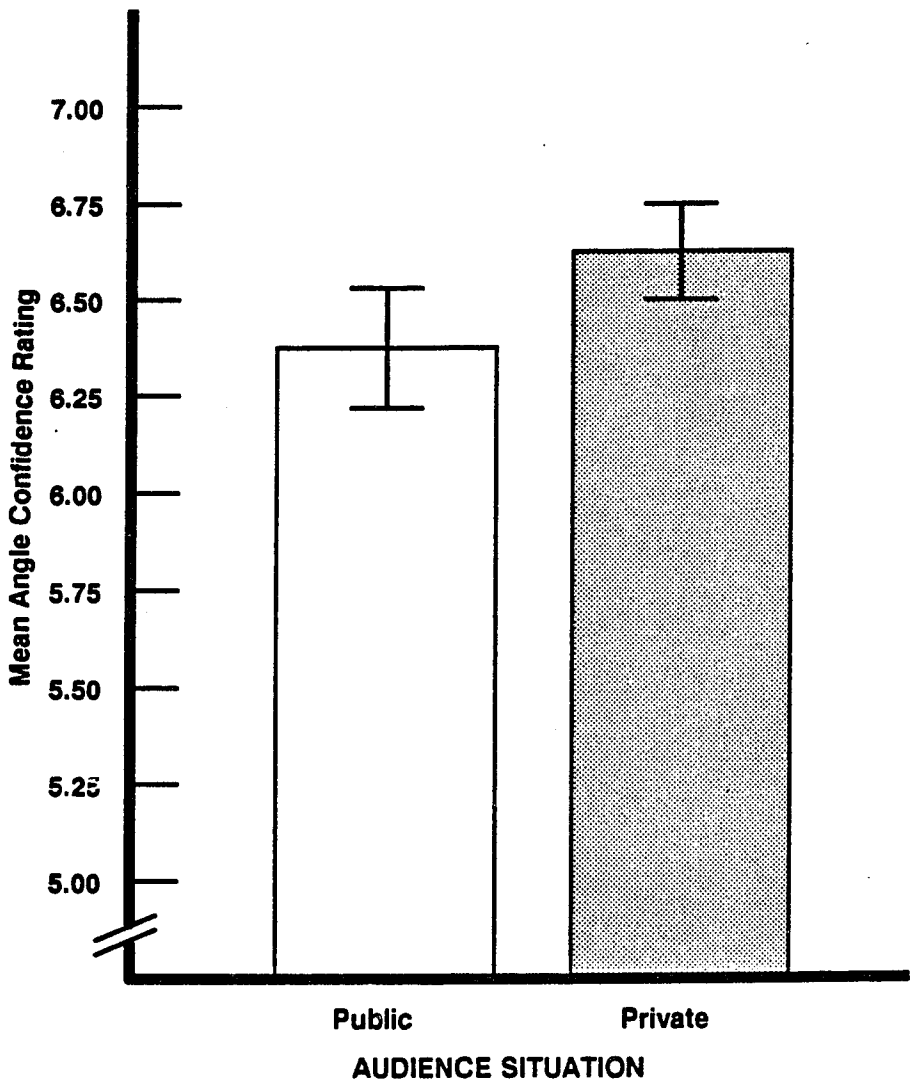


Figure 3: Mean Confidence Ratings from the Angle Matching Task for the Significant Main Effect for Audience

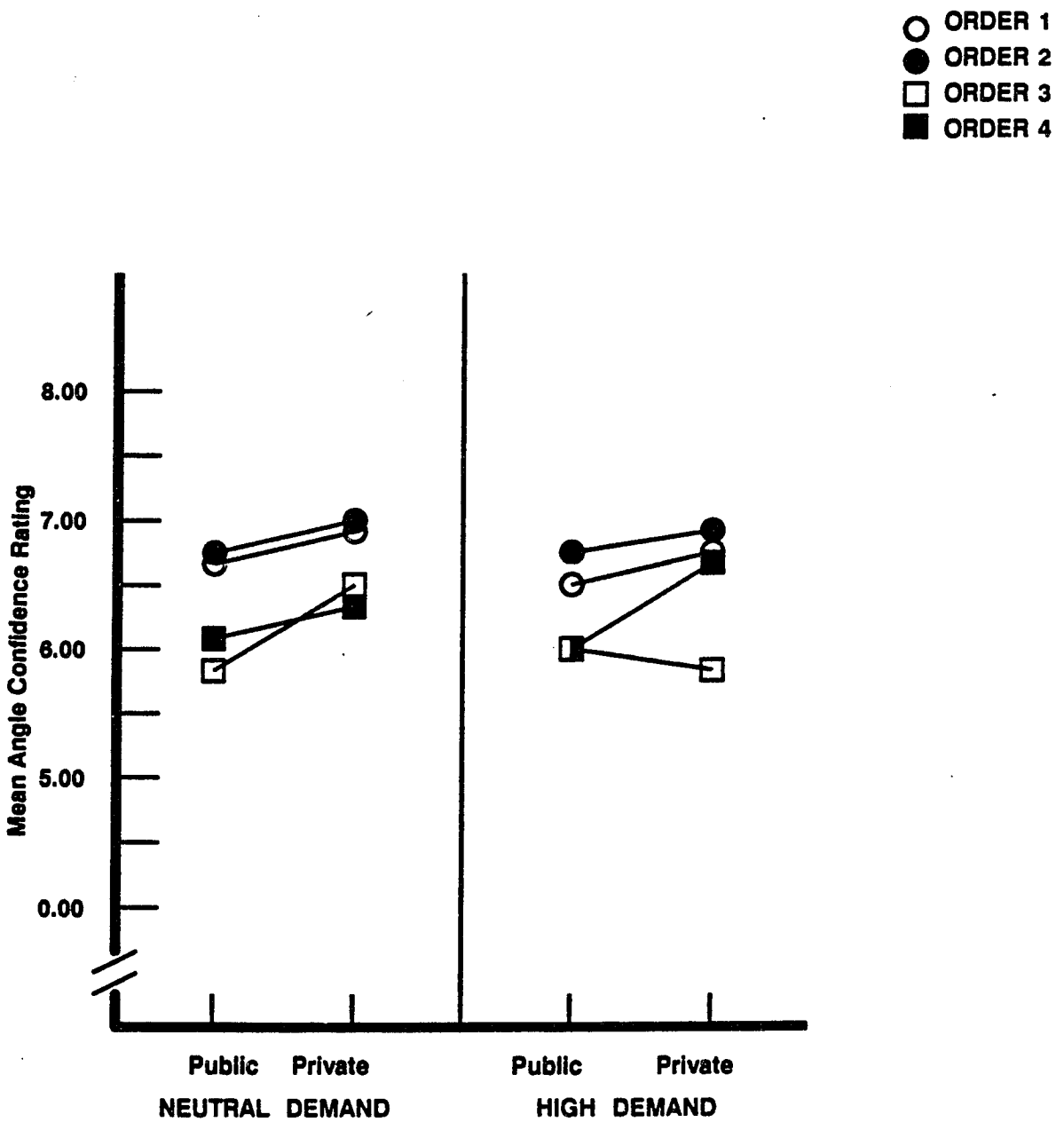


Figure 4: Mean Confidence Ratings from the Angle Matching Task for the Significant Audience X Demand X Order Interaction

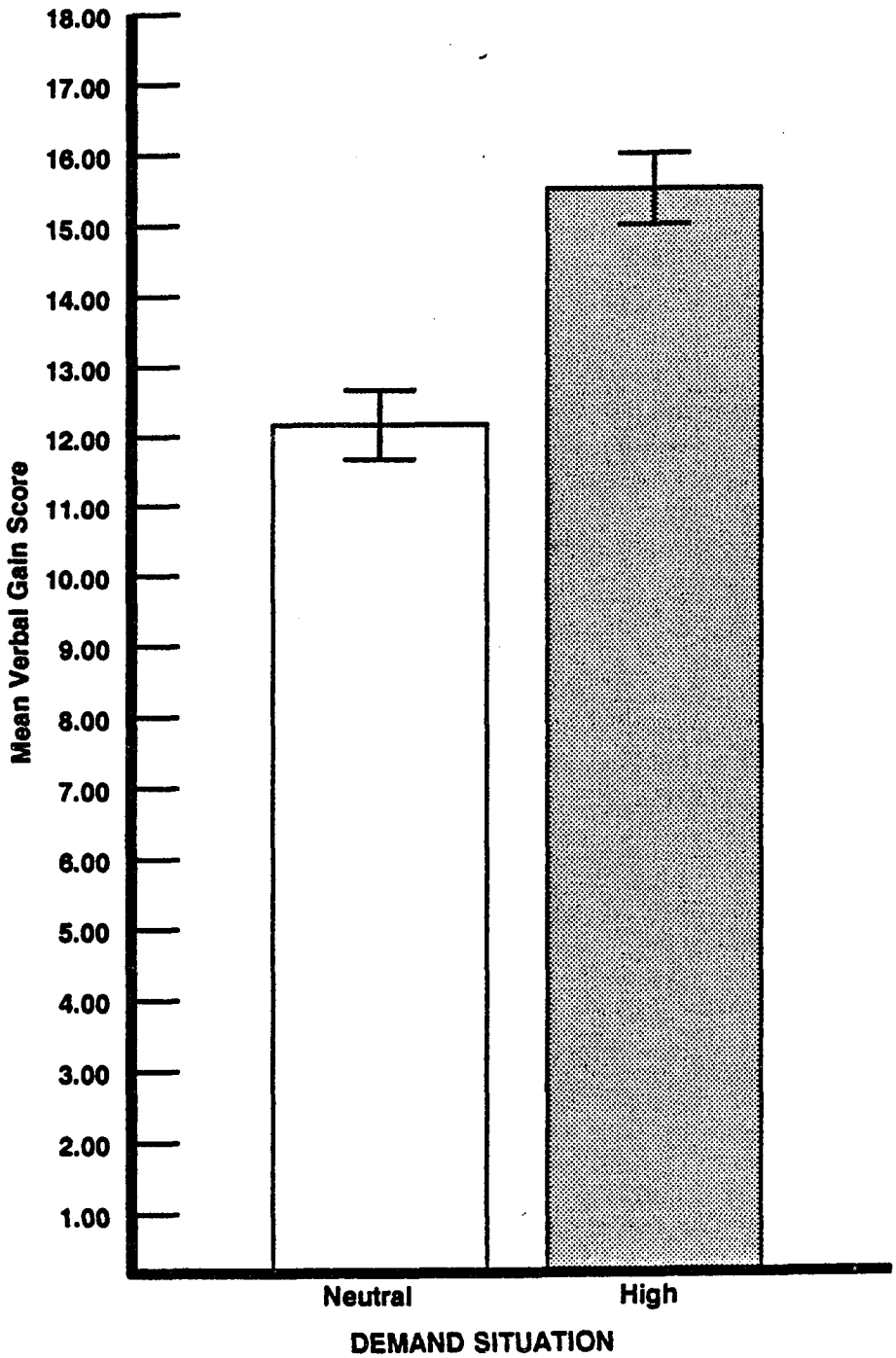


Figure 5: Mean Verbal Gain Scores from the Verbal Conditioning Task for the Significant Main Effect for Demand

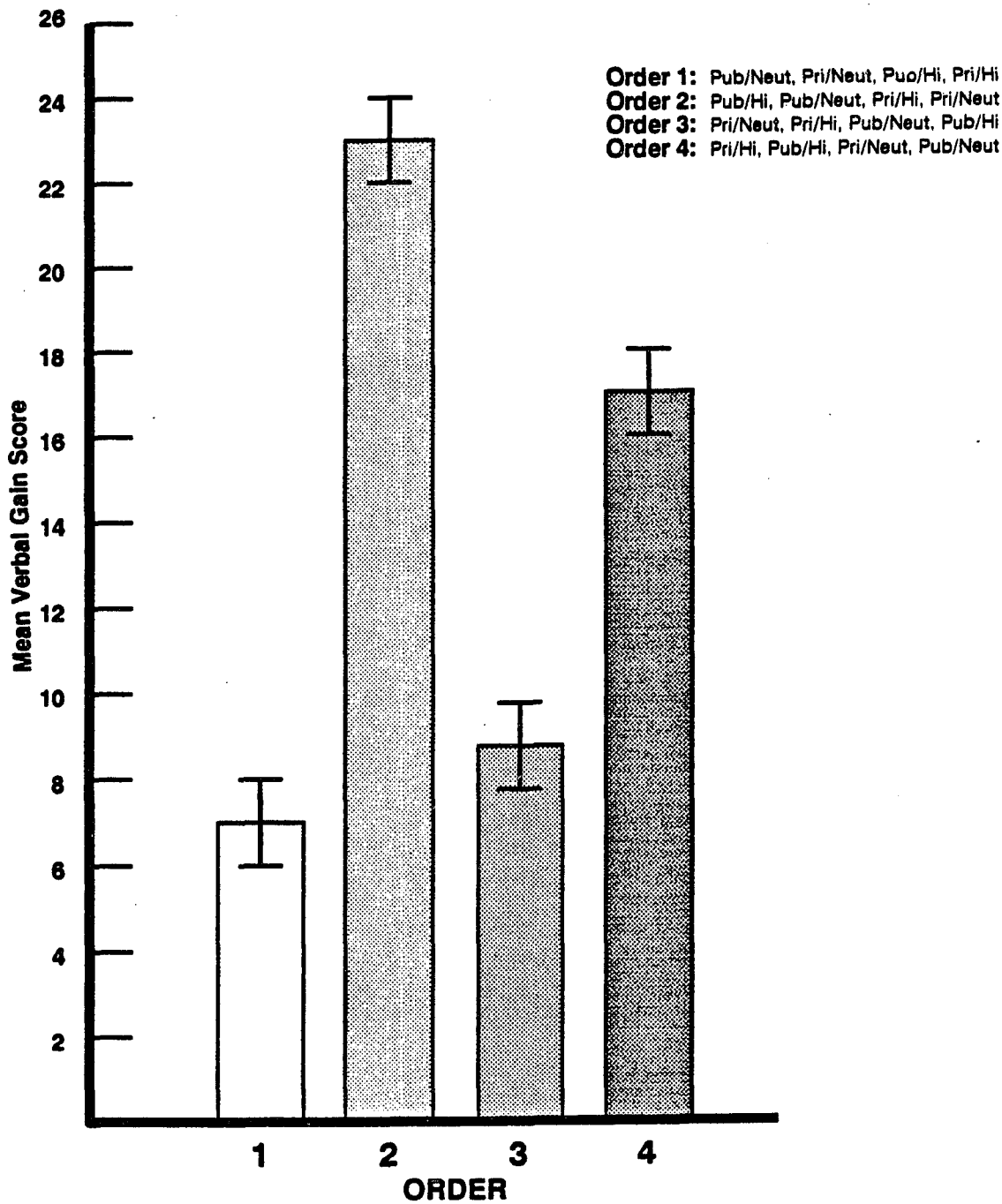


Figure 6: **Mean Verbal Gain Scores from the Verbal Conditioning Task for the Significant Main Effect for Order**

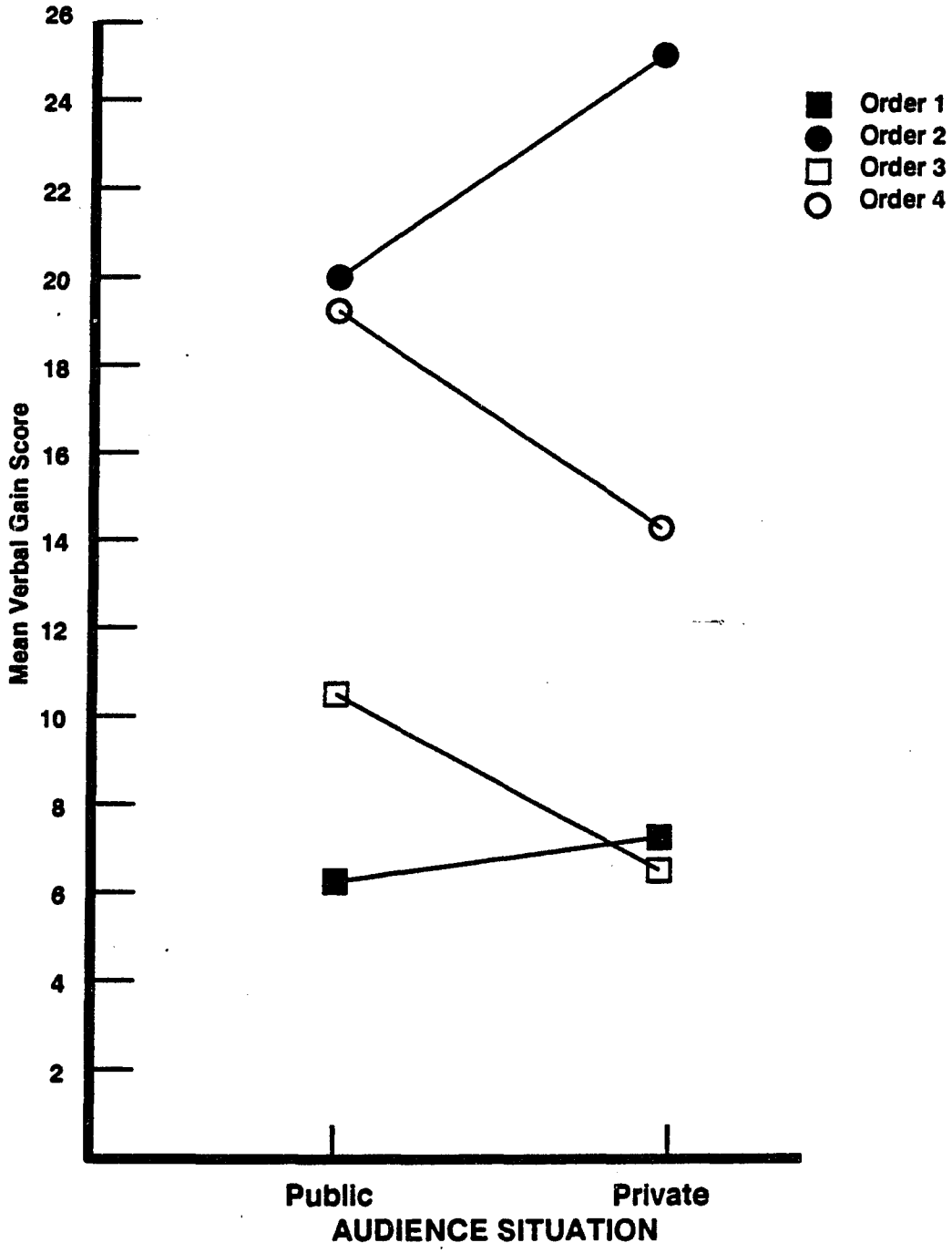


Figure 7: Mean Verbal Gain Scores from the Verbal Conditioning Task for the Significant Audience X Order Interaction

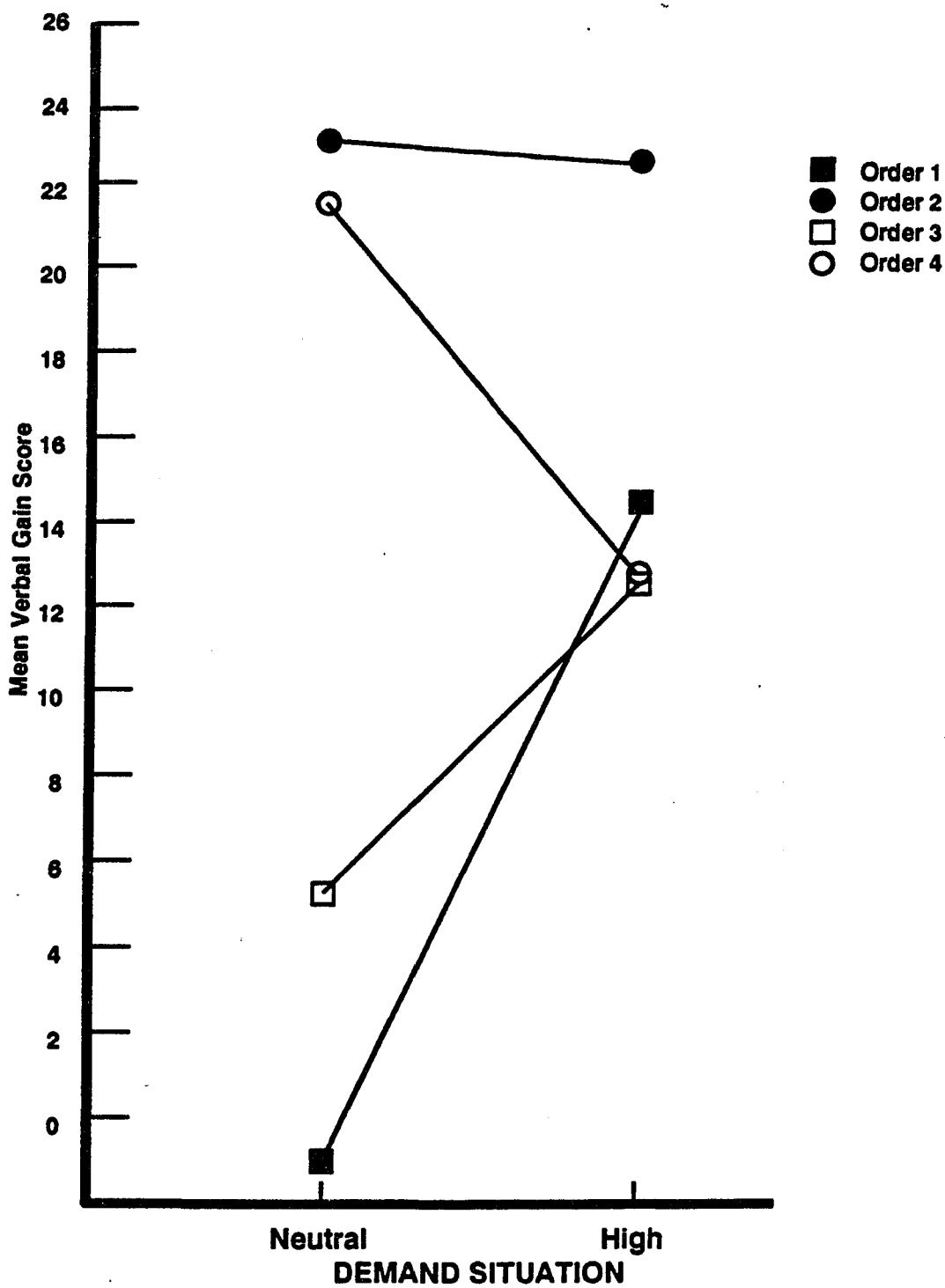


Figure 8: Mean Verbal Gain Scores from the Verbal Conditioning Task for the Significant Demand X Order Interaction

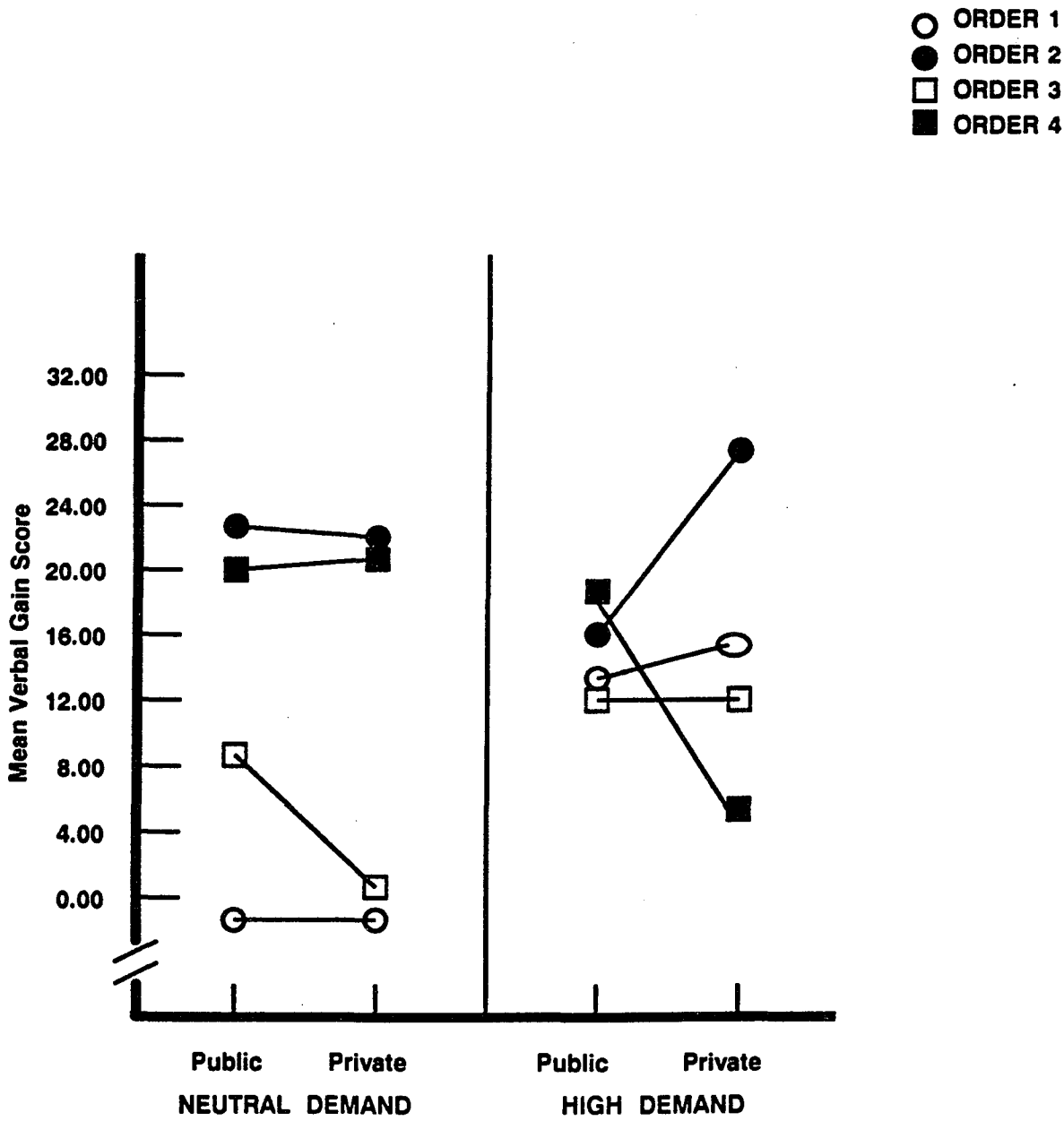


Figure 9: Mean Verbal Gain Scores from the Verbal Conditioning Task for the Significant Audience X Demand X Order Interaction

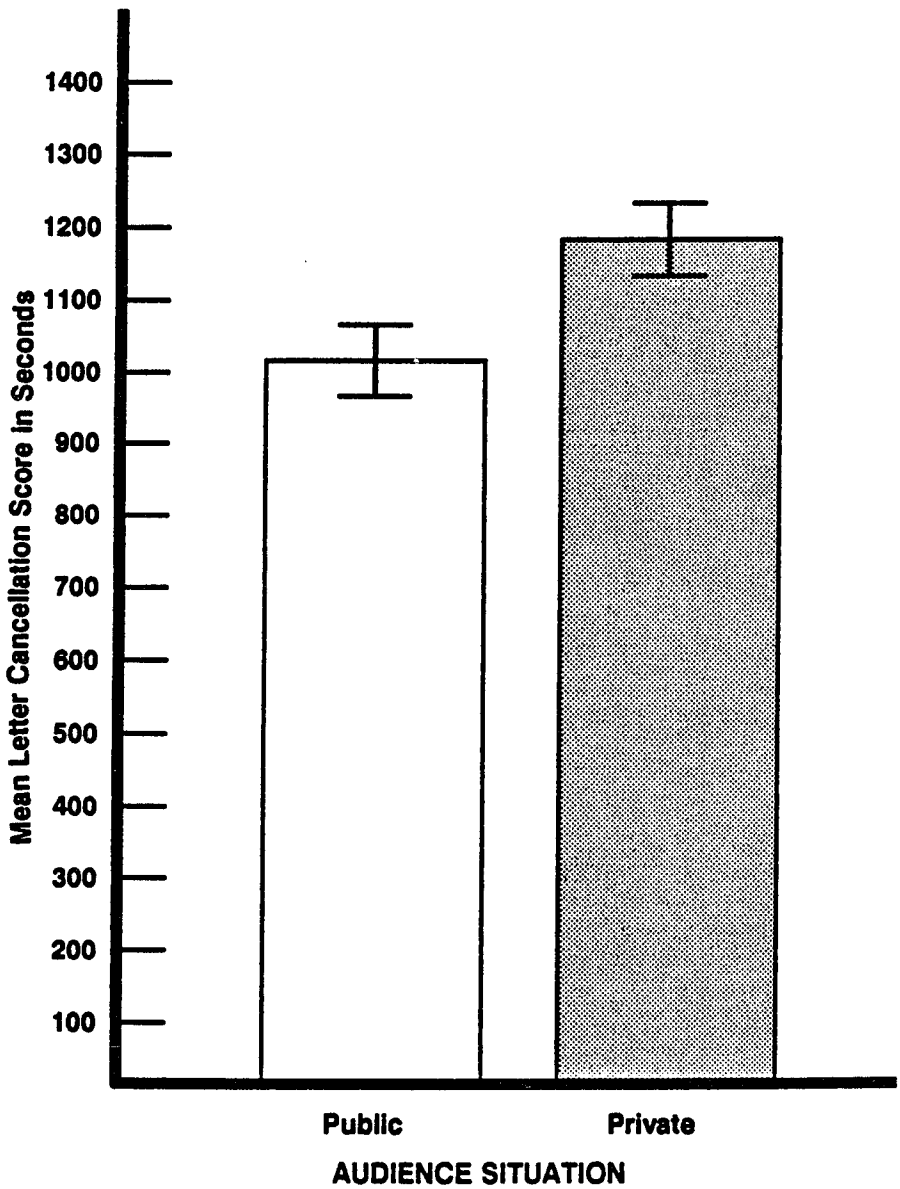


Figure 10: Mean number of seconds on the Letter Cancellation Task for the Significant Main Effect for Audience

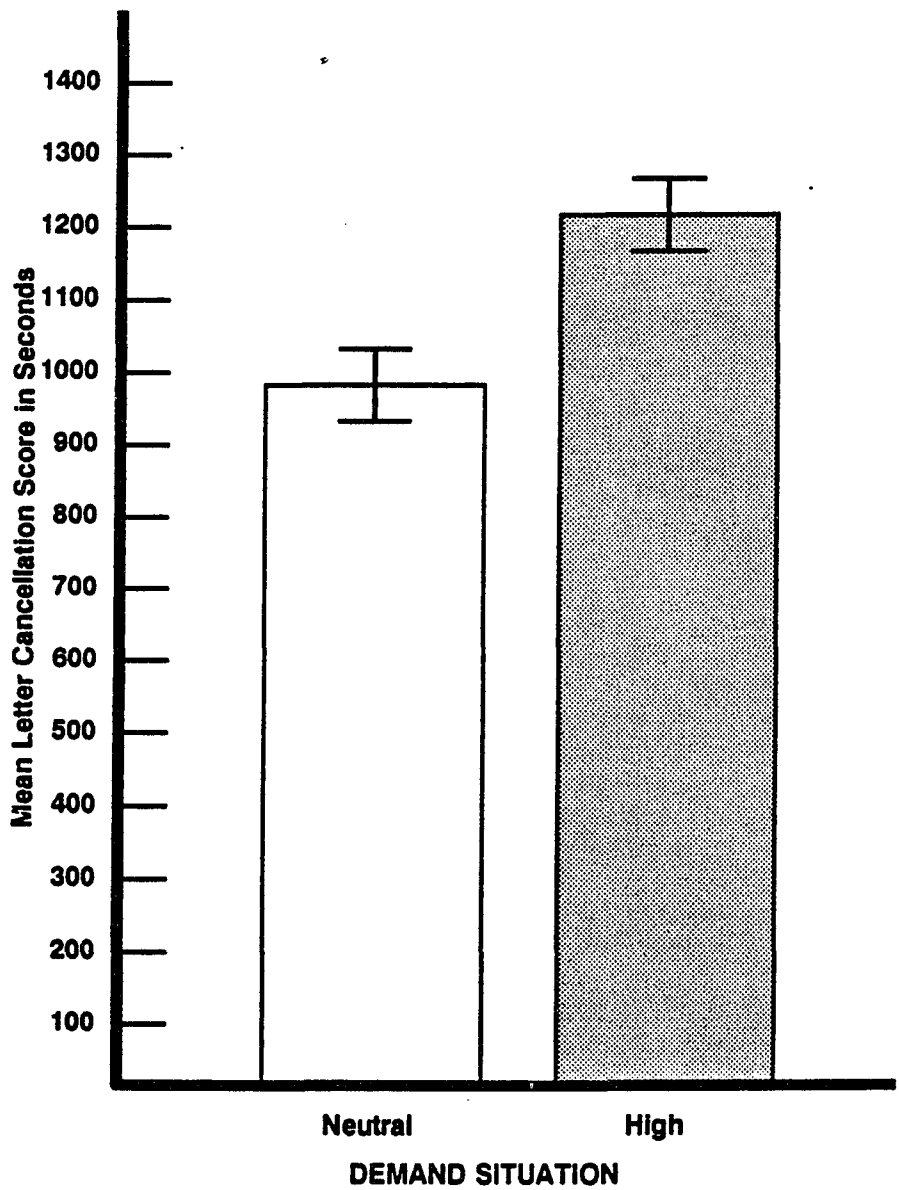


Figure 11: Mean number of seconds on the Letter Cancellation Task for the Significant Main Effect for Demand

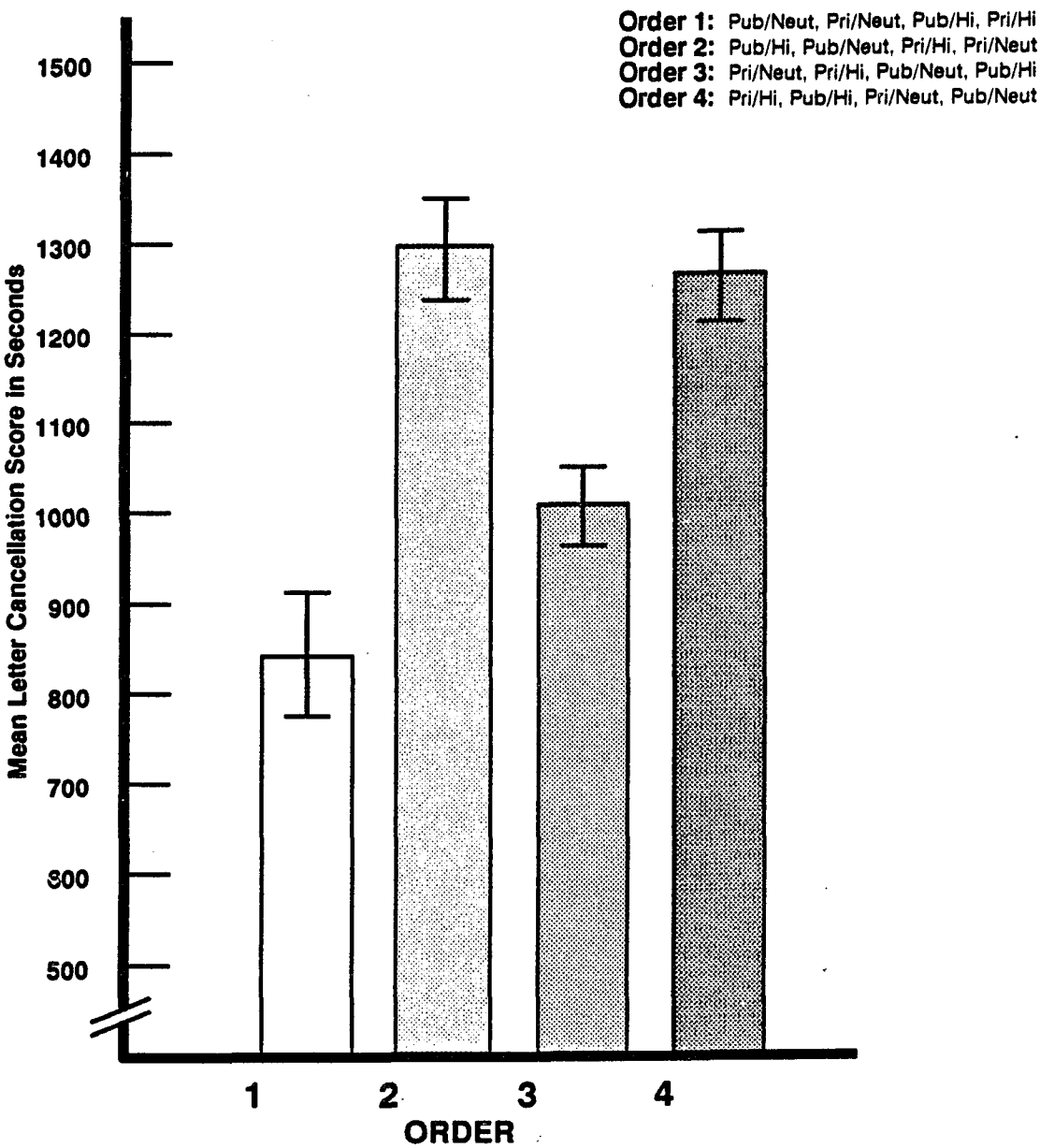


Figure 12: Mean number of seconds on the Letter Cancellation Task for the Significant Main Effect for Order