THE PERFORMANCE AND COGNITIVE SELF-STATEMENTS OF NORMAL, DEPRESSED AND BULIMIC WOMEN EXPOSED TO LEARNED HELPLESSNESS TRAINING

by

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(ABSTRACT)

The current study investigated the impact of Learned Helplessness (LH) training on normal (N), depressed (D), and bulimic (B) female college students (N=135). Participants were selected through a screening procedure using an eating behavior questionnaire and the Beck Depression Inventory (BDI; Beck, 1971) as the primary instruments. Bulimic subjects met the DSM-III criteria for that disorder, and depressed subjects met a criterion of 20 or above on the BDI. Normal subjects had BDI scores below 10 and endorsed 1 or less of the critical items regarding eating behavior which had been used to select bulimic subjects. All three groups were matched for weight, height, and age.

Each category of subjects was divided into three groups which were exposed to Learned Helplessness (LH), Contingent Feedback (CF), or No Training Control (NTC) conditions. Dependent measures included performance on an anagram tast (latency and errors), performance prediction and performance satisfaction questionnaires, and a Self-Statement Test. Results indicated no difference in anagram performance following LH training relative to CF and NTC conditions for normal and bulimic

subjects, although depressed subjects demonstrated longer response latency and more errors as a function of training (LH>CF). NTC subjects did not differ significantly from the other conditions, however. Ratings of performance satisfaction differed as a function of training condition in the expected directions. Bulimic subjects demonstrated an interesting pattern of declining ratings of performance satisfaction across training trials within the CF condition. Also, bulimic subjects were found to make more errors on anagrams of nonfood words relative to food words, although this pattern was not reliably related to training condition. Self-Statement Test items did not produce the expected group x training condition effects.

The present findings provide limited support for the experimental hypothesis that ineffective coping in stressful situations, mediated by cognitive self-statements, is a useful model for understanding bulimia. Methodological issues are discussed, particularly issues related to subject classification. The present study was likely confounded by the presence of depression (i.e., high BDI scores) among the bulimic subjects. Future research should systematically address the relationship between bulimia and depression.

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INTRODUCTION

During the last decade, the amount of attention paid to eating disorders has escalated; in particular, interest has become increasingly focused on a specific eating disorder, bulimia. Variously called bulimia, bulimia nervosa, and bulimarexia, the central focus of this eating disorder is the binge episode, loosely defined in the Diagnostic and Statistical Manual (DSM-III; 1981) as "rapid consumption of a large amount of food in a discrete period of time".

Interest in bulimia is apparent in the popular media as well as in psychological and psychiatric literature. Indeed, articles on bulimia appear regularly in popular women's magazines such as Glamour, Ms., and Cosmopolitan. Johnson (1981) recently described the 1980's as the "age of eating disorders", based on the attention bulimia and its step-sister, anorexia nervosa, are currently receiving.

Despite heightened popular and professional publicity, professional symposia, and the large number of eating disorders treatment clinics which have surfaced, bulimia remains a poorly understood disorder. Further, there is reason to question the validity or utility of the DSM-III diagnostic criteria, and adequate conceptual models to describe the origin and maintenanceof bulimia are sorley lacking.

In light of the current attention on bulimia, it is obvious that further analysis and investigation are warranted. In the pages which follow, a select review of the literature on bulimia will be presented. This review will be divided into two sections. In the first section,

the literature relevant to the description, prevalence, clinical features, medical complications and current theorical formulations of bulimia will be presented in order to provide an overview of the disorder. The second portion of the review will focus on the cognitive features of bulimia. In that cognitions and attributions play a major role in many of the current theories and treatment programs for bulimia, this aspect of bulimia warrants special attention. In addition, the second section will describe the experimental paradigm used in the present study of bulimia, learned helplessness. Finally, a rationale for, and general description of, the present study will be presented.

PART ONE: A GENERAL DESCRIPTION OF BULIMIA

Definition and Description

According to the Diagnostic and Statistical Manual (1980), bulimia is an eating disorder characterized by 1) recurrent episodes of binge eating followed by purging or vomiting; 2) severely restrictive dieting patterns, and/or; 3) frequent weight fluctuations associated with binging and fasting/purging. Other criteria for diagnosis include an awareness that the eating pattern is abnormal, fear of not being able to stop eating voluntarily, and depressed mood and self-depreciating thoughts following eating binges.

The term "binge eating" was first used by Stunkard (1958) to describe a distinct eating disturbance observed in certain obese individuals. Loro and his colleagues (Loro, 1982; Loro & Orleans, 1981) continue to explore the prevalence and treatment of obese individuals who are bulimic. In general, their findings related to eating patterns, binge episodes, associated thoughts and feelings, and weight fluctuations are consistent with those found among normal weight bulimics. However, these individuals have the additional dimension of extreme obesity, which may make the etiology and treatment of the disorder distinguishable from bulimia in individuals whose weight falls within the average range. Empirical evidence about these assertions has yet to be gathered, however.

The relative frequency with which eating disturbances have been noted in other organic and psychiatric disturbances such as depression, psychosis, obsessive-compulsive disorders, and autism (Bruch, 1973; Nogami & Yabana, 1977; Green & Rau, 1977; Wulff, 1932) have raised some questions as to the autonomy of "eating disorders" as a distinct diagnostic entity (Bliss & Branch, 1960; Blitzer, Rollins & Blackwell, 1961; Kay & Leigh, 1954; Loeb, 1960; Thoma, 1967). To further complicate the matter, many have argued the merit, both pro and con, of distinguishing among subtypes of eating disorders, particularly whether a distinction between anorexia and bulimia is warranted.

Russell (1970) is credited with making the first case to distinguish bulimia from anorexia nervosa. Indeed, DSM-III (1980) includes a separate diagnostic category for just such a disorder. Table 1 lists the diagnostic criteria for bulimia as found in DSM-III.

The primary difference between bulimia and anorexia nervosa is that anorexia is diagnosed if there is a significant loss (25%) of original body weight. These two categories are often confused since anorexics will sometimes binge and purge in the same manner as the bulimic. "Bulimia", therefore, can be used to describe both a symptom (binge eating) of anorexia and a syndrome of behaviors and affective experiences. Although the term bulimia is

TABLE 1

Diagnostic criteria for bulimia set forth in the DSM-III (1980)

A. Recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time, usually less than two hours).

B. At least three of the following:
   1) consumption of high-caloric, easily ingested food during a binge
   2) inconspicuous eating during a binge
   3) termination of such eating episodes by abdominal pain, sleep, social interruption, or self-induced vomiting
   4) repeated attempts to lose weight by severely restrictive diets, self-induced vomiting, or use of cathartics or diuretics
   5) frequent weight fluctuations greater than ten pounds due to alternating binges and fasts

C. Awareness that the eating pattern is abnormal and fear of not being able to stop eating voluntarily.

D. Depressed mood and self-depreciating thoughts following eating binges.

E. The bulimic episodes are not due to anorexia nervosa or any known physical disorder.

derived from the Greek word which means excessive appetite ("ox hunger"), bulimics do not consistently report that they binge because they are hungry (Green & Rau, 1977; Mitchell & Pyle, 1982). In this way, both anorexia (meaning 'lack of appetite') and bulimia are misnomers; rarely is the appetite of the individual either nonexistent or excessive.

As has been the case with research on anorexia nervosa, definition, description, and research on bulimia have been plagued by a lack of specificity in the delineation of the disorder. At present, the DSM-III diagnostic criteria are based solely on clinical descriptions of bulimia, without evidence that the stated criteria are most central to the disorder or that they effectively differentiate bulimia from other diagnostic categories.

Although most epidemiological studies seem to focus on the presence or absence of binge-purge episodes as the key feature of bulimia, most authors have recognized a constellation of related behaviors and attitudes which may play a role in this disorder.

Russell (1979), in one of the initial reports of binge eating and related behaviors, described several critical features of bulimia: 1) a preoccupation with food; 2) eating in response to an emotional need (i.e., eating when lonely, angry, frustrated, or under stress); 3) feelings of guilt or shame following a binge; 4) increased frequency of binge episodes when preception of being

fat was intense; 5) solitary and/or secretive binge episodes, frequently during the evening or at night. In addition, Russell noted that binge episodes were frequently triggered by the consumption of a small amount of "fattening" or "forbidden" food.

Since Russell's description, many investigators have focused on the prevalence of depression among normal weight bulimics. Stuckey (1980) found more severe and more frequent depressive feelings among a group of normal weight bulimics in contrast to a normal weight control group. Johnson and Larson (1982) found a higher incidence of reported dysphoria, and also found a greater tendency toward fluctuating mood states and time spent alone. Pyle, Mitchell & Eckert (1981) found that the mean Depression scale on the MMPI was elevated ($\bar{X}$ = 74.6), while others have shown that low self-esteem, a sense of ineffectiveness (Boskind-Lodahl, 1977), self-criticism, feelings of helplessness (Stuckey, 1980), and feelings of inadequacy (Johnson & Larson, 1982) are features associated with bulimia. Most researchers agree that the bulimic experiences pervasive feelings of inadequacy and that this inadequacy extends to the bulimic's ability to regulate food intake. Descriptors such as "uncontrollable urges to binge", "inability to stop eating voluntarily", and "feeling miserable and annoyed after a binge episode" were frequently endorsed by bulimics (Halmi et al., 1981). In a related vein, Loro (1982) des-

cribes the bulimic as having a poorly developed capacity to identify feelings accurately and express feelings effectively. He claims that these individuals do not make the distinction between negative feelings (anger, frustration, boredom, disappointment) and hunger or appetite such that they will eat in response to any emotional stress. Binge eating, he says, serves as an "emotional release mechanism", as well as a distraction from negative thoughts and feelings.

In general, then, there is a picture of the normal weight bulimic as being unhappy and feeling unable to cope with both her eating disorder and everyday life stresses. In contrast to her self-report of inadequacy, investigators have concluded that most normal weight bulimics function adequately at school or work (Fairburn & Cooper, 1982). For example, both Pyle et al. (1981) and Russell (1979) found bulimics to be sexually active and involved in satisfactory love relationships. Boskind-Lodahl (1977) did not find reports of satisfactory relationships to be as frequent, however.

The relationship between bulimia and dieting behavior has been frequently noted. Generally, it has been found that normal weight bulimics were more likely to have been slightly overweight prior to the onset of binge eating, and most reported a series of unsuccessful attempts at dieting (Garfinkel et al., 1979; Halmi

et al., 1971; Herman & Mack, 1982). These findings prompted Polivy, Herman, Jazwenski, and Olmstead (1982) to postulate a counter-regulatory theory of bulimia which holds that repeated restrictive dieting may set the stage for binge episodes in certain individuals. This theory will be presented in more detail later. Garfinkel et al. (1980) found a similar relationship between voluntary dieting and the onset of bulimia, while Pyle et al. (1981) found that the onset of bulimia was related to both voluntary dieting and a "traumatic event" (e.g., loss or separation from a significant other) in 30 of 34 individuals in their sample.

In addition, the presence of bulimic behavior has been associated with a distorted belief of weighing more than one's actual weight (Halmi et al., 1981). Dieting behavior and a distorted body perception were found to differentiate bulimic from non-bulimic high school girls (Johnson, Lewis, Love, Lewis & Stuckey, 1984). Pyle et al. (1981) and Halmi et al. (1981) found that bulimic women also reported feeling overweight and/or over-estimated their actual weight. As has been the case with the other factors associated with bulimia, dieting and distorted body perceptions are "correlates" of bulimic behavior. The degree to which these factors are a cause, an effect, or play some type of functional role in the onset or maintenance of these be-

haviors has not been investigated systemmatically.

There has been some suggestion in the literature that bulimia may follow an addictive behavior pattern. For example, Garrow, Crisp and Jordan (1976) described the habitual ingesting and vomiting large quantities of food as "features of addiction". Moreover, they found that their sample of anorexics frequently used drugs to facilitate weight loss and used alcolhol for sedative effects. Likewise, Pyle et al. (1981) noted a prevalence for chemical dependency and an MMPI profile which included an elevated Psychopathic Devian (Pd) scale. These data led Pyle et al. to conclude that a relationsip exists between "impulsive behaviors" (including drug and alcohol use, suicide attempts and self-injurious acts) and bulimia.

Prevalence

Epidemiological studies indicate that bulimia occurs most frequently among females, with estimates ranging from 2.1% (Mitchell & Pyle, 1981) to 79% of college age women. Obviously, there is considerable variability concerning the estimates of the prevalence of bulimia. Unfortunately, those studies citing the highest prevalence rates seem to have attracted the most attention, leading to a general

consensus among practitioners that bulimia is of "epidemic proportions".

The major difficulty among the numerous prevalence studies seems to be a definitional one. That is, there has rarely been a distinction between women who report engaging in bulimic behaviors (i.e., binge episodes) and those women who report bulimic behavior and the constellation of attitudes, beliefs, and concommitent behaviors alleged to comprise the syndrome of bulimia.

If a distinction is made between the symptom, binge behavior, and the syndrome, bulimia, consistent empirical results begin to emerge. It has been reported repeatedly that binge eating is not uncommon, particularly among the often-surveyed female undergraduate population (Ondercin, 1978; Boskind-Lodahl, 1977; Hawkins & Clement, 1980; Pyle et al., 1983; Hart & Ollendick, (1985). However, as a well-designed study by Pyle et al., (1983) demonstrates, the incidence of the syndrome of bulimia is considerably less than "epidemic". Pyle et al. examined the incidence of the cardinal features of bulimia, which allowed them to highlight the degree to which definitional issues impact on prevalence estimates. Specifically, Pyle et al. found that 8% of the college students responding to their questionnaire met the DSM-III criteria for bulimia. When an additional criteria of binge eating on a weekly or greater basis was included, the frequency fell to approximately

4%, while the further addition of vomiting on a weekly or greater basis reduced the incidence to approximately 1% of the total population. Similar results have been reported by Halmi et al. (1981) in a survey of undergraduates and by Hart and Ollendick (in press) in a survey of working women.

The definitional issues examined in the prevalence studies raise questions relevant to the diagnosis of bulimia. Specifically, does the presence of binge behavior alone signal the presence of an eating disorder? What role does purging play in the diagnosis of bulimia? At what frequency must these behaviors be present in order to warrant concern or diagnosis? These, and other issues, continue to plague work in this area.

Until recently, prevalence estimates have been based exclusively on surveys of college undergraduates. However, a study by Johnson et al. (1984) involving high school females found that the incidence among these young women (ages 13-18 yrs.) was similar to that found in college surveys. Still, Hart and Ollendick (1985) found that the endorsement of a number of their survey items (e.g., binge eating, self-depreciating thoughts after binge eating, and purging) was significantly lower in a sample of working women (ages 18-30 yrs.) than in a similar sample of college women. The Hart and Ollendick findings suggest that there are factors associated with college life (be they individual

variables or social pressures) which increase the likelihood of developing deviant eating behaviors.

Other prevalence studies have examined the relationship between eating disorders and the individual's curriculum major or extracurricular activities (e.g., track, gymnastics, wrestling, dancing). For example, in a survey of college students, Garner and Garfinkel (1978, 1980) found that persons involved in the arts (e.g., ballet) more frequently scored within the pathological range on a questionnaire of eating attitudes and behaviors. Results such as these also lead to speculation about potentially relevant variables associated with eating disorders such as emphasis on a thin body form and a competitive personality style. Unfortunately, the evidence about associated factors is purely correlational, and highly speculative. Future prevalence studies should focus on factors believed to be associated with bulimia, such as body image, susceptibility to stress, or level of coping skills in order to illuminate the trends emerging from existing data.

Related Features

In addition to a general clinical description of bulimia, several features of this syndrome warrant special attention. The first two of these features, binge episodes and body image, are

assumed to be central aspects of bulimia and are most often the focus of treatment. The third feature, medical complications, is presented to provide information regarding the physical ramifications of this disorder.

Binge Eating Episodes. In an attempt to understand the dimensions of the cardinal symptom of bulimia, a number of studies have examined the features of the binge episode itself. In a comprehensive study designed to ascertain the frequency, duration, and type of food ingested in a typical binge-eating episode, Mitchell et al. (1982) evaluated 40 patients in a university psychiatric outpatient clinic who met the diagnostic criteria for bulimia. The self-monitoring records of these individuals (kept for 1 week) revealed that the mean duration of binge-eating episodes was 1.18 hours (range = 15 minutes to 8 hours), while the mean frequency of episodes per week was 11.7 (range = 1 to 46). The most common pattern among this group was to binge eat at least once a day and to spend 13.7 hours a week binge eating.

The mean caloric consumption during an average binge episode was 3,415 calories (range = 1200 to 11,500) for Mitchell et al.'s (1982) sample. Data obtained by other researchers have led to similar findings in terms of mean caloric consumption during a binge (Jackson & Ormison, 1977; Loro, 1980). As is the case with binge frequency, the caloric content of a binge is highly variable,

indicating considerable individual and situational differences. Even with this variability, there is a typical pattern of excessive caloric consumption within a relatively short period of time. Some of the Jackson and Ormiston subjects consumed as many as 50,000 calories a day. Most of their subjects reported consuming more than one food per episode, although the type of food consumed tended to be of a high carbohydrate content (e.g., ice cream, bread-toast, candy, doughnuts).

Many researchers have sought to identify the antecedents of binge episodes. Loro (1982) contends that there is a great deal of consistency across binge eaters in the type of stimuli preceding binges. Most frequently, these stimuli are said to be stress-related. Loro and Orleans (1981) have concluded that stressful external events provoke internal reactions which the individual labels as anxiety, loneliness, frustration, depression, or some other unpleasant emotion. These emotions, and their concomitant self-statements and self-evaulations, can lead to a binge. Other investigators have suggested that specific emotional states precede binge episodes. Among these states are: unhappiness (Pyle et al., 1981), interactions with certain people (Carroll & Leon, 1981), boredom (Abraham & Beaumont, 1982; Pyle et al., 1981), feelings of derealization and depersonalization (Abraham & Beaumont, 1982), frustration/anger (Ondercin, 1979) and anxiety

(Pyle et al., 1981).

A number of other researchers have noted the role that food-related discriminative cues play in the onset of binge eating. As was previously noted, high calorie carbohydrates are most commonly consumed during a binge and these foods themselves have been suggested to serve as cues to binging (Mitchell et al., 1981; Morganstern, 1974; Wermuth, Davis, Hollister & Stunkard, 1977; Wijesinghe, 1973). Clinical data indicate that binge eaters typically binge when alone, often late at night. Further, these situational (setting) factors can serve as cues to binge (Jackson & Ormiston, 1977; Loro, 1982a).

In sum, the research to date has targeted stress/emotional reactions, setting cues, and food cues as potential antecedents to binge episodes. Most likely, any or all of these factors may be operating at the onset of a binge episode, and probably function interactively to "set the stage" for a bulimic to binge. The degree to which these potential antecedents can be identified and understood for each individual may be an essential part of the bulimic's treatment, as several researchers have suggested (Boskind-White & White, 1982; Fairburn & Cooper, 1981; Loro, 1982).

Some attention has been paid to the consequences of a binge episode as a means of understanding its potentially reinforcing

value. Most research in this vein targets emotional arousal as the central feature of the binge-purge cycle. This model is based on the previously cited evidence that negative cognitive/emotional states are often precipitants of binge episodes. Given the negative emotional state associated with the onset of a binge, Loro and Orleans (1981) suggest that engaging in a binge episode may provide relief from the negative emotional state. This relief serves as an immediate negative reinforcement to the binge response.

The research on the effect of binging on emotional state provides conflicting results, however. While a number of studies report that anxiety is significantly reduced during a binge (Abraham & Beaumont, 1982; Carroll & Leon, 1981 ; Loro and Orleans, 1981; Ondercin, 1979), others report that some cognitive/emotional states increase after a binge. The primary negative affects appear to be guilt about the binge episode (Pyle et al., 1981), self-disgust, depression and anger following a binge episode (Carroll & Leon, 1981).

Rosen and Leitenberg (1982) hypothesized that the negative emotional state following a binge serves as a cue for purging, which allows the individual to "undo" the eating act. Therefore, purging serves as another source of relief from a negative emotional state. This post-purge anxiety reduction is hypothesized to have a negatively reinforcing effect which increases the proba-

bility of future purges. According to this model, the bulimic has adopted a maladaptive pattern of coping with uncomfortable emotional states. Her attempts to cope (initially, by binging) are short-lived and only create another negative emotional state. The bulimic can be portrayed as living on an emotional roller coaster in which her behavior is motivated by attempts to avoid various negative emotional states.

Body Image. Although the available evidence indicates that bulimic women tend to be of normal weight or slightly below, there is additional evidence which indicates that they see themselves as heavier than their "true" weight, and that they desire much lower weights. For example, Mitchell, Pyle and Eckert (1981) found that 92.5% of their sample of bulimics was of normal weight or underweight according to the Metropolitan Life Insurance Table median weight for height. Reporting similar weight ranges in another sample, Pyle et al. (1981) found that 91% of the bulimic sample desired to weigh less than they currently did. These statistics must be interpreted carefully, however. In a survey questionnaire of women conducted through Glamour magazine by Wooley and Wooley (1983), 75% of the respondents reported being dissatisfied with their weight, despite the fact that only 25% were overweight according to Metropolitan Life Insurance Tables.

Obviously, normal females generally feel that their ideal weight is lower than their actual weight (Chernyk, 1980) and women in general are dissatisfied with their body size. While there is no doubt that body image plays a role in bulimia, the degree to which this feature of the disorder can be used to differentiate between normal and bulimic females remains to be thoroughly investigated.

Medical Complications. While the general prognosis for bulimia is as yet unknown, the medical complications of this syndrome have been fairly well documented. Elaborate description of these complications is beyond the scope and purpose of this review yet they are worth at least cursory attention because of their severity and clinical significance.

Frequent vomiting and/or laxative abuse can lead to abnormal electrolyte levels. Pyle et al. (1982) found such imbalances in 51.8% of the 85 bulimic patients they studied. In addition, complications such as metabolic alkalosis, hypochloremia and hypokalemia have been reported. These depletions of chlorine and potassium can lead to fatigue, muscle weakness, constipation and dysphoria, all of which mimic depression. This raises some question as to the hypothesized role of depression in bulimia, since the depressive syndrome may be a consequence of these physiological abnormalities. In addition, cases of edema have been reported and bulimics are at risk,

physiologically, for kidney dysfunction and cardiac arythmias. Freeman and Schmidt (1980) have associated laxative abuse with damage to submuscosal nerve fibers in the intestines. Two case studies (Mitchell, Pyle & Miner, 1982; Saul, Dekker & Watson, 1982) have reported serious gastric dilatation with one case resulting in death due to rupturing of the intestines. Problems with parotid enlargement from vomiting and poor diet have been documented (Ahola, 1982; Hasler, 1982), as well as dental caries and enamel erosion from frequent exposure to hydrochloric acid in the mouth through vomiting (Gallo & Randel, 1982).

Irregular menses have been noted by Fairburn and Cooper (1982) and Pyle et al. (1982). Of the 499 women in the Fairburn and Cooper sample, one half (53.4%) reported menstrual irregularities and/or periods of ammenorhea, while Pyle et al. found that 26 of their 34 bulimics had at least one episode of ammenorhea lasting three months or more. The rate of menstrual irregularities reported by Fairburn and Cooper is not dissimilar from the frequency of ammenorhea and irregular menses observed among women with anorexia nervosa. Some (e.g., Warren & VandeWiele, 1973) have suggested that the hormonal imbalances associated with menstrual irregularities could play an etiologic role in anorexia nervosa, yet similar suggestions have not been made for bulimia.

The relationship between binge episodes and possible neuro-

anatomical defects has generated interesting, yet controversial, results. For example, Green and Rau (1974, 1977) and Wermuth, Davis, Hollister and Stunkard (1977) have identified abnormal EEG waveforms among some binge eaters of varied weights. This relationship has led to the use of psychopharmacologic agents in the treatment of bulimia and this, too, has led to inconsistent results. Part of the controversy resulting from work along these lines is that no distinct neurological disorder which directly results in binge eating has been identified. Indeed, no clear relationship has been established between binge eating and abnormal EEG patterns, family history of epilepsy, and/or other related symptoms (e.g., rage attacks, headaches, nausea, dizziness, etc.). Despite this lack of relationship, some individuals appear to respond to pharmacological interventions. Obviously, more research is needed in order to understand what relationship, if any, exists between binge eating and neurologic defects, or those characteristics which predict which individuals will benefit from psychopharmocologic treatment. Rau, Struve and Green (1979) recommend that in rendering the diagnosis of bulimia, the clinician should rule out distinct neurologic disorders. The inconsistency of the findings in this area would hardly seem to warrant the expense and intrusiveness of EEG's, however. Rather, an extensive medical history with special attention to "soft" neurological signs

would seem to be sufficient. Neurological abnormalities could then be followed-up by specially trained personnel who can aid in recommendation for treatment, particularly pharmacological treatment.

Theories of Bulimia

Socio-cultural Factors. The influence of societal standards on women's desire to be thin has been noted repeatedly (Boskind-Lodahl, 1977; Leon, 1980; Loro, in press; Russell, 1979) and has played a crucial role in the treatment strategies described by Boskind-Lodahl (1976; Boskind-White & White, 1982). An interesting study by Garner, Garfinkel, Schwartz & Thompson (1980) documents the fact that the "ideal" female body has become thinner over the course of the last 20 years. Using Playboy magazine centerfolds and information about Miss America Pageant contestants as the "ideals" these authors found that the average weight for height and age has decreased significantly since 1959. The impact of a thinner ideal appeared to be reflected in the increase in diet articles in women's magazines over the same 20 year period. That young women are concerned about their body size is exemplified in the finding that 70% of a female high school population were unhappy with their bodies and wanted to lose weight (Heunemann, Shapiro, Hampton & Mitchell, 1966).

Schwartz, Thompson and Johnson (1981) have incorporated these data into an integrative sociocultural explanation for the increasing prevalence of eating disorders. A prime contributor to the excessive pursuit of thinness is the media, they hypothesize. Given this cultural framework, certain women will be "at risk" for developing an eating disorder. Other factors which contribute include an impaired maternal environment, disturbed family interaction patterns, and changing female roles. The major forces cited as contributing to the development of an eating disorder are: 1) a biological predisposition; 2) early life trauma; and 3) present daily stress. This comprehensive, interactive model has not been tested empirically, however.

Few researchers would argue that there are tremendous societal and media influences which tout the thin female body form as the ideal. Indeed, few would argue that these pressures no doubt contribute to the syndrome of bulimia. These, alone, cannot account for bulimia, however. Since all women are subjected to the same sociocultural and media influences, it would seem likely that most, if not all women, would evince some type of eating disorder. The impact of the media and the "ideal female form" have obviously influenced the body images of American women, but a small percentage of these women have eating disorders. Obviously, more than a distorted body image or body dissatisfaction

comes into play in the development of an eating disorder.

Psychoanalytic Theory. As of yet, psychoanalytic theorists have not extensively attempted to explain the phenomenon of bulimia specifically. However, there have been several descriptive explanations of anorexia nervosa from which we can extrapolate an explanation of bulimia. Generally speaking, most early psychoanalytic explanations view food refusal as a symbol of fear of sexuality and oral impregnation. The act of vomiting has been interpreted as a symbolic rejection of mother and the feminine role (Bruch, 1973). The concept of oral impregnation has received neither empirical nor popular support, and has been disregarded by most as a viable explanation of the phenomenon. More recently, psychoanalysts have focused on the role of the early mother-infant relationship and the development of the female role as explanations for the development of bulimia.

Sugarman and Kurash (1982) have postulated that, in the case of an eating disorder, the "body has become a transitional object, a vehicle for the representation of the maternal object and then the repudiation of her" (Sugarman & Kurash, 1982, p.57). According to this "object relations theory", Sugarman and Kurash cite the incomplete separation of self from mother as a central feature in the development of the eating disorder. Cognitively, the

bulimic female continues to operate within a pre-operational stage, and therefore cannot symbolize the maternal figure as a transitional object. Thus, she experiences her mother as herself. A conflict arises since, in the feeding process, the bulimic female experiences a sense of being one with her mother, yet she also repudiates her mother. Vomiting food or refusing food serves to maintain a boundary from the mother.

In a variation on this theme, Charone (1982) hypothesizes that an eating disorder is a function of the early mother-infant feeding relationship. He proposes that the early feeding relationship will affect the success of their other interactions, resulting in abnormal psychological development in the child. The disordered feeding patterns may continue into adolescence in the form of an eating disorder.

The support for both of these theories lies solely in case reports described in psychoanalytic terms with little objective validation. The utility of these theories awaits empirical investigation.

Counter-regulatory Theory. In addition to the binge eating behavior itself, the bulimic's eating behavior is most often disturbed in other ways as well. Bulimics are frequently chronic dieters, and they frequently alternate between binging and periods

of very low food consumption or fasting (Loro and Orleans, 1981). Pyle et al. (1981) found that bulimics frequently do not eat for more than 24 hours after a binge. In turn, this state of deprivation (both physical and psychological) may feed into the bulimic cycle by prompting another binge.

Mizes and Lohr (1983) reported that bulimics generally failed to eat in a systematic manner (i.e., eat three meals at fairly regular times). Findings such as these raise important questions as to the role of physiological effects of chronic dieting and erratic eating patterns in the binge eating episode. Loro (1982). contends that many bulimics produce a condition of functional hypoglycemia through their erratic pattern of binging and fasting. This hypoglycemia can contribute to cravings for (and consumption of) certain high caloric foods.

Polivy and her colleagues (Polivy, Herman & Jazwenski, 1982) have recently developed a theory which attempts to integrate our knowledge of physiological and cognitive aspects of food intake regulation and body weight in order to understand the development and maintenance of eating disorders. Drawing on both the animal and human research in this area, Polivy et al. (1982) propose a "counter-regulatory model" in which dietary restraint, emotional distress, and disinhibiting factors are said to interact and set the stage for binge eating behavior. The counter-regulatory

model of binge eating is part of a larger model of food intake regulation called the Boundary Model (Herman & Polivy, 1983). According to this broad model, food intake occurs in order to maintain individuals within a range of "biological indifference" between hunger and satiety. While the explanatory utility of the Boundary Model has been supported by the laboratory performance of most subjects, Polivy and her colleagues have differentiated a sample of individuals whose behavior is consistently deviant from that of the majority. Indeed, the food intake patterns of these individuals seems to match the binge behavior of bulimic individuals, prompting the experimental evaluation of these deviant individuals vis à vis "normal" subjects.

Beginning with the categorization of "restrained" vs. "unrestrained" eaters, the laboratory research conducted by these investigators indicates that restrained eaters are more likely to consume an excess amount of food under a variety of situations. Restrained eaters are those individuals who, independent of weight, report frequent dieting, tend to categorize food into "good" and "bad" categories, and are preoccupied with thoughts of food and weight. In laboratory studies, restrained eaters are more likely to overeat after they have consumed a small amount of "bad" (high calorie) food. In an interesting series of experiments, Polivy and her colleagues have shown that the actual caloric content of

the food is not the factor which predicts overeating. Rather, it is the restrained eater's belief about the caloric content. Specificially, those restrained individuals who were told they had consumed a milkshake which was high in calorie ate more of the other food provided in the laboratory situation than the unrestrained individuals who had been told that the milkshake was high in calories, and more than the restrained individual who had been told that the same milkshake was low in calories. Polivy has noted the similarity between the behavior pattern and the Abstinance Violation Effect (AVE, Marlatt, 1979), observed in alcoholics and drug addicts. By setting overly rigid standards of behavior, one small slip sets the individual to rationalize an overindulgence in the behavior because s/he has "already blown it".

Unfortunately, these results have not been consistently replicated by other investigators (Abramson & Stinson, 1977; Abramson & Wunderlich, 1972; Antelman & Rowland, 1976; Herman & Polivy, 1975; Leon & Chamberlain, 1973a; 1973b; McKenna, 1972; Meyer & Pudel, 1972; Schacter, Goldman & Gordon, 1968; Slowchower, 1976). Additionally, despite the suggestion that restrained eaters are more susceptible to stressors and/or will eat more under those conditions, there is no conclusive evidence that overeating in response to life stress ameliorates dysphoric mood or anxiety (cf. Jackson & Hawkins, 1977).

Polivy stresses that dieting is a cognitively determined behavior: the individual decides not to eat. As such, cognitive factors may affect the consistency of restraint. In addition, restricted eating keeps the body in a state of physiological hunger because it is an attempt to keep body weight below the set point (Bennett & Gurin, 1982). Since the restrained individual must work hard to maintain a strict diet against the physiological pull to eat (a physiologically aversive state), the individual is susceptible to failure. Any situation such as alcohol ingestion or emotional distress can act as "disinhibitors" of one's cognitive control, thus increasing the likelihood that one will diviate from the rigid dietary standards, and perhaps binge eat.

Though not strictly stated or empirically tested, the counter-regulatory theory sets out several treatment recommendations. Since the basic premise of the counter-regulatory theory lies in the individual's restrictive eating style, the first recommendation is to stop dieting. In addition, Polivy recommends that the individual learn to accept herself regardless of body weight, increase her coping skills in dealing with emotional stress, and understand the role of restraint and counter-regulation in binge eating. Through an increased understanding of the body's food intake regulation, the cycle of restrictive eating and binging

can be broken.

A modification to this approach has been examined by Hawkins and his colleagues (Doell & Hawkins, 1982; Hawkins, 1979; Hawkins & Clement, 1982; Jackson & Hawkins, in press). They have suggested that the phenomenon of "mood" (stress-induced) eating cannot be adequately assessed by laboratory analogue studies. They have attempted some short-term, longitudinal studies in which they followed individuals who were susceptible to mood eating through out the course of an academic semester. In a reformulation of the psychosomatic hypothesis for overeating (Kaplan & Kaplan, 1957), Jackson and Hawkins (in press) posit that "mood eaters" are typically restrained eaters (à la Polivy) who attempt to conform to ideal weight standards. Their restrained dieting style also allows them to compensate for mood eating, except during periods of substantial life stress. Periods of stress serve to disinhibit restrained eating as well as augment the intensity of their emotional states, resulting in weight gain.

Correlating the impact of life stressors with weight fluctuations and self-monitored eating patterns, Jackson and Hawkins (in press) found support for their hypothesis that mood eating tendencies are associated with self-monitored dysphoric moods and negative self-evaluations. Specifically, their subjects who obtained high scores on the Mood Eating Scale (Hawkins & Clement,

1982) were more likely to be restrictive dieters who reported binge eating tendencies. In addition, the individuals who reported many concurrent life stressors lessened or ceased their restrictive dieting efforts relative to other "restrictive" eaters who did not report as many life stressors. Studies such as these tend to lend credence to the treatment recommendations of individuals such as Loro (1982) and Polivy et al. (1982) who attempt to help individuals cope with the environmental stressors which precipitate an eating binge. However, it should be noted that Hawkins' "mood eaters" may or may not be bulimic. Weight fluctuations associated with increases or decreases in dietary restraint cannot be equated with the maladaptive, all-encompassing cognitive and behavioral pattern which entraps the bulimic individual.

Learning Theory. A number of investigators have attempted to conceptualize and treat bulimia from a behavioral perspective. In essence, the functional analysis approach, using binge eating as the behavior in question, has led to a stress-related model of bulimia (e.g., Loro, 1980; 1982; Love, 1983). A binge is said to be the maladaptive response to environmental and/or emotional stress (e.g., anger). The bulimic has poor coping strategies in attempting to deal with these stressors directly and

chooses to subvert her frustration, anger, etc., in a binge. Loro has proposed treatment strategies which include problem solving, emotion-identification, and assertion training. A more detailed description of his rationale and treatment procedures will be presented later.

Previous studies have indicated that food and eating can effectively reduce stress (Conrad, 1980; Leon & Chamberlain, 1973a; 1973b), help over-weight individuals become relaxed (Holland, Masling,& Copley, 1970), provide relief from boredom (Abramson & Stinson, 1977), or fill unstructured time (Loro, 1980). As such, binge behavior may be negatively reinforcing to the extent that it provides relief from negative emotional states such as anxiety or anger. In addition, it can turn a person's focus away from an unpleasant situation such as an argument or being alone. While an adequate understanding of the role of binge eating in the individual's unique behavioral pattern can have tremendous implications for the treatment program, it remains to be empirically demonstrated that relief from stress plays a major role in the onset of a binge episode.

In fact, some studies have indicated that positive consequences are associated with binge eating. In other words, binge eating is performed independent of stress or stressful incidents because of the "inherently" positive qualities of food. For ex-

ample, Loro (1982) found that obese individuals reported anticipating the pleasant sensations of eating prior to the onset of a binge and they enjoyed the initial taste and smell of the food. Wermuth et al. (1977) found that the binge eaters in their study reported immediate enjoyment of the binge. More specific data were supplied by Jackson and Ormiston (1977). Of the binge eaters they polled, 33% reported "really enjoying" the experience of binge eating most of the time. Only a minority of 23% reported having no particular thoughts or feelings during a binge episode.

Obviously, the binge eater also experiences negative consequences to binge episodes, although these tend to be delayed in time from the binge experience with its concommitant positive consequences. The most immediate negative consequences include the physical discomfort following a binge (e.g., abdominal discomfort, severe headaches, dizziness), the financial expenditure, the inconvenience, the social isolation, and the fear of being discovered.

Further delayed consequences include thoughts and feelings about one's behavior. For example, although Jackson and Ormiston (1977) found that most of their overweight binge eaters enjoyed the binge episode, these individuals also reported that it was never the case that they did not experience depression following a binge. The negative thoughts and feelings these individuals

report include anger at themselves, guilt about what they had done, severe self-criticism, self-condemnation, self-punishment, shame, and disgust.

Even further delayed negative consequences include weight gain or failure to lose weight, and the complications associated with attempting to reverse the effects of the binge through laxative or diuretic abuse, vomiting, fasting and/or strict dieting. In sum, then, the binge eater finds herself engaging in a complex, behavioral chain which has a number of positive and negative consequences. She appears to be conflicted at every step; she is unable to delay the immediate positive sensations associated with a binge episode despite the fact that she knows that a number of very negative consequences await if she participates in a binge. It may be that the participation in binge behavior may depend in large part on the strength of the positive and negative consequences, a strength which may shift from situation to situation. Both the variety and varying strength of these reinforcers may account for the resistance of binge eating to extinction procedures (Loro, 1982).

Despite the proliferation of research on bulimia, there is no extant theory which is able to adequately explain the pattern of binge eating. Detailed case histories of bulimics (e.g., Pyle, Mitchell & Eckert, 1981) indicate that a very complex con-

stellation of thoughts, feelings and behaviors may be initiating and maintaining the binge/purge pattern of bulimia. Unfortunately, there have been few attempts to integrate these factors into a model to describe bulimia.

PART TWO: ROLE OF COGNITION IN BULIMIA

A factor which plays a role in most treatment programs and clinical descriptions of bulimia is the role of cognition and perception (of body, self, and situations) in the binge/purge cycle. For example, Russell (1979) noted that his patients were preoccupied with thoughts of food, as did Pyle et al. (1981). As early as 1903, Janet (cited in Garfinkel et al., 1980) differentiated an "obsessional" subgroup of anorexia nervosa which today might more appropriately have been diagnosed as bulimic.

Until recently, research aimed at identifying specific cognitive processes of bulimics has been virtually nonexistant. A recent study by Fremouw and Heyneman (1983) is a clear exception. These authors contend that episodes of bulimia are produced by the belief that one has violated a standard for dieting. It is the feeling of loss of control, not the type or amount of food consumed, which they assume to be the central dimension distinguishing bulimia from overeating. The guilt and depression following a binge stem from the person's perception of failure to follow a diet or "control" her eating. In order to atone for this failure and to compensate for the large caloric intake, the binger engages in purging or fasting. During this phase, very restrictive dietary standards are again imposed, thus setting the stage for the perception of failure, loss of control and

another binge episode.

These authors attempted to examine this model by exploring the cognitive style of stringent goal setting, excessive negative self-evaluation following failure, and dichotomous evaluation (i.e., the tendency to evaluate self and others as either good or bad). Their results supported the hypothesis that bulimics evaluate themselves negatively and engage in dichotomous thinking relative to nonbulimic individuals, but they found no support for the goal setting component of their model.

In a related vein, Love (1984) examined the frequency of binge episodes from a social-learning perspective. Her analysis included the assessment of generalized expectancy (measured by Locus of Control), specific expectancy (measured by questions of outcome expectancy and self-efficacy), and the reinforcement value of binge/purge behavior.

Love's data indicated that binges were best predicted by the occurrence of a previous binge and the degree of specific expectancy in the present situation. That is, if a bulimic woman had binged in the previous time period and rated herself low on a measure of self-efficacy specific to her present situation, she was likely to binge during the time period in question. These data provide interesting information regarding the subjective experiences of bulimic women. Unfortunately, Love's study in-

volved a relatively small sample (N = 26), and she provided no data regarding the subjective experiences and subsequent coping responses of non-bulimic women.

In general, the findings of Fremouw and Heyneman (1983) and Love (1984) provide support for the notion that the bulimic is an inadequate "coper"; she sees herself as being incapable of effectively dealing with the environmental stressors she faces and/or the feelings she has regarding these stressors. This notion requires systematic examination, however. In addition, there is no evidence to indicate that a bulimic's poor coping mechanisms are unique to this disorder. Indeed, her inability to cope may reflect a feature which is secondary to the disorder, rather than an etiological or maintaining feature.

In the present study, a learned helplessness paradigm was used in order to examine the hypothesized role of cognitions and attributions in bulimia. Learned helplessness was chosen because it has been extensively studied as a means of inducing change in performance and attribution. This model seemed particularly appropriate because it involves notions of perceived efficacy and control which have been hypothesized as central features of eating disorders. Also, the varied literature involving learned helplessness allowed for predictions regarding the expected performance of comparison groups. A brief review of the methodology

and research of learned helplessness follows.

Learned Helplessness

The learned helplessness model was initially demonstrated in the animal literature. The phenomenon first observed was that the experience of noncontingent or uncontrollable aversive events had an "interference effect" on the acquisition of subsequent avoidance learning. The explanation of the interference was that animals exposed to uncontrollable events learned that important environmental events were independent of their behavior. This learning generalized to new situations, with the result that trained animals were unlikely to initiate responses (and unlikely to discern contingencies between responses and outcomes if they did respond) in new situations. Findings were felt to reflect an experimental analogue to depression.

The phenomenon of learned helplessness has proven to be relatively robust in animal demonstrations (Miller & Seligman, 1976), but somewhat less powerful in human studies (e.g., Hiroto, 1974). In typical human helplessness studies, subjects experience a noncontingent or uncontrollable aversive event and then are tested on an unrelated task. The general finding is that subjects experiencing uncontrollable events are deficient in the subsequent problem-solving situation relative to untreated controls.

Seligman and his colleagues contend that the reduced responding of learned helplessness subjects is analogous to a predominant symptom of depression which is the failure or slowness in response initiation.

A number of studies have directly examined the relationship between the performance of subjects exposed to learned helplessness training and depression (Klein, Fencil-Morse & Seligman, 1976; Miller & Seligman, 1975). In each of these studies, depressed and nondepressed subjects were first divided into learned helplessness, contingent feedback and no treatment control conditions. The performance task for these studies was a series of patterned anagrams. Nondepressed subjects exposed to learned helplessness training (in these studies, inescapable noise or insolvable problems) demonstrated deficits in response initiation on the anagrams while nondepressed subjects in the contingent feedback and no treatment control conditions exhibited no deficit. Moreover, depressed subjects in all groups, including those in the no treatment control condition who had no pretreatment, showed poorer response initiation on the anagrams than the nondepressed subjects in the no treatment control condition. The conclusion of these investigators was that nondepressed subjects given helplessness pretreatment showed response initiation deficits parallel to those found in "naturally occurring" depression.

Specific cognitive responses have been demonstrated in depressed and nondepressed college students, also. Miller and Seligman (1973) and Miller, Seligman and Kurlander (1975) found that depressed students viewed skilled actions very much as if they were only chance actions. In other words, depressed subjects were more likely to perceive reinforcement in a skill task as independent of their behavior. This perception was shown to be unique to depressed students: anxious and nonanxious students did not differ in their perceptions of reinforcement contingencies (Miller, Seligman & Kurlander, 1975). Indeed, two later studies demonstrated that depressed subjects exposed to contingent reinforcement perceived the reinforcement as less response contingent than did nondepressed subjects who had been exposed to reinforcement that was actually noncontingent. In other words, pretreatment exposure had no effect on perception of reinforcement contingency for depressed subjects, whereas nondepressed subjects' perception of reinforcement was a function of pretreatment exposure (Klein, Fencil-Morse, & Seligman, 1976; Miller & Seligman, 1976).

In a revised theory of human learned helplessness, Abramson, Seligman and Teasdale (1978) proposed a number of crucial steps which intervene between the objective experience of the independence of behavior and environmental events and the symptoms of

helplessness. Specifically, a person must: 1) perceive this independence; 2) make certain attributions regarding the independence; and, 3) expect that the independence will continue in the future. According to this account, the mediating chain of perception, attribution, and expectation must occur in order to observe the phenomenon of learned helplessness.

Abramson et al. (1978) focused on the attribution process. This model proposes that subjects may attribute their performance to factors or causes that can be labelled on the dimensions of internal/external, stable/unstable, and global/specific. The configuration of attributions along these dimensions has important implications for subsequent performance. For example, to the extent that a global attribution is made for poor performance, it can be expected that helplessness will generalize to other situations or tasks. Likewise, to the extent that an attribution is made to a stable cause, it can be expected that deficits in performance will be chronic rather than transient. Finally, to the extent that internal attributions are made, one can expect deficits in self-esteem which presumably will contribute to the severity of the performance deficits. On the other end of the continuum, attributions which are external, unstable and specific should result in performance deficits which are less reliable, if present at all.

Peterson and Seligman (1984) recently reviewed the literature pertaining to learned helplessness. They chose to speak of "attributional style" as "explanatory style" in their analysis. In addition to their own studies, these authors examined a number of other studies employing five research strategies: (1) cross-sectional correlational stuies; (2) longitudinal studies; (3) experiments of nature; (4) laboratory experiments, and; (5) case studies. They concluded that the five lines of research converge in support of an internal, global, stable explanatory style as a major factor of depression. Specifically, they contend that this style of causal explanations for "bad events" may place one at risk for depression following a bad event.

Of interest in future learned helplessness research will be an understanding of the factors which determine whether or not an event is labeled "bad" or "good," as well as the causal explanations generated in response to these events. Indeed, it is likely that labeling of the event is part of an interactive system with causal explanations in which labeling influences explanation and vice versa. As such, an understanding of event labeling may be useful in understanding those studies in which learned helplessness training has not produced the expected results (e.g., Gregory, Chartier & Wright, 1979; Pittman & Pittman, 1979).

Rationale For The Present Study

From an experimental point of view, the learned helplessness procedure provides a means by which the attributions and cognitions of subjects can be examined, along with a related performance dimension. The extensive literature on learned helplessness also allows for making empirically-based predictions about the performance and attributions of select subject samples (e.g., depressed and normal college populations).

Intuitively, learned helplessness has a tremendous appeal as a means of manipulating perceived control in the study of bulimia. The notion of "control" has played a central role in some treatment frameworks for women with bulimia (e.g., Bruch, 1973; Orback, 1973; 1982). At issue seems to be the woman's perception of her environment and her body, and the degree of impact she is able to exert over her own behavior and her environment. My own clinical experience with bulimics has led me to feel that the issue of control over one's body and one's eating patterns plays a maintaining role (at minimum) in the cycle of binging and purging. Indeed, most bulimic women describe the binge episode itself as an event which is out of her control.

To the extent that perceived control is a central aspect of both bulimia and the experimental paradigm of learned helplessness, the present study was undertaken to systematically examine the cognitive self-statements, attributions, and performance

of bulimic and nonbulimic women in a situation in which perceived control could be manipulated.

Previously mentioned research on the effects of learned helplessness on depressed and nondepressed college students generally found that these two groups differed on both performance and attributional dimensions with depressed subjects demonstrating a greater propensity for deficits in performance and perceived control. Although exposure to learned helplessness training was related to deficits in the performance and attributions of non-depressed subjects as well, depressed subjects were found to perform differently from nondepressed subjects across all experimental training conditions. In other words, depressed subjects entered the experiment with expectations and behavior patterns which differed systematically from that of non-depressed subjects. Indeed, clinical descriptions of depressed individuals attest to generalized behavior patterns and response consistencies unique to depressed individuals (e.g., Beck, 1974; Lewinsohn, 1974).

In contrast, the clinical description of bulimic women is that of an adequately functioning individual who has learned a maladaptive coping response to stress. One aspect of that response, at least according to the DSM-III diagnostic criteria, is "depressed mood and self-depricating thoughts" (p. 70-71). If this is the case,

then the behavior of bulimic subjects should not differ systematically from that of nonbulimic, nondepressed women when exposed to the contingent reinforcement or no treatment control condition of the LH experimental paradigm. However, when exposed to a situation in which her sense of control is decreased (i.e., through learned helplessness training), the response pattern of bulimic women should reflect deficits in performance, attributions of loss of control, and self-depricating self-statements that are greater than those observed in nonbulimic women. As such, a group of depressed subjects served as an additional control group in the present study. Under the experimental conditions of contingent feedback and no training, the depressed subjects served as a comparison group in demonstrating the degree to which bulimics differ from another diagnostic category. In the learned helplessness condition, the performance of bulimic and depressed subjects was directly compared to assess the degree to which these two groups performed similarly, as DSM-III criteria suggest would be the case. These two groups were expected to perform more poorly relative to the normal control group. Therefore, one hypothesis of the present study is that bulimic subjects will demonstrate a decrease in performance which is greater than that observed in nondepressed subjects and is comparable to that expected from depressed subjects exposed to learned helplessness training.

An interesting aspect of a bulimic's inability to effective-

ly respond to perceived stress is that her response is food-related, although the stimulus may or may not be food-related. The classic example is the bulimic women who binges (food-related) following an argument with her boyfriend (nonfood-related). To assess the degree to which food-related stimuli may be associated with a distinct response pattern relative to nonfood-related stimuli, the test task of the present experiment incorporated both food and nonfood stimuli. Theoretically, a bulimic woman may experience increased sensitivity to food-related stimuli, particularly when these cues are present in a stressful situation. The test task of the present experiment involved anagrams in which one half of the words were food items (e.g., gravy, donut) and one half of the words were nonfood items (e.g., beach, triad). It was expected that bulimic women would have fewer errors on food anagrams than nonfood anagrams and that their response latencies to these anagrams would be faster than that of nonbulimic women. Such a pattern of results would provide evidence for a heightened sensitivity of bulimic women to food cues.

In sum, the present study utilized the triadic design typical of learned helplessness studies (3 experimental groups which are exposed to learned helplessness training, contingent feedback training, or no training). It also made use of three comparison groups: bulimic women, depressed women, and normal

(i.e., women who were neither depressed nor bulimic), resulting in a 3 (experimental training) x 3 (comparison group) design. Both performance dimensions (e.g., response latency) and cognitive dimensions (including measures of attributions and self-statements) served as dependent measures.

HYPOTHESES

Based on the previous review of the literature and the proposed use of learned helplessness as a means to study the cognitive aspects of bulimia, the following hypotheses are proposed:

1) Within each of the subject classifications (normal control, depressed-control, and bulimic) the learned helplessness (LH) effect was expected to be observed. That is, relative to their respective contingent feedback (CF) and no treatment control (NTC) conditions, subjects exposed to LH training were expected to demonstrate:

   a) longer response latency and a greater number of errors on the anagram task;

   b) greater ratings on attributions of loss of control;

   c) lower ratings of self-efficacy and performance satisfaction.

2) Among subjects exposed to the NTC condition, the performance of bulimic and normal-control subjects was not expected to differ significantly on the dimensions of anagram performance, attribution ratings, or self-efficacy and performance satisfaction. In contrast, the performance of the depressed-control subjects was expected to differ significantly from that of the bulimic and normal-control subjects. Specifically, the depressed-control subjects were expected to demonstrate:

a) a longer response latency and a greater number of errors on the anagram task;

b) greater ratings on attributions of loss of control;

c) lower ratings of self-efficacy and performance satisfaction.

3) Among subjects exposed to the contingent feedback (CF) condition, the performance of bulimic and normal-control subjects was not expected to differ significantly on the dimensions of anagram performance, attribution ratings, or ratings of self-efficacy and performance satisfaction. In contrast, the performance satisfaction of the depressed-control subjects was expected to differ significantly from that of the bulimic and normal-control subjects. Specifically, the depressed-control subjects were expected to demonstrate:

a) a longer response latency and a greater number of errors on the anagram task;

b) greater ratings on attributions of loss of control;

c) lower ratings on self-efficacy and performance satisfaction.

4) Following exposure to learned helplessness training, the performance of normal-control subjects was expected to differ significantly from that of depressed-control and bulimic subjects. These latter two groups were not expected to differ significantly

from one another. Specifically, subjects in the depressed-control and bulimic groups were expected to demonstrate, relative to normal-control subjects:

a) longer response latency and a greater number of errors on the anagram task;

b) greater ratings on the attributions of loss of control;

c) lower ratings of self-efficacy and performance satisfaction.

In addition to the four major hypotheses of the present study, specific differences were expected to be observed on two other measures. These hypotheses are stated below.

5) Differential performance was expected on food vs. non-food anagrams.

a) collapsed across experimental conditions, bulimic subjects were expected to demonstrate fewer errors and a faster response latency on food anagrams than on non-food anagrams relative to depressed and normal subjects.

b) among bulimic subjects, those exposed to learned helplessness training were expected to demonstrate fewer errors and a faster response latency on food anagrams than on non-food anagrams relative to buli-

mic subjects exposed to contingent feedback or no pretraining.

6) The self-statements of bulimic subjects (as measured by the Self-Statement Test) were expected to reflect a greater dissatisfaction with their appearance and performance, and a higher endorsement of affect-laden statements relative to normal and depressed subjects. Additionally, bulimic subjects were expected to give higher ratings to items related to weight and eating relative to the comparison group.

METHOD

Subjects

Data for the present study were collected in two phases. In the first phase, 394 female students enrolled in Introductory Psychology at Virginia Polytechnic Institute and State University completed seven paper and pencil psychological measures, including the Eating Questionnaire (EQ) and the Beck Depression Inventory (BDI) (see Appendices B and C). These measures served as the indices upon which subjects were selected for the second phase of the experiment. Based on these measures, three subgroups were selected: Bulimic (N = 45), Depressed (N = 45), and Normal (N = 45).

A subject was included in the Bulimic group if she responded "yes" to three of the four following questions on the EQ:

1. Do you get uncontrollable urges to eat and eat until you feel physically ill? ____No ____Yes

2. Are there times when you are afraid that you cannot voluntarily stop eating? ____No ____Yes

3. Have you ever had an episode of eating an enormous amount of food in a short period of time (an eating binge)? ____No ____Yes

4. Do you consider yourself a binge-eater? ____No ____Yes

In the original application of this questionnaire, Halmi et al. (1981) found that the positive endorsement of these questions was positively symptomatic of bulimia. In the present study approximately 12% of the women surveyed were eligible for participation in the second phase of the study as part of the Bulimic group on the basis of these questions.

Information about purging behavior was recorded, but it was not used as a criterion for inclusion in the Bulimic group. Vomiting is not a necessary criterion for a DSM-III (1980) diagnosis of bulimia.

In order to select subjects for the Depressed group, the Beck Depression Inventory (BDI) (Beck, 1961) was used. This is a 21-item paper and pencil self-report measure which assesses cognitive, affective, motivational, and physiological symptoms of depression. The BDI has been found to be both reliable (Pearson product moment correlation = .78 across a three week interval; Oliver & Burkham, 1978) and valid (Pearson product moment correlation = .77 between BDI score and interview impression of depth of depression; Bumberry, Oliver & McClure, 1978) in a university population. The BDI was administered during the subject screening session, and Beck's (1961) criteria for scoring were used: 0-9 = nondepressed; 10-15 = mildly depressed; 16-23 = moderately depressed, and; 24+ = severely depressed. In

the present study, the BDI scores for Depressed subjects ranged from 21 to 40 with a mean of 28.9.

Normal subjects were defined as those individuals who met the inclusion criteria of neither the Bulimic group nor the Depressed group. The BDI scores of Normal subjects were all below 10, and two or less of the critical EQ items were endorsed. All three groups were matched for weight, height , and age.

It should be noted that among those women assigned to the Bulimic group, BDI scores ranged from 4 to 57, with a mean of 23.34. This is consistent with descriptive studies of bulimics which have noted elevated scores on various measures of depression (Johnson & Larson, 1982; Pyle, Mitchell & Eckert, 1981; Stuckey, 1980). Within the present sample, 13 of the 45 (28%) Bulimic subjects had BDI scores that fell below the clinical range. Eleven women fell within the range of mild depression (24%) and 22 women had scores which fell within the severe range of depression (48%). It is important to note that 13 of the 22 severely depressed Bulimic women had BDI scores which exceeded 35, falling within a range which Beck describes as having suicidal potential.

Table 2 depicts the descriptive information for each of the nine experimental cells on variables of age, weight, BDI score, and the endorsement of critical EQ items. Table 3 pre-

TABLE 2

Means and Standard Deviations of Descriptive Information on All Subjects Reported by Group.

	NORMAL			DEPRESSED			BULIMIC		
	NTC	CF	LH	NTC	CF	LH	NTC	CF	LH
AGE	18.6 (1.65)	18.5 (0.58)	18.9 (1.23)	19.1 (0.92)	18.7 (1.45)	18.8 (1.02)	18.7 (1.23)	18.7 (1.38)	18.7 (1.65)
HEIGHT	5.50 (.57)	5.51 (.61)	5.65 (.81)	5.65 (.58)	5.52 (.57)	5.43 (.51)	5.53 (.51)	5.57 (.71)	5.53 (.68)
WEIGHT	131.8 (9.6)	125.3 (8.3)	132.3 (8.7)	130.3 (11.2)	126.9 (9.5)	123.0 (10.6)	131.3 (15.6)	127.9 (12.9)	131.3 (17.6)
BECK	7.1 (2.4)	5.4 (2.9)	7.7 (1.8)	29.7 (4.3)	30.2 (3.8)	26.9 (4.2)	23.5 (5.9)	20.0 (9.1)	26.5 (10.5)
Number who responded 'yes' to the critical EQ items:									
Urge to eat	2	0	0	1	2	2	11	10	11
Afraid can't stop	0	1	0	5	2	3	11	12	11
Binge episodes	8	7	9	9	9	9	15	15	15
Consider self a binge eater	0	0	0	0	1	1	15	15	15
Vomit	0	0	0	0	0	0	7	6	7

TABLE 3

Descriptive Information for Subjects Classified as Bulimic.

	Mean binge Frequency per week	% who vomit	Age of onset (in years)	Problem duration (in years)
NTC	5.27 (.68)	47%	14.3 (1.9)	4.47 (2.0)
CF	5.40 (2.1)	40%	14.3 (2.2)	4.47 (2.4)
LH	7.07 (4.5)	47%	14.8 (1.4)	3.60 (1.4)
TOTAL	5.9 (2.5)	45%	14.5 (1.8)	4.2 (1.9)

sents information relevant to bulimic subjects: length of problem, age of onset, frequency of binges, percentage who purge, and percentage who sought treatment.

Design

This study utilized a 3 x 3 design. There were three levels of subjects (Bulimic, Normal, and Depressed) and three levels of the experimental condition (learned helplessness training, contingent feedback, and no treatment control). The learned helplessness and contingent feedback groups participated in a discrimination task during training, an anagram task, and a series of self-report measures. The no-treatment control condition participated in the anagram task and one post-test questionnaire.

Apparatus and Materials

Pre-training Questionnaire. Prior to each set of four discrimination problems, each subject was asked to complete a two item questionnaire (see Appendix D). These questions asked subjects to rate on a 9-point Likert scale how well they expected to perform on this experiment and how confident they were of this prediction.

Training Task. Materials for the helplessness and contingent feedback conditions were adapted from Tennen and Eller (1977). Subjects in these conditions were exposed to a series of four-dimensional Levine (1971) stimulus pairs. Each of these dimensions was characrtized by four values: shape (circle or triangle), pattern (striped or plain), line position (above or below the figure), and, size (large or small). The stimuli were presented one at a time by an automatic Kodak Carousel slide projector for 2 seconds. Following this exposure, subjects were asked to respond by choosing one of the two stimulus patterns prior to the next presentation. At the end of each problem, subjects were required to select one out of a group of possible principles underlying their correct choice listed on a Hypothesis Checklist (HC) given to them prior to the first problem (see Appendix E). The eight problems were divided into two phases. Subjects solved four problems and then completed the Self-Statement Test (SST) (see Appendix F). Then, four additional problems were presented followed by the test task. Twenty-four slides comprised each problem and 50% failure feedback was given to those subjects in the learned helplessness condition. Perconte (1981) demonstrated that these values (4 problems/24 slides/50% failure feedback) produced an optimal learned helplessness effect.

Post-Testing Questionnaire. Following completion of the Hypothesis Checklist (HC) on Problems 4 and 8, subjects filled out a three item questionnaire (see Appendix G). These questions asked subjects to rate on a 9 point Likert scale: a) how well they felt they were performing the task; b) how satisfied they were with their performance, and; c) the difficulty of the preceding four problems.

Test Task

Following training, all subject received a series of anagrams adapted from those used by Teasdale (1978). In order to examine the influence of semantic content of words on performance, the present study included nine food anagrams: sweet, bagel, pecan, candy, cakes, gravy, donut, sauce, fruit. These words were equated with the ten non-food words for frequency of usage (Kucere & Francis, 1967). Given the suggestion in the literature that bulimics are sensitive to food-related stimuli (e.g, Mitchell et al., 1981), it was speculated that bulimic subjects may evince a shorter latency and/or fewer failures on anagrams of food items relative to the depressed and normal subjects.

The other ten anagrams used have been utilized in previous studies: beach, adopt, birth, habit, triad, fault, model, tango, baton, clerk. All anagrams were presented by the experimenter

one at a time on 5 x 7 cards. Both food and non-food anagrams had the same solution pattern, the correct order for each being 3 - 4 - 2 - 5 - 1 (e.g., ACEHB = BEACH).

To control for order effects, the anagrams were shuffled by the experimenter prior to testing each subject. Subjects were timed using a stopwatch and were allowed 100 seconds to respond to each anagram. After 100 seconds or a correct response, time was recorded by the experimenter on a performance sheet listing all anagrams and their solutions (see Appendix B).

Post-Test Questionnaire. Following the anagram task, subjects in the learned helplessness (LH) and contingent feedback (CF) groups completed two questionnaires. On the first, the Discrimination Problem Questionnaire (DPQ; see Appendix I), subjects were asked to rate several factors relating to their performance on the discrimination problems (training task). These factors included task importance, control, generalization of performance to other tasks, and attributions to ability, difficulty, luck, and effort. Ratings were made using a 9-point Likert scale. Questions about the number of problems solved and subjects' beliefs that they could have benefitted from more trials were also included.

Subjects in all groups then completed the Anagram Task

Questionnaire (ATQ; see Appendix J). This questionnaire was similar to the DPQ except for the omission of the last two questions.

Procedure

Subjects were tested and trained individually in the same lab by the author. It should be noted that the experimenter was not blind to subject's group membership which raises the question of potential bias. Through practice with pilot subjects, the experimenter developed a uniform style of interaction which was characterized by a detached and formal manner in order to decrease the likelihood of experimenter bias. This remains a potential flaw of the present study, however.

Training. After signing a consent form which described the procedures employed in the experiment (see Appendix K), subjects in the LH and CF groups were given the following instructions:

> The first part of this experiment is a learning test, and you will be asked to solve some problems. You will be looking at some slides like this one (sample slide will be shown). On each slide there are two figures. One is a circle, one is a triangle; one is large, one is small; one has a line above it, and one has a line below it; and one is striped and one is plain. After each slide is presented, you are to say "right" or "left", depending on the side of the slide

you think is correct. I will tell you if your choice is correct or incorrect, and on the basis of that you may be able to detect the principle underlying your correct choices. During the first phase, there will be four problems, each one consisting of 24 slide presentations. I will tell you when each problem ends and the next begins. Each slide will be presented for 1 seconds, and then it will go off the screen. You are to respond "right" or "left" immediately after the slide goes off the screen -- but not before. There will only be 4 seconds between each trial, so you must answer quickly. I will tell you if you are correct or incorrect, and then the next slide will be presented. At the end of each problem you will be asked to check off the principle you thought was the basis of your correct choices on this Hypothesis Checklist (four checklists will be handed out at this time). Please do not make any marks on this paper until the problem is ended. Ready?

The experimenter responded to questions about the procedure by simply repeating or paraphrasing the relevant part of the training instructions. No other questions were answered at this time; subjects were told that all their questions would be answered at the end of the experiment.

Subjects in the LH groups received the feedback response "wrong" on 50% (12/24) of the responses for each problem. The sequences of "correct" and "wrong" feedback responses had been determined prior to the onset of the training session, and were read from a list by the experimenter. Different, randomly generated sequences were read for each of the eight problems given the following constraints: 1) no response was repeated more than

four consecutive times; 2) no pattern or sequence of responses was repeated more than twice during the course of a single problem; 3) no problem ended with more than two consecutive correct or incorrect responses; and, 4) for each subject, four of the discrimination problems ended in correct feedback responses and four in incorrect feedback responses.

For subjects in the CR groups, veridical feedback was delivered on their responses for each trial. That is, for subjects in these groups, there actually was a principle underlying their correct choices. The principles for the eight problems were: Problem 1 - line under figure; Problem 2 - striped figure; Problem 3 - small figure; Problem 4 - striped figure; Problem 5 - line above figure; Problem 6 - figure on left; Problem 7 - plain figure; Problem 8 - figure on right.

Following each discrimination problem, subjects were asked to indicate the principle underlying their correct choices on the HC. The following instructions were given: "This is the end of the first (second, third, etc.) problem. Please check off which of the principles you thought was correct." If a subject asked if she could check off more than one principle, the experimenter responded, "Whatever you think best describes the principle underlying your correct choices."

When the HC was completed for the problem, subjects were

instructed as follows: "Now the next problem will begin. For this problem, the principle may be the same as in a previous problem, or it may be different, but that is up to you to figure out. Ready?"

The above instructions were repeated for each problem. After the fourth problem was completed and the HC completed, subjects were asked to complete Questionnaire 2. When this was completed, subjects were handed the SST and read the following instructions:

> Psychological research indicates that people think a number of different things when they're exposed to problems like the ones you just completed. Some of these thoughts are about the problems they're trying to solve, while some of these thoughts are about matters seemingly unrelated to the task at hand. On the sheets in front of you are a list of statements which previous experimental subjects have told us they were thinking when participating in problems like the present one. Using the nine-point scale described on top of the sheet, please indicate how often you thought each of these statements (or something similar to it) during the previous four discrimination problems.

At this point, the last four discrimination problems were administered in the same manner as described above. Before the problems, subjects completed Questionnaire 1, they filled out the HC after each problem, and they completed Questionnaire 2 after the last discrimination problem.

Testing. After the completion of the training phase for the LH and CF groups, and immediately following the consent form and Questionnaire 1 for the NTC groups, the following instructions were given to all subjects:

> It has been found that there is a close relationship between the ability to use language and the ability to deal with concepts and relationships. The purpose of this test is to see if such a relationship is apparent in the ability to solve anagrams. You will be asked to solve some anagrams. Anagrams are words with their letters scrambled. Your task is to unscramble the letters so that they form a word. When you know what the name of the word is, tell me immediately. There could be a pattern by which to solve the anagram, but that is up to you to figure out. I will answer any questions at the end of the experiment. Ready?

Nineteen anagrams were presented, one at a time, on 5 x 7 index cards. Twenty anagrams had originally been selected, but one was dropped because it could be correctly decoded to form two different words. Subjects were allowed a maximum of 100 seconds to solve each anagram, after which the card was removed and turned face down. Solution times were recorded to the nearest tenth of a second. If a subject responded with the correct answer before 100 seconds, the card was turned face down and the next card was presented. If an incorrect response was given, the experimenter replied, "That is not correct." If the subject at-

tempted to return the anagram card before 100 seconds elapsed, the experimenter responded by saying, "Please continue working until I tell you to stop." The experimenter refrained from responding to any comments from subjects in an attempt to remain as detached and aloof as possible.

At the end of the last anagram, subjects in the LH and CF groups were given the two post-test questionnaires (DPQ and ATQ) with the following instructions:

> That was the last anagram. Now I would like you to work on these two questionnaires. The first one concerns your performance on the discrimination problems. The second one concerns your performance on the anagram test.

Subjects in the NTC group were given Questionnaire 2 and the ATQ with the following instructions:

> This was the last anagram. Now I would like for you to work on this questionnaire concerning your performance on the anagram task.

After the questionnaires were completed, the experimenter collected them and subjects were debriefed.

Debriefing

All subjects were debriefed by the experimenter as to the true nature of the experiments. Final debriefing instructions varied depending upon the subjects' experimental condition. Below are the debriefing instructions used for each of the three conditions.

Noncontingent Feedback Groups (LH)

> Before you leave, I must explain something to you about this experiment. In the first task, the responses of "correct" or "incorrect" that I gave you were in no way related to your performance. In fact, there was no underlying principle for correct choices, and all my responses were on a pre-determined schedule (subject was shown sample schedule). Any difficulty that you experienced on that task was due to the deception involved, and in no way reflected your ability to perform this kind of task. The purpose of this experiment is to study the effects of noncontingent feedback on ability to solve anagrams. For that reason, I must also add that your performance on the anagram task may have also been influenced by the first task. Your performance on these anagrams also should not be taken as a reflection of your ability to solve this kind of problem. Do you have any questions?

Contingent Feedback Groups (CF)

> Before you leave, I would like to explain some things to you about this experiment. On the first task, many subjects received "correct" or "incorrect" responses from a predicted schedule. For these people, there was no underlying principle for their correct choices. You were not included in this group, and all the feedback given to you about your choices

was accurate. The purpose of this experiment is to study the effects of performance on a discrimination task on a later task such as anagrams For this reason, your success with the anagrams may have been affected by how well you did on the first task and may not have been an accurate reflection of your ability to solve anagrams. Do you have any questions?

No-Treatment Control Groups (NTC)

The purpose of this experiment is to study the effects of performance on a discrimination task on later tasks such as anagrams. You were in a control group which was exposed only to the anagram task. Do you have any questions?

In addition, all subjects were informed as to why they had been selected to participate in the experiment. For the normal (non-bulimic, non-depressed) subjects, this phase of the debriefing simply explained that they were selected because of their responses to the screening measures indicated that they might be less susceptible to the experimental manipulation. For the depressed subjects, the experimenter explained that the subjects responses to the screening measures indicated that she was not as happy as most other subjects screened. A short interview followed to insure that the subjects' BDI score was valid. When appropriate, the experimenter provided information concerning resources for counseling.

The experimenter explained to subjects in the bulimic group

that they had been chosen to participate because their responses on the EQ indicated that they regularly binge eat. An interview followed to gain information about the frequency of binge episodes and purging behavior, as well as dieting history. On the basis of this interview, the experimenter determined whether or not the subject met the diagnostic criteria for bulimia described in the DSM-III. Those subjects who did not binge on a weekly or greater basis and/or did not see their behavior as a problem were excluded from the study. In all, 3 subjects were excluded because the information gained in the interview contradicted the information on the EQ. All other subjects met the major criteria for bulimia.

Following this interview, subjects were informed of the sources of treatment available to them. They were offered names and phone numbers, and encouraged to seek treatment.

All subjects who had received inaccurate feedback were engaged in conversation for 8-10 minutes to ensure that she fully understood the nature of the deception. The experimenter offered to go through any anagrams the subject missed.

For all subjects, the experimenter investigated any problems which may have limited the subjects' performance (e.g., hearing problems, language difficulties, etc.). Finally, subjects were asked to sign a second consent form (see Appendix L) acknowledging

any experimental deception and including an agreement not to discuss the experiment with anyone who had not already participated in the study.

RESULTS

For the purpose of analysis, each question on the Pretest and Posttest Questionnaire, the ATQ and the SST was treated as a separate variable. Performance measures included mean time required by each subject to solve all anagrams (Total Latency), number of anagrams failed by each subject (Total Failures), mean time required by each subject to solve food anagrams (Food Latency), and mean time required by each subject to solve nonfood anagrams (Nonfood Latency). Group means for the 9 cells of subjects for each of the performance variables are presented in Figures 1, 2, 3 and 4.

A conservative significance level of .01 was adapted for the interpretation of the present results in order to minimize the likelihood of Type I error.

Learned Helplessness Effects

In order to determine the effects of administering insoluable discrimination problems on subsequent anagram performance and performance attributions among each group of subjects (Normal, Depressed, and Bulimic), univariate analyses of variance (ANOVA) were performed for these variables within each group. It was expected (Hypothesis 1) that, within each group of subjects, those subjects exposed to learned helplessness training would demonstrate longer Total Latency, a greater number of Total Failures, and ratings inindicating attributions of loss of control.

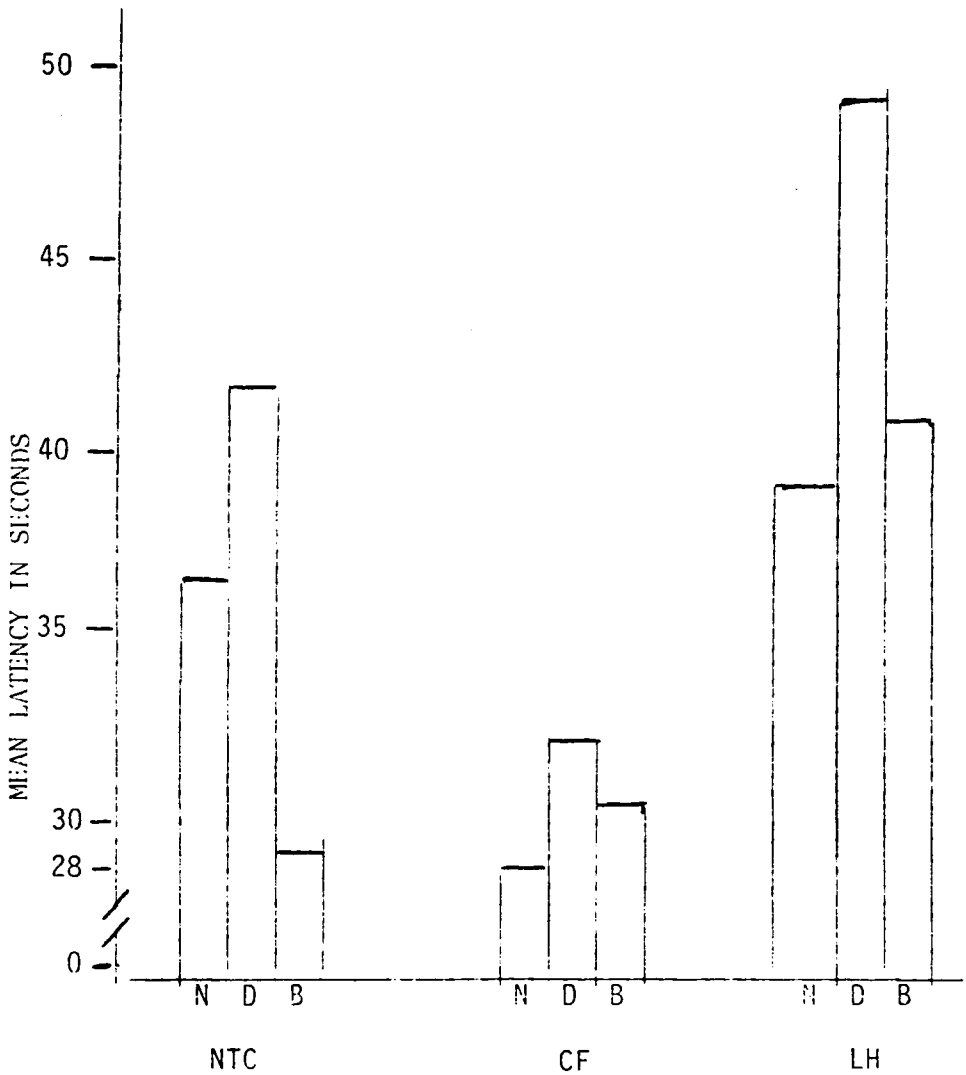

Figure 1. Total latency for Normal (N), Depressed (D), and Bulimic (B) subjects grouped by training condition.

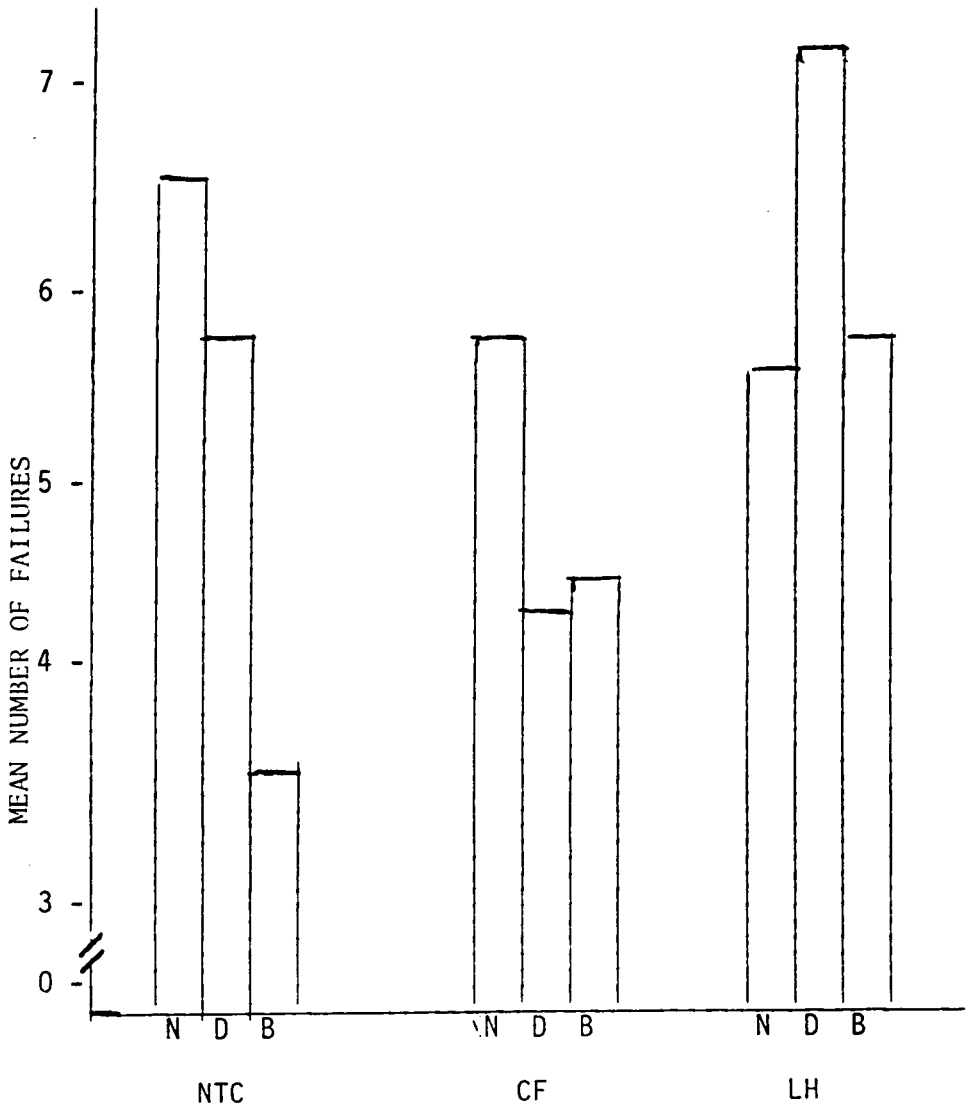

Figure 2. Total failures for normal (N), Depressed (D), and Bulimic (B) subjects grouped by training condition.

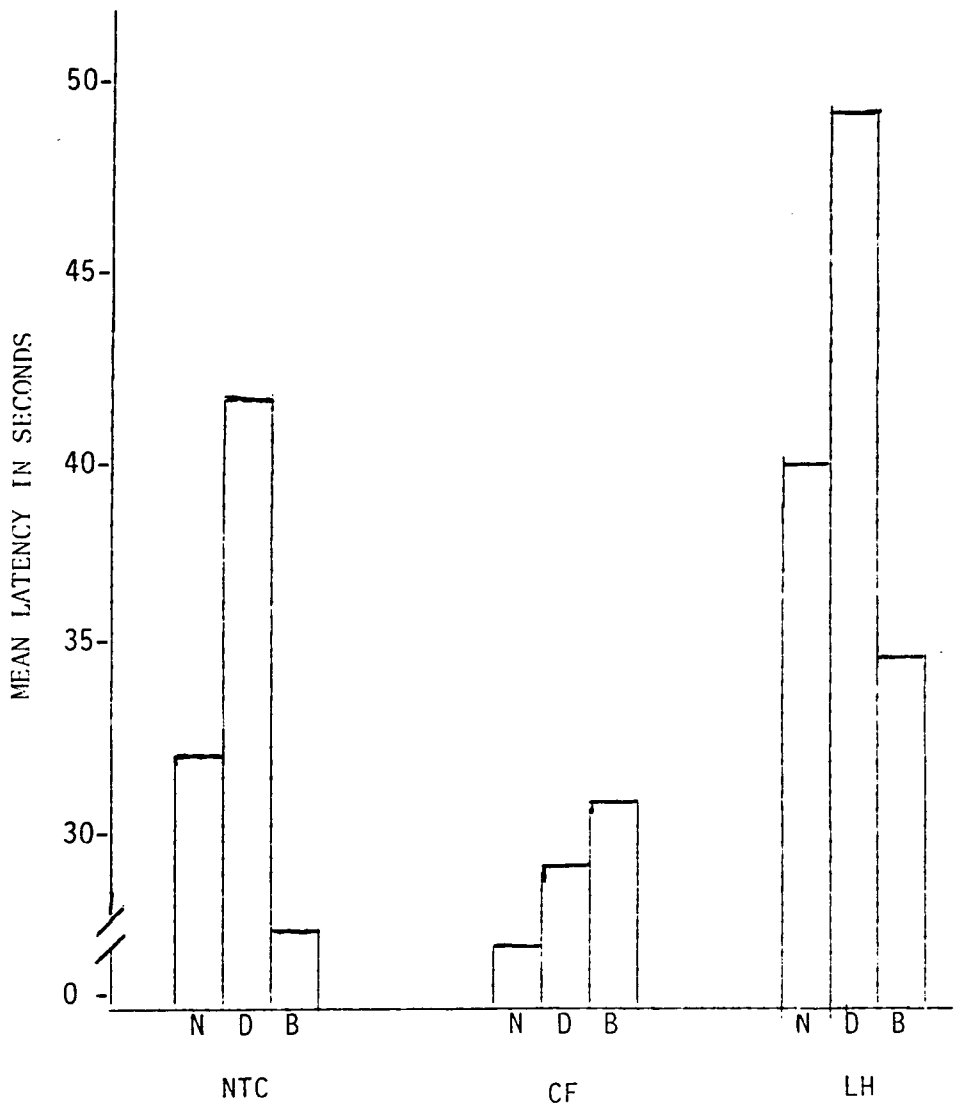

Figure 3. Latency for food anagrams for Normal (N), Depressed (D), and Bulimic (B) subjects grouped by training condition.

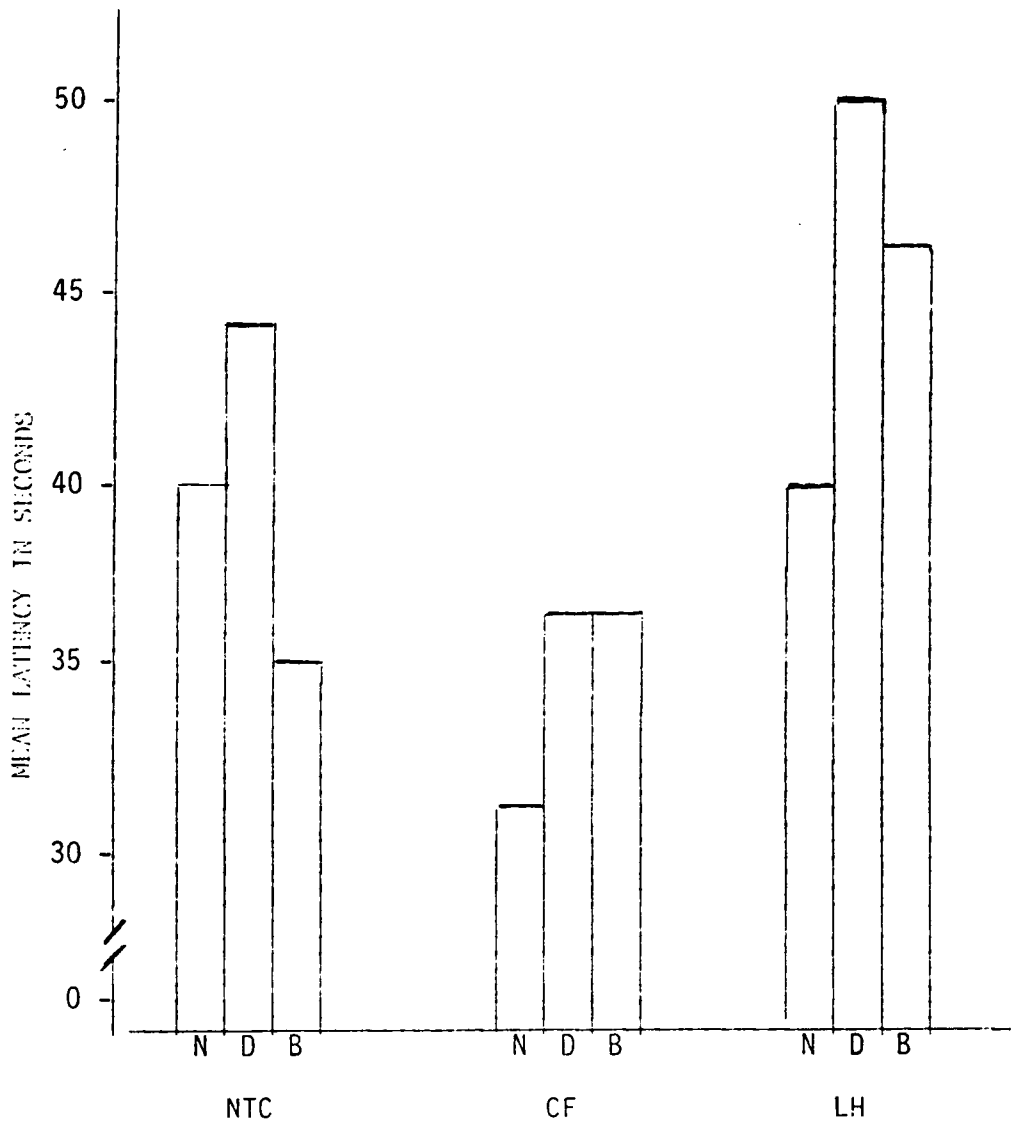

Figure 4. Latency for nonfood anagrams for Normal (N), Depressed (D), and Bulimic (B) subjects grouped by training condition.

Results of these analyses are condensed into Tables 4 (Normal S's), 6 (Depressed S's) and 8 (Bulimic S's). Student t-tests were performed between CF and LH groups within each subject classification on ratings of performance satisfaction and self-efficacy. These results are presented in Tables 5 (Normal S's), 7 (Depressed S's) and 9 (Bulimic S's). These results will now be discussed for each group of subjects.

Normals. As Table 4 demonstrates, no statistically significant differences were found on the performance measures, indicating that performance on anagrams was not reliably influenced as a function of LH, CR or NTC exposure. Likewise, attributions regarding anagram performance did not differ as a function of CF, LH or NTC exposure.

Table 5 demonstrates that when Normal S's exposed to LH and CF training are compared on ratings of expected performance and performance satisfaction, statistically significant differences emerge. No differences were observed between LH and CF groups on ratings of expected performance ($t = -0.11$, $p < .91$), or the certainty of that prediction ($t = 0.0$, $p < 1.0$) prior to exposure to problems. However, after exposure Normal CF and LH groups differed significantly on ratings of problem difficulty ($t = 9.28$, $p < .0001$), self-rating of performance ($t = 9.50$, $p < .0001$), and performance satisfaction ($t = 7.50$, $p < .0001$). Pretest ratings for the second set of discrimination problems also differed sig-

Table 4

Summary of Mean Squares, F ratios, and p values for Univariate ANOVA's for Dependent Variables Across Levels of Treatment Condition for Normal Subjects.

DEPENDENT VARIABLE	df	MS	F	p
Total Latency				
Feedback	2	554.24	1.34	0.27
Error	42	414.14		
Total Failures				
Feedback	2	3.82	0.10	0.90
Error	42	37.67		
Nonfood Latency				
Feedback	2	323.07	0.61	0.55
Error	42	530.57		
Food Latency				
Feedback	2	1002.05	2.28	0.11
Error	42	438.70		
ANAGRAM ATTRIBUTIONS:				
Importance of Performing Well (AQ5)				
Feedback	2	9.80	3.02	0.05
Error	42	3.25		
Predictiveness (AQ6)				
Feedback	2	2.29	0.66	0.52
Error	42	3.46		
Control (AQ7)				
Feedback	2	4.69	1.44	0.25
Error	42	3.25		

Table 5

Results of t-test on Dependent Variables for Learned Helplessness (LH) and Contingent Feedback (CF) Conditions Among Normal Subjects.

DEPENDENT VARIABLE	$\bar{X}$	sd	t	p
Expected Performance (1st set)				
CF	3.33	1.72	-0.11	0.91
LH	3.40	1.64		
Certainty of Prediction (1st set)				
CF	3.80	2.46	0.00	1.00
LH	3.80	1.70		
Problem Difficulty (1st set)				
CF	6.80	1.32	9.28	0.0001
LH	1.60	1.72		
Self-rating of Performance (1st set)				
CF	6.53	1.55	9.50	0.0001
LH	1.80	1.15		
Performance Satisfaction (1st set)				
CF	6.47	1.96	7.50	0.0001
LH	1.93	1.28		
Expected Performance (2nd set)				
CF	2.00	1.46	-2.09	0.05
LH	3.47	2.29		
Certainty of Prediction (2nd set)				
CF	2.27	1.68	-0.78	0.44
LH	2.93	1.58		
Problem Difficulty (2nd set)				
CF	6.60	2.17	6.55	0.0001
LH	2.00	1.65		
Self-rating of Performance (2nd set)				
CF	6.73	2.09	6.57	0.0001
LH	2.07	1.79		
Performance Satisfaction (2nd set)				
CF	6.87	2.10	6.80	0.0001
LH	1.93	1.87		

nificantly in terms of expected performance ($t = -2.09$, $p < .05$), but not on a rating of certainty of that prediction ($t = -0.78$, $p < .44$). Consistent with Posttest items following exposure to the first set of discrimination problems, the second set of Posttest items were rated significantly differently by CF and LH groups on item difficulty ($t = 6.55$, $p < .0001$), self-rating of performance ($t = 6.57$, $p < .0001$), and satisfaction with performance ($t = 6.80$, $p < .0001$), Together, these results indicate that Normal subjects altered their self-ratings of performance during LH training, but the expected influence of LH training on subsequent anagram performance and attributions was not observed.

Depressed. The pattern of results observed among Depressed subjects is somewhat different from that observed among Normal subjects. As Table 6 demonstrates, significant differences were found among NTC, LH and CF groups on the performance measures of Total Latency ($F = 4.80$, $p < .01$), Total Failures ($F = 3.36$, $p < .04$), and Food Latency ($F = 5.95$, $p < .01$). Duncan's MRT on Total Latency indicated that LH subjects demonstrated a longer latency than CF subjects. However, NTC subjects did not differ significantly from LH or CF conditions. The same pattern was observed for Total Failures with LH subjects exhibiting a greater number of errors than CF subjects while neither group was significantly different from NTC subjects. On Food Latency, Duncan's MRT indicated that no statistically significant difference existed

Table 6

Summary of Mean Squares, F ratios and p values for Univariate ANOVA's for dependent variables across levels of treatment condition for Depressed subjects.

DEPENDENT VARIABLE	df	MS	F	p
Total Latency				
Feedback	2	1143.65	4.80	0.01
Error	42	238.21		
Total Failures				
Feedback	2	30.82	3.36	0.04
Error	42	9.18		
Nonfood Latency				
Feedback	2	728.97	1.94	0.15
Error	42	375.82		
Food Latency				
Feedback	2	1792.28	5.95	0.01
Error	42	301.10		
ANAGRAM ATTRIBUTIONS:				
Importance of Performing Well (AQ5)				
Feedback	2	0.52	0.22	0.80
Error	42	2.30		
Predictiveness				
Feedback	2	1.01	0.20	0.82
Error	42	5.17		
Control (AQ7)				
Feedback	2	9.65	1.73	0.19
Error	42	5.59		

between LH and NTC subjects, although both of these groups had significantly longer response latencies than Depressed subjects exposed to CF training. Despite these performance deficits, no differences were noted on attributions regarding anagram performance.

Table 7 depicts the Student t-test results between Depressed S's exposed to LH and CF training on ratings of expected performance and performance satisfaction. Consistent with the pattern observed among Normal LH and CF groups, no differences were found on ratings of expected performance and certainty of that prediction prior to exposure to discrimination problems ($t = -0.19$, $p < .85$ and $t = -0.66$, $p < .51$, respectively). Ratings made following training were significantly different on ratings of problem difficulty ($t = 11.17$, $p < .0001$), self-rating of performance ($t = 5.61$, $p < .0001$), and performance satisfaction ($t = 6.93$, $p < .0001$). On a rating of expected performance on the second set of discrimination problems, CF and LH groups differed significantly ($t = -.520$, $p < .0001$), but did not differ on a rating of the certainty of that rating ($t = -0.31$, $p < .76$). Consistent with the results of Normal CF and LH groups and with the first set of Post-test ratings, Depressed CF and LH groups differed significantly on ratings of problem difficulty ($t = 8.13$, $p < .0001$), self-rating of performance ($t = 12.17$, $p < .0001$), and performance satisfaction ($t = 9.19$, $p < .0001$).

Table 7

Results of t-test on Dependent Variables for Learned Helplessness (LH) and Contingent Feedback (CF) Conditions among Depressed Subjects.

DEPENDENT VARIABLE	$\bar{X}$	sd	t	p
Expected Performance (1st set)				
CF	3.93	0.88	-0.19	0.85
LH	4.00	1.00		
Certainty of Prediction (1st set)				
CF	3.67	1.54	-0.66	0.51
LH	4.07	1.75		
Problem Difficulty (1st set)				
CF	5.93	1.10	11.17	0.0001
LH	1.00	1.31		
Self-rating of Performance (1st set)				
CF	5.13	1.77	5.61	0.0001
LH	1.80	1 47		
Perforamnce Satisfaction (1st set)				
CF	5.07	1.91	6.93	0.0001
LH	1.20	1.01		
Expected Performance (2nd set)				
CF	3.07	1.44	-5.20	0.0001
LH	6.07	1.71		
Certainty of Prediction (2nd set)				
CF	3.33	1.50	-0.31	0.76
LH	3.53	2.03		
Problem Difficulty (2nd set)				
CF	6.40	1.06	8.13	0.0001
LH	1.53	2.07		
Self-rating of Performance (2nd set)				
CF	5.87	1.13	12.17	0.0001
LH	1.07	1.03		
Performance Satisfaction (2nd set)				
CF	5.80	1.42	9.19	0.0001
LH	1.13	1.36		

Bulimic. Table 8 presents the results of the univariate analysis of variance (ANOVA) for the performance measures and attributions regarding anagram performance for the CF, LH and NTC conditions among Bulimic subjects. Although no statistically significant differences were evident on measures of Total Latency (F = 2.73, $p < .08$), Nonfood Latency (F = 1.94, $p < .16$), or Food Latency (F = 1.46, $p < .24$), differences among Bulimic groups on Total Failures (F = 3.32, $p < .05$) approached the significance level set for the present study, with LH subjects failing the greatest number of anagrams ($\bar{X}$ = 5.9), followed by CF subjects ($\bar{X}$ = 4.3) and NTC subjects ($\bar{X}$ = 3.4).

In sum, limited support was found for the impact of LH training on subsequent performance among these Bulimic subjects (Hypothesis 1).

Among AQ items, no differences were found with Bulimic subjects as a function of training condition.

The pattern of ratings between CF and LH training groups on measures of expected performance, certainty of that rating (Pretest ratings) and problem difficulty, self-rating of performance, and performance satisfaction (Posttest ratings) is similar to that observed among Normal and Depressed training conditions. That is, no differences were found between CF and LH conditions on ratings of expected performance (t = 1.05, $p < .30$) or certainty of that prediction (t = 1.13, $p < .27$) prior to exposure to discrimination

Table 8

Summary of Mean Squares, F ratios and p values for Univariate ANOVA's for each Dependent Variable Across Levels of Treatment Condition for Bulimic Subjects.

DEPENDENT VARIABLE	df	MS	F	p
Total Latency				
Feedback	2	543.81	2.73	0.08
Error	42	199.35		
Total Failures				
Feedback	2	23.27	3.32	0.05
Error	42	7.02		
Nonfood Latency				
Feedback	2	555.53	1.94	0.16
Error	42	236.25		
Food Latency				
Feedback	2	345.35	1.46	0.24
Error	42	236.25		
ANAGRAM ATTRIBUTIONS:				
Importance of Performing Well (AQ5)				
Feedback	2	5.49	2.41	0.10
Error	42	2.27		
Predictiveness (AQ6)				
Feedback	2	18.87	4.28	0.20
Error	42	4.41		
Control (AQ7)				
Feedback	2	6.47	1.62	0.21
Control	42	4.00		

Table 9

Results of t-test on Dependent Variables for Learned Helplessness (LH) and Contingent Feedback (CF) Conditions Among Bulimic Subjects.

DEPENDENT VARIABLE	X	sd	t	p
Expected Performance (1st set)				
CF	4.27	1.39	1.05	0.03
LH	3.73	1.39		
Certainty of Prediction (1st set)				
CF	4.47	2.23	1.13	0.27
LH	3.60	1.96		
Problem Difficulty (1st set)				
CF	6.67	1.23	10.31	0.0001
LH	1.93	1.28		
Self-rating of Performance (1st set)				
CF	6.47	1.41	12.35	0.0001
LH	1.40	0.74		
Performance Satisfaction (1st set)				
CF	6.53	1.30	13.08	0.0001
LH	1.07	0.96		
Expected Performance (2nd set)				
CF	2.53	1.51	-7.15	0.0001
LH	6.40	1.45		
Certainty of Prediction (2nd set)				
CF	3.67	2.02	-1.92	0.07
LH	5.20	2.34		
Problem Difficulty (2nd set)				
CF	5.47	2.10	5.66	0.0001
LH	1.53	1.69		
Self-rating of Performance (2nd set)				
CF	4.60	2.82	4.55	0.0001
LH	1.00	1.19		
Performance Satisfaction (2nd set)				
CF	4.60	2.80	4.83	0.0001
LH	0.87	1.06		

problems. Following exposure, statistically significant ratings were noted on ratings of problem difficulty ($t = 10.31$, $p < .0001$), self-rating of performance ($t = 12.35$, $p < .0001$), and performance satisfaction ($t = 13.08$, $p < .0001$). Ratings of expected performance prior to the second set of discrimination problems differed significantly ($t = -7.15$, $p < .0001$), although ratings of the certainty of that prediction did not ($t = -1.92$, $p < .07$). Consistent with previously reported results, the second set of Posttest ratings also differed significantly: problem difficulty ($t = 5.66$, $p < .0001$), self-rating of performance ($t = 4.55$, $p < .0001$), performance satisfaction ($t = 4.83$, $p < .0001$).

In sum, the expected deficits in anagram performance were not observed for Normal subjects. Bulimic and Depressed subjects demonstrated support for Hypothesis 1 on some of the performance dimensions.

Between Group Differences

In order to understand the degree to which Normal, Depressed and Bulimic groups differed within each feedback condition (Hypotheses 2,3 and 4), univariate analyses of variance (ANOVA) were performed on the dependent variables. For the CF and LH conditions, the dependent variables were the performance measures (Total Latency, Total Failures, Nonfood Latency and Food Latency), Pretest and Posttest Questionnaires items, and AQ items. For the NTC

condition, the ANOVA's were performed on the performance measures and the AQ items. Results of these analyses are presented in Tables 10, 11 and 12.

No Treatment Control Condition. The results presented in Table 10 indicate that no statistically significant differences were found among Normal, Depressed and Bulimic subjects exposed to the NTC condition on the performance measures. However, on the attribution regarding the importance of performing well on the anagram task, statistically significant differences were noted ($F = 6.84$, $p < .003$). Duncan's MRT indicates that Depressed and Bulimic subjects rated greater importance to performing well than did Normal subjects; Depressed and Bulimic groups did not differ significantly from one another. Also, a trend toward significant differences were noted on the attribution regarding control ($F = 3.19$, $p < .05$). The Bulimic subjects endorsed the greatest loss of control, followed by Normal and Depressed subjects. These results provide very limited support for Hypothesis 2 in that some differences in attribution were noted. However, the majority of the present evidence indicates that no reliable differences were found among subject groups in the No Treatment Control Condition.

Contingent Feedback Condition. The results presented in Table 11 reveal that no statistically significant differences were found among Normal, Depressed and Bulimic groups on the per-

Table 10

Summary of Mean Squares, F ratios and p values for Univariate ANOVA's for each Dependent Variable Across Levels of Group in the No Treatment Control Condition.

DEPENDENT VARIABLE	df	MS	F	p
Total Latency				
Group	2	747.07	2.30	0.11
Error	42	325.63		
Total Failures				
Group	2	39.76	2.45	0.98
Error	42	16.20		
Nonfood Latency				
Group	2	329.50	0.78	0.47
Error	42	423.02		
Food Latency				
Group	2	1103.21	2.84	0.07
Error	42	388.76		
ANAGRAM ATTRIBUTIONS:				
Importance of Doing Well (AQ5)				
Group	2	14.60	6.84	0.003
Error	42	2.13		
Predictiveness (AQ6)				
Group	2	0.07	0.02	0.98
Error	42	3.59		
Control (AQ7)				
Group	2	12.20	3.19	0.05
Error	42	3.82		

Table 11

Summary of Mean Squares, F ratios and p values for Univariate ANOVA's for each Dependent Variable Across Levels of Group in the Contingent Feedback Condition.

DEDENDENT VARIABLE	df	MS	F	p
Total Latency	2	65.16	0.31	0.74
Group	2	65.16	0.31	0.74
Error	42	210.23		
Total Failures				
Group	2	10.29	0.39	0.68
Error	42	26.22		
Nonfood Latency				
Group	2	89.96	0.27	0,77
Error	42	338.06		
Food Latency				
Group	2	226,99	1,16	0.32
Error	42	196.05		
ANAGRAM ATTRIBUTION:				
Importance of Doing Well (AQ5)				
Group	2	1.44	0.67	0.52
Error	42	2.16		
Predictiveness (AQ6)				
Group	2	4.37	1.18	0.32
Error	42	3.72		
Control (AQ7)				
Group	2	5.44	1.42	0.25
Error	42	3.82		
PRETEST AND POSTTEST ITEMS:				
Expected Performance (1st set)				
Group	2	3.36	1.78	0.18
Error	42	1.89		
Certainty of Prediction (1st set)				
Group	2	2.76	0.62	0.54
Error	42	4.46		
Problem Difficulty (1st set)				
Group	2	3.27	2.19	0.13
Error	42	1.49		

Table 11 (cont.)

DEPENDENT VARIABLE	df	MS	F	p
Self-rating of Performance (1st set)				
Group	2	9.36	3.74	0.03
Error	42	2.51		
Performance Satisfaction (1st set)				
Group	2	10.29	3.37	0.04
Error	42	3.06		
Expected Performance (2nd set)				
Group	2	4.27	1.98	0.15
Error	42	2.16		
Certainty of Prediction (2nd set)				
Group	2	5.76	1.88	0.17
Error	42	3.06		
Problem Difficulty (2nd set)				
Group	2	5.49	1.16	0.21
Error	42	3.40		
Self-rating of Performance (2nd set)				
Group	2	17.27	3.81	0.03
Error	42	4.53		
Performance Satisfaction (2nd set)				
Group	2	19.29	4.06	0.03
Error	42	4.76		

formance measures or AQ items. An interesting trend emerges among the Pretest and Posttest Questionnaire items, however. Although no between-group differences are noted on the first rating of expected performance, certainty of that prediction, or problem difficulty, differences emerge on the self-rating of performance ($F = 3.74$, $p < .03$) and the rating of performance satisfaction ($F = 3.37$, $p < .04$). The Duncan's MRT indicate that Normal and Bulimic subjects rated their performance significantly higher than Depressed subjects. Normal and Bulimic subjects did not differ significantly from one another. The same pattern was revealed on the rating of performance satisfaction in that Normal and Bulimic subjects did not differ from one another, but rated their performance significantly higher than Depressed subjects. On the second administration of the Posttest Questionnaire, the same differences were noted on self-rating of performance ($F = 3.81$, $p < .03$) and performance satisfaction ($F = 4.06$, $p < .03$). The Duncan's MRT indicated that Normal subject's self-rating was significantly higher than that of Bulimic subjects, although the self-rating of Depressed subjects did not differ significantly from the other two groups. The identical pattern was evident on the rating of performance satisfaction. Together, these results appear to indicate that with continued exposure to contingent feedback, Normal S's ratings on these dimensions remain relatively stable. In contrast, the ratings of Depressed subjects rise slightly, while the ratings of Bulimic

subjects fall an average of 2 Likert scale points. This trend is visually depicted on Figures 5 and 6. Partial support is found for Hypothesis 3 which predicted, in part, that the Bulimic subjects would evince low self-ratings and performance satisfaction ratings relative to the comparison groups.

Learned Helplessness Condition. The results presented in Table 12 reveal that no statistically significant differences were noted among Normal, Depressed or Bulimic groups exposed to LH training on the performance measures or AQ items.

No significant differences were noted on the first administration of the Pretest and Posttest Questionnaire, although some differences emerged in the second administration of these measures. Specifically, differences were noted on the rating of predicted performance ($F = 11.26$, $p < .0001$) and on the certainty one has in one's prediction ($F = 5.14$, $p < .01$). The Duncan's MRT indicate that Bulimic and Depressed subjects predicted that they would perform more poorly than Normal subjects, although Bulimic and Depressed subjects did not differ significantly from one another. On the rating of certainty in one's prediction, Bulimic subjects rated themselves significantly less sure of their prediction than Depressed and Normal subjects who did not differ significantly from one another.

These results provide limited support for one dimension of

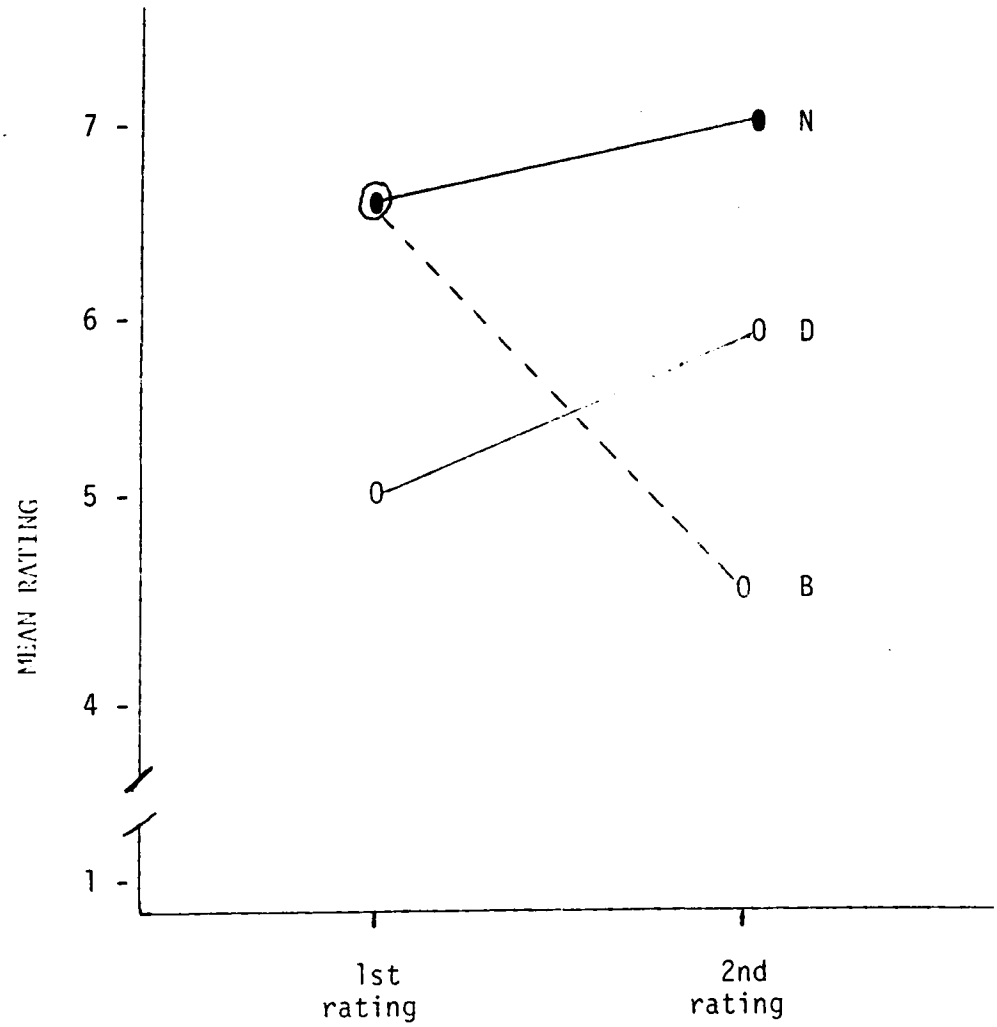

Figure 5. Mean values on self-rating of performance for Normal (N), Depressed (D), and Bulimic (B) subjects exposed to Contingent Feedback training. Ratings were made after each set of problems.

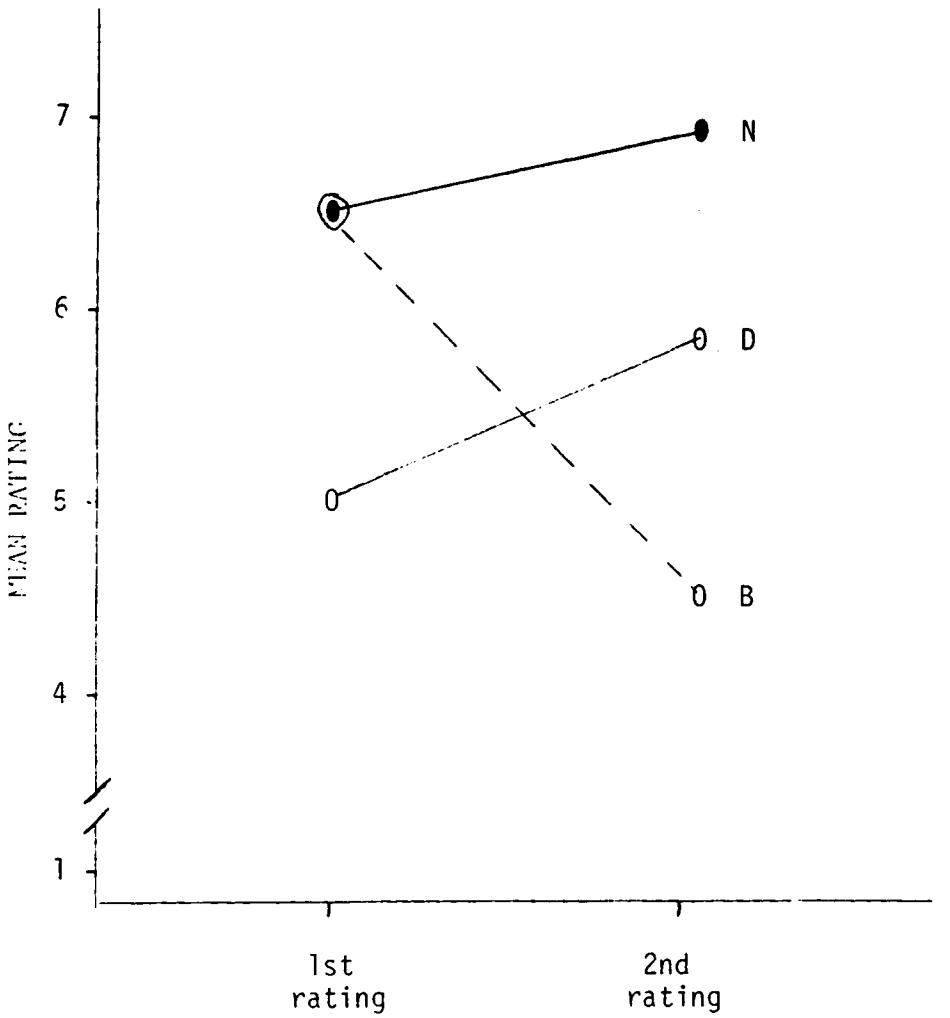

Figure 6. Mean values on rating of performance satisfaction for Normal (N), Depressed (D), and Bulimic (B) subjects exposed to Contingent Feedback training. Ratings were made after each set of problems.

Table 12

Summary of Mean Squares, F ratios and p values for Univariate ANOVA's for Each Dependent Variable Across Levels of Group in the Learned Helplessness Condition.

DEPENDENT VARIABLE	df	MS	F	p
Total Latency				
Group	2	422.76	1.33	0.27
Error	42	316.83		
Total Failures				
Group	2	10.07	0.88	0.42
Error	42	11.45		
Nonfood Latency				
Group	2	426.19	0.99	0.38
Error	42	430.98		
Food Latency				
Group	2	795.05	2.03	0.14
Error	42	392.23		
ANAGRAM ATTRIBUTIONS:				
Importance of Doing Well (AQ5)				
Group	2	5.96	1.69	0.20
Error	42	3.52		
Predictiveness (AQ6)				
Group	2	12.02	2.11	0.13
Error	42	5.70		
Control (AQ7)				
Group	2	7.47	1.45	0.25
Error	42	5.15		
PRE- and POSTTEST ITEMS				
Expected Performance (1st set)				
Group	2	1.36	0.72	0.49
Error	42	1.87		
Certainty of Prediction (1st set)				
Group	2	0.82	0.25	0.78
Error	42	3.26		
Problem Difficulty (1st set)				
Group	2	3.36	1.59	0.22
Error	42	2.11		

Hypothesis 4. Overall, the conclusion must be drawn that no reliable differences were found among the groups exposed to LH training.

Food/Nonfood Anagrams. Food related and nonfood related anagram items were analyzed to examine the degree to which Bulimic women differentially responded as a function of training condition (Hypothesis 5). The dimensions of Latency and Failures were analyzed using a 3(Training Condition: NTC/LH/CF) x 2 (Anagram content: Food/Nonfood). These results are presented in Tables 13 and 14.

On the dimension of response latency, there was no significant manin effect for Training Condition ($F = 1.77$, $p = .16$). There was a significant main effect for Anagram Content ($F = 3.86$, $p = .05$), as well as a significant Anagram Content by Training Condition interaction ($F = 19.72$, $p = .0001$). Post hoc analyses indicated that, collapsed across Training Condition, food anagrams were solved more quickly than nonfood anagrams ($X = 30.23$ and 38.84, respectively). This pattern was observed within each training condition, although LH and NTC groups had greater differences between food and nonfood anagrams than did the CF group. Mean response latencies for food and nonfood anagrams were 24.98 vs. 35.11, respectively, in the NTC group, 34.38 vs. 45.87 in the LH group, and 31.35 vs. 35.56 in the CF group.

TABLE 13

SUMMARY TABLE FOR REPEATED MEASURES ANOVA ON RESPONSE LATENCY FOR FOOD RELATED AND NONFOOD RELATED ANAGRAM ITEMS ACROSS TRAINING CONDITIONS FOR BULIMIC SUBJECTS

SOURCE	df	MS	F	p
BETWEEN SUBJECTS				
Training Condition	2	768.9	1.77	.16
Error	42	435.1		
WITHIN SUBJECTS				
Anagram Content	1	1533.4	3.86	.05
Condition x Anagram	2	7834.3	19.72	.0001
Error	42	3451.4		

TABLE 14

SUMMARY TABLE FOR REPEATED MEASURES ANOVA ON FOOD RELATED AND NONFOOD RELATED ITEM FAILURES ACROSS TRAINING CONDITION FOR BULIMIC SUBJECTS.

SOURCE	df	MS	F	p
BETWEEN SUBJECTS				
Training Condition	2	8.18	1.74	.16
Error	42	4.71		
WITHIN SUBJECTS				
Anagram Content	1	30.05	3.14	.05
Anagram x Condition	2	16.74	1.75	.16
Error	42	9.57		

Table 14 depicts the results of ANOVA on the dimension of number of failures to solve food vs. nonfood anagrams. Although there was a significant main effect for Anagram Content (more failures on food than nonfood anagrams), there was no effect for Training Condition, nor an Anagram Content by Training Condition interaction.

Self-Statement Test. Ten pre-selected items from the Self-Statement Test served as the units of analysis. Each of these items was analyzed using a 3 (Group: Depressed/Bulimic/Normal) x 2 (Feedback: LH/CF) analysis of variance (ANOVA). Results of these analyses are presented in Tables 15 to 24.

Three items resulted in no statistically significant main effects or interactions. These items were: "I was thinking that I feel nervous"; "I was thinking that I want to eat", and; "I was thinking that I feel ugly" (See Tables 17, 19 and 20). Five items resulted in significant main effects for Feedback. Two of these items ("I was thinking that I should try harder"; $F = 19.37$, $p < .0001$, and, "I was thinking that I feel badly about how I'm doing"; $F = 18.06$, $p < .0001$) related to discrimination problem performance specifically (See Tables 15 and 16). As would be expected, subjects exposed to LH training assigned higher ratings to these items relative to CF subjects. A similar pattern of results was found for the items: "I was thinking that I feel unhappy" ($F = 4.95$, $p < .05$) and "I was thinking that I don't have much con-

trol over how I do" ($F = 22.84$, $p < .0001$) in that LH subjects assigned a higher rating to these items relative to CF subjects (See Tables 18 and 23). On the item, "I was thinking that I feel good about myself" ($F = 14.78$, $p < .0002$), subjects exposed to CF training were found to assign a higher rating relative to LH subjects (See Table 22).

Significant main effects for Group were found for five of the ten Self-Statement Test items. On the first of these items, "I was thinking that I feel fat" ($F = 4.19$, $p < .02$; See Table 21), Duncan's MRT indicated that Bulimic subjects assigned a significantly higher rating than Normal subjects. However, Depressed subjects did not differ significantly from the other two groups. On the item, "I was thinking that I feel good about myself" ($F = 3.70$, $p < .03$; See Table 22), all three groups were significantly different from one another, with Normal subjects assigning the highest rating, followed by Depressed subjects and Bulimic subjects. For the item "I was thinking that I don't feel good about how I look" ($F = 2.98$; $p < .05$; See Table 24), Duncan's MRT indicated that Depressed subjects assigned a significantly higher rating than Normal subjects, but neither of these groups differed significantly from Bulimic subjects. Finally, on the item "I was thinking that I don't have much control over how I do" ($F = 5.93$, $p < .004$; See Table 23), Duncan's MRT indicated that all three

Table 15

Summary of ANOVA of SST Item:

"I was thinking that I should try harder."

Source	df	MS	F	p
Group	2	3.34	0.75	.4742
Feedback	1	86.04	19.37	.0001
Group x Feedback	2	6.14	1.38	.2565
Error	84	4.44		
Total	89			

Table 16

Summary of ANOVA of SST Item:

"I was thinking that I feel badly about how I'm doing."

Source	df	MS	F	p
Group	2	0.35	0.07	.9361
Feedback	1	94.04	18.06	.0001
Group x Feedback	2	1.15	0.22	.8032
Error	84	5.21		
Total	89			

Table 17

Summary of ANOVA of SST Item:

"I was thinking that I feel nervous."

Source	df	MS	F	p
Group	2	4.98	0.99	.3772
Feedback	1	0.01	0.00	.9627
Group x Feedback	2	8.58	1.70	.1889
Error	84	5.05		
Total	89			

Table 18

Summary of ANOVA of SST Item:

"I was thinking that I'm unhappy."

Source	df	MS	F	p
Group	2	5.41	1.52	.2240
Feedback	1	14.40	4.05	.0473
Group x Feedback	2	4.43	1.25	.2923
Error	84	3.55		
Total	89			

Table 19

Summary of ANOVA of SST Item:

"I was thinking that I want to eat."

Source	df	MS	F	p
Group	2	3.08	1.07	.3490
Feedback	1	4.44	1.54	.2182
Group x Feedback	2	1.88	0.65	.5245
Error	84	2.89		
Totao	89			

Table 20

Summary of ANOVA of SST Item:

"I was thinking that I feel ugly."

Source	df	MS	F	p
Group	2	3.61	0.75	.4736
Feedback	1	2.18	0.45	.5019
Group x Feedback	2	6.15	1.28	.2826
Error	84	4.79		
Total	89			

Table 21

Summary of ANOVA of SST Item:

"I was thinking that I feel fat."

Source	df	MS	F	p
Group	2	18.41	4.19	.0183
Feedback	1	0.10	0.24	.8804
Group x Feedback	2	1.03	0.24	.7907
Error	84	4.39		
Total	89			

Table 22

Summary of ANOVA of SST Item:

"I was thinking that I feel good about myself."

Source	df	MS	F	p
Group	2	16.90	3.70	.0290
Feedback	1	67.60	14.78	.0002
Group x Feedback	2	1.03	0.23	.7982
Error	84	4.57		
Total	89			

Table 23

Summary of ANOVA of SST Item:

"I was thinking that I don't have much control over how I do."

Source	df	MS	F	p
Group	2	23.88	5.93	.0039
Feedback	1	92.01	22.84	.0001
Group x Feedback	2	16.15	4.01	.0218
Error	84	4.03		
Total	89			

Table 24

Summary of ANOVA of SST Item:

"I was thinking that I don't feel good about how I look."

Source	df	MS	F	p
Group	2	11.91	2.98	.0562
Feedback	1	1.60	0.40	.5287
Group x Feedback	2	0.93	0.23	.7923
Error	84	3.99		
Total	89			

groups were significantly different from one another with Depressed subjects assigning the highest ratings followed, in order, by Bulimic and Normal subjects. A significant interaction effect was also found for this item, indicating that ratings of this item differed both as a function of Group assignment and Feedback exposure.

Together, these results do not provide support for Hypothesis 6 which stated that Bulimic subjects would assign higher ratings to Self-Statement Test items regarding performance and appearance relative to the comparison groups. Specifically, Bulimics were expected to endorse items indicative of anxiety, loss of control, feeling fat, and wanting to eat, particularly following exposure to LH training. This pattern of results was not reliably found.

DISCUSSION

The purpose of the present study was to assess the response of Bulimic women to a stressful situation (Learned Helplessness training) on several dimensions, particularly subsequent performance on an unrelated task, attributions and self-statements. Clinical description and models of bulimia suggest that these individuals often respond to stress with negative self-statements, negative self-evaluation and greater emotionality (particularly anxiety). The performance of Bulimic subjects was compared to two nonbulimic comparison groups: Depressed subjects and Normal subjects. Depressed subjects were included in order to assess the degree to which the Bulimic subjects' performance was unique to that group of disturbed individuals.

The first experimental hypothesis of the present study stated that decrements in subsequent performance would be observed for subjects exposed to Learned Helplessness training (i.e., a Learned Helplessness effect) relative to subjects exposed to Contingent Feedback and no training (No Treatment Control). Additionally, subjects exposed to LH training were expected to endorse attributions indicative of loss of control and rate their performance as unsatisfactory relative to CF and NTC subjects. The LH effect was expected to be observed within each group of subjects (Normal, Depressed, and Bulimic).

The results of the present study provide limited support for the demonstration of the expected LH effect, however. Among the Normal subjects, there were no reliable decrements in performance on the anagram task, nor were there expected differences in attributions regarding anagram performance. The pattern of results regarding attributions related to discrmination problem performance and the ratings of expected performance and performance satisfaction indicate that Normal subjects exposed to LH training experienced those problems as difficult and their performance as unsatisfactory relative to subjects exposed to CF training. It appears that Normal subjects exposed to LH training, despite "poor" performance on the discrimination problems, did not experience a "carry-over" to subsequent tasks. It may be significant that subjects exposed to CF training attributed greater importance to performing well on the anagram task (AQ item #5). Although these results were not robust, they may suggest nonetheless that LH subjects were not as motivated to perform well on the anagrams (or on the discrimination problems). Previous research suggests that low motivation to perform well decreases one's susceptibility to learned helplessness (Peterson, 1981).

The pattern of performance among Depressed subjects provided some support for Hypothesis 1. Specifically, subjects exposed to LH training demonstrated a longer response latency and greater num-

ber of errors relative to CF subjects. The expected superiority of NTC subject's performance relative to that of LH subjects was not observed, however. Additionally, no difference existed among LH, CF, and NTC groups on measures of attributions regarding anagram performance.

Consistent with the results observed among Normal subjects, Depressed subjects exposed to LH training rated their performance on the discrimination problems significantly lower than CF subjects on Pre- and Posttest items. In contrast to Normal subjects, the Depressed S's exposed to LH training endorsed attributions that their performance was related to luck and was out of their control relative to CF subjects. Despite the expected pattern of attributions regarding discrimination problem performance and significant differences between CF and LH groups on several performance dimensions, the present results do provide robust support for the experimental hypothesis.

Among the training conditions of Bulimic subjects, statistically significant differences were found on one anagram performance dimension, Total Failures. Specifically, LH subjects exhibited significantly more failures than NTC subjects, but neither of these groups was significantly different from CF subjects. In contrast to Depressed and Normal subjects, Bulimic subjects displayed significant differences in their attributions regarding anagram per-

formance. These differences were noted on attributions regarding the role of ability and task difficulty in anagram performance with CF subjects rating their performance to ability and task difficulty significantly more than LH subjects. These groups did not differ from NTC subjects, however. This trend suggests that exposure to insoluable problems negatively impacted on the bulimic subject's attribution regarding her ability. It is interesting to note that differences were noted on this internal attribution and on an external attribution, task difficulty (as per attribution description by Abramson et al., 1975). Although the results are not robust and therefore do not allow for extended speculation, they do suggest that bulimics may simultaneously make internal and external attributions when stressed. The implication of such a cognitive response style may lead to decreased ability to cope with the stressor.

The lack of robust findings to support the LH effect raise serious questions as to the degree to which the present investigation achieved the goal which was central to the remaining experimental hypotheses. That is, the present study was based on the assumption that subjects exposed to LH training would encounter a negative experience, and that this experience would impact on attributions, self-statements and subsequent performance. To the extent that the present investigation did not replicate the results

of numerous other investigations which utilized LH training (e.g., Perconte, 1981), the isolated differences which were found must be interpreted with caution. With this warning in mind, a discussion of the results pertaining to the remaining experimental hypotheses will follow.

Experimental Hypotheses 2, 3, and 4 related to the performance of subject groups within each training condition: No Treatment Control, Contingent Feedback, and Learned Helplessness, respectively. Hypothesis 2 stated that Depressed subjects were expected to perform more poorly than Bulimic or Normal subjects within the NTC condition. Inferior performance by Depressed subjects was found in previously reported studies (e.g., Klein et al., 1976). The expected results were not found, however. Indeed, no differences were noted on the performance measures, although some differences were noted in attribution ratings. It is important to note that Bulimic subjects rated their performance as significantly more out of their control than did Depressed subjects, although Normal subjects did not differ significantly from these two groups. These data are inconsistent with other investigations which found differences between Normal and Depressed subjects on the attribution of control. The lack of difference between Normal and Depressed subjects raises some question as to the significance of the difference between Depressed and Bulimic subjects, however. The pattern

observed on the attribution regarding importance in performing well on the anagram task suggests that Normal subjects may not have been as motivated to perform well. Specifically, Depressed realtive to the other two groups. Bulimic subjects attributed significantly more importance to performing well than Normal subjects. These results exist in isolation, however, and are difficult to interprete without concommitant differences in performance, or on other ratings of attributions.

Hypothesis 3 involved the performance of Normal, Depressed and Bulimic groups exposed to Contingent Feedback training. Previous research (e.g., Klein et al., 1976) suggested that differences between Normal and Depressed subjects could be expected, with Depressed subjects' performance being inferior to that of Normal subjects. The present data do not replicate the findings of previous investigations, however.

An interesting pattern of results emerged on two of the Posttest Questionnaire items which seem worthy of special attention. It should be recalled that the Pretest and Posttest Questionnaires were administered twice: before and after each set of discrimination problems. Whereas the Pretest Questionnaire required subjects to predict how well they expected to do on the forthcoming problems and provide a rating of the certainty of that prediction, the Posttest Questionnaire required that subjects evaluate the dif-

ficulty of the problems they had completed, rate how well they felt they had performed, and rate how satisfied they were with their performance. The results indicated that although all subjects were successfully solving the discrimination problems, Normal subjects tended to rate their performance higher than the Depressed and Bulimic subjects, both in term of performance and satisfcation. The most interesting finding, however, is that observed among the group between the first and second administrations of the Posttest Questionnaire (See Figures 5 and 6). Whereas the ratings assigned by Normal and Depressed subjects remained stable or rose slightly after continued successful completion of the discrimination problems, the mean rating for Bulimic subjects dropped approximately 2 Likert scale points. Although this is a somewhat isolated finding and one must use caution to avoid over interpreting these data, this trend may suggest that bulimic women may have difficulty "coping" with success, while their ability to cope with difficulties may fall within a normal range. That is, a bulimic woman may underrate or devalue her success. The notion of excessively high expectations for performance and, particularly, for physical appearance has been noted by several authors (e.g., Boskind-Lodahl, 1977; Johnson & Larson, 1982; Stuckey, 1980). The present trend of results seems to be best interpreted with that notion in mind.

Hypothesis 4 related to the performance of Normal, Depressed, and Bulimic subjects following exposure to Learned Helplessness

training. Specifically, it was expected that the Depressed and Bulimic subjects would significantly differ from the Normal subjects on performance measures and attribution ratings. The results do not reliably support this hypothesis, however. Indeed, no significant differences were noted on the performance measures nor attribution ratings. On ratings of expected performance and certainty of that rating (Pretest Questionnaire), significant differences were noted on the second administration. Although Depressed and Bulimic subjects did not significantly differ from one another, these two groups predicted that they would perform significantly more poorly than Normal subjects. On the rating of the certainty of that prediction, Bulimic subjects' rating was significantly lower than that of Depressed or Normal subjects. These results provide some support for Hypothesis 4.

Hypothesis 5 stated that Bulimic subjects would differentially respond to food vs. nonfood stimuli presented in the anagram task. Specifically, it was proposed that Bulimic women would have a significantly faster response latency to food anagrams relative to nonfood anagrams. This difference was found for all training conditions, although the difference in response latency was greater in the LH and NTC conditions than in the CF condition. This pattern suggests a possible "sensitivity" to food-related stimuli as a function of stress, and thus supports Hypothesis 5.

Hypothesis 6 dealt with the responses of subjects to the Self-Statement Test, and predicted that Bulimic subjects would assign higher ratings to items indicative of anxiety, loss of control, wanting to eat, and negative statements regarding physical appearance. Differences were expected among subject groups collapsed across training condition and within subject groups as a function of treatment condition. Few reliable differences were found, however. Five of the ten selected items resulted in significant main effects for Training condition, indicating that exposure to LH training had a measurable impact on subjects' self-statement regarding performance, effort, control and mood.

Significant main effects for Group were found for five Self-Statement Test items. These results indicated that Bulimic subjects reliably rated themselves as feeling fatter than did Normal subjects, although Depressed subjects did not differ from Bulimic nor Normal subjects. On a more general self-statement regarding appearance ("I was thinking that I don't feel good about how I look"), it was Depressed subjects who assigned the highest rating and differed significantly from Normal subjects. Bulimic subjects did not differ significantly from either of these two groups. However, for both of these items it is important (and humbling) to note that the mean ratings were quite low, despite group differences. For example, the mean rating for Bulimic subjects on the

item "I was thinking that I feel fat" was 3.10 on a scale of one (never) to nine (always), indicating that the actual occurrence of that self-statement was quite infrequent, and therefore mitigating the clinical relevance of the statistical differences.

On a general self-statement of self-evaluation ("I was thinking that I feel good about myself"), all three groups differed significantly with Normal subjects assigning the highest rating ($\bar{X}$ = 4.7) while Bulimic subjects assigned the lowest rating ($\bar{X}$ = 2.2).

In sum, the results of the Self-Statment Test analyses provided no robust support for Hypothesis 6. However, some differences were noted between Normal subjects and Depressed and/or Bulimic subjects on several of the items. It is important to note that reliable differences were not found between Bulimic and Depressed subjects on most of the SST items.

The present investigation was flawed by two major factors which bear mention. The first flaw involved the experimental procedures. Specifically, all subjects were contacted, trained, tested and interviewed by the author who was not blind to subject classification. Although attempts were made to standardize all procedures and a detached style of interaction was utilized with all subjects, knowledge of subject classification may have introduced some degree of error bias. The nature or degree of this potential source of bias is not known, but remains a methodological

issue which should optimally be corrected in future studies of this nature.

The second issue involved subject classification/characteristics and likely impacted greatly on the present results. As has been noted, scores on the Beck Depression Inventory (BDI) were highly variable among Bulimic subjects. Attempts were made to match BDI scores across treatment conditions among Bulimics, but the presence of high BDI scores indicates that Depressed and Bulimic subjects share a number of common characteristics. This issue extends beyond that for subject selection for research. The prevalence of depression among bulimics has already been noted (Pyle et al., 1981), and the differential diagnosis may be fairly arbitrary in clinical practice (Qualls, personal communication, 1985). The relationship between bulimic behavior and depressive symptomology is poorly understood at the present time. It is possible that a high BDI score indicates a generalized distress secondary to bulimia. On the other hand, bulimic behavior could be, theoretically, an overt expression of underlying depression. It is also possible that some individuals represent a "mixed bag", and are both bulimic and depressed. Regardless of the source, the prevalence of high BDI scores may have confounded group differences and, therefore, decreased the likelihood of findings reliable experimental effects. There is no support in the available literature to warrant exclusion of bulimic subjects on the basis of de-

pression and, in fact, subject recruitment would have been difficult had such a criteria been set.

The relationship between bulimia and depression is an area in need of further investigation. In light of the variation found among bulimic subjects in the present study, further investigations might examine similarites and differences between "depressed" and "nondepressed" bulimics on dimensions such as severity and chronicity of bulimic behavior and vegetative signs of depression. Recently, Polivy (1985) speculated that women who are currently being labeled as bulimic actually represent two distinct groups of individuals. That is, Polivy differentiated women who are generally healthy psychiatrically but who have fallen prey to "chronic dietary syndrome" (disrupted eating habits as a result of dieting) from women who exhibit bulimic behavior along with other psychological disturbances. Obviously, treatment approach would differ based on these proposed dimensions.

Diagnositcally, bulimia remains a poorly understood disorder. In general, further investigations which lead to a clear understanding of the parameters of this disorder are needed.

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APPENDIX A

EDI

ID #: _____ Date: _____

Age: _____

Present Weight: _____ Height: _____ Sex: _____

Highest Past Weight: _____ (lbs.)
(excluding pregnancy)

How long ago? _____ (months)

How long did you weigh this? _____ (months)

Lowest Past Adult Weight: _____ (lbs.)

How long ago? _____ (months)

How long did you weigh this? _____ (months)

What do you consider your ideal weight to be? _____ (lbs.)

Age at which weight problem began (if any) _____

Own Occupation: _____

Father's Occupation: _____

Mother's Occupation: _____

Instructions:

This is a scale which measures a variety of attitudes, feelings and behaviors. Some of the items relate to food and eating. Others ask you about your feelings about yourself. THERE ARE NO RIGHT OR WRONG ANSWERS SO TRY VERY HARD TO BE COMPLETELY HONEST IN YOUR ANSWERS. RESULTS ARE COMPLETELY CONFIDENTIAL. Read each question and place an (X) under the column which applies best for you. Please answer each question very carefully. Thank you.

ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER	
( )	( )	( )	( )	( )	( )	1. I eat sweets and carbohydrates without feeling nervous.
( )	( )	( )	( )	( )	( )	2. I think that my stomach is too big.
( )	( )	( )	( )	( )	( )	3. I wish that I could return to the security of childhood.
( )	( )	( )	( )	( )	( )	4. I eat when I am upset.
( )	( )	( )	( )	( )	( )	5. I stuff myself with food.
( )	( )	( )	( )	( )	( )	6. I wish that I could be younger.
( )	( )	( )	( )	( )	( )	7. I think about dieting.
( )	( )	( )	( )	( )	( )	8. I get frightened when my feelings are too strong.
( )	( )	( )	( )	( )	( )	9. I think that my thighs are too large.
( )	( )	( )	( )	( )	( )	10. I feel ineffective as a person.
( )	( )	( )	( )	( )	( )	11. I feel extremely guilty after overeating.
( )	( )	( )	( )	( )	( )	12. I think that my stomach is just the right size.
( )	( )	( )	( )	( )	( )	13. Only outstanding performance is good enough in my family.
( )	( )	( )	( )	( )	( )	14. The happiest time in life is when you are a child.
( )	( )	( )	( )	( )	( )	15. I am open about my feelings.
( )	( )	( )	( )	( )	( )	16. I am terrified of gaining weight.
( )	( )	( )	( )	( )	( )	17. I trust others.
( )	( )	( )	( )	( )	( )	18. I feel alone in the world.
( )	( )	( )	( )	( )	( )	19. I feel satisfied with the shape of my body.
( )	( )	( )	( )	( )	( )	20. I feel generally in control of things in my life.
( )	( )	( )	( )	( )	( )	21. I get confused about what emotion I am feeling.
( )	( )	( )	( )	( )	( )	22. I would rather be an adult than a child.
( )	( )	( )	( )	( )	( )	23. I can communicate with others easily.
( )	( )	( )	( )	( )	( )	24. I wish I were someone else.

ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER	
( )	( )	( )	( )	( )	( )	25. I exaggerate or magnify the importance of weight.
( )	( )	( )	( )	( )	( )	26. I can clearly identify what emotion I am feeling.
( )	( )	( )	( )	( )	( )	27. I feel inadequate.
( )	( )	( )	( )	( )	( )	28. I have gone on eating binges where I have felt that I could not stop.
( )	( )	( )	( )	( )	( )	29. As a child, I tried very hard to avoid disappointing my parents and teachers.
( )	( )	( )	( )	( )	( )	30. I have close relationships.
( )	( )	( )	( )	( )	( )	31. I like the shape of my buttocks.
( )	( )	( )	( )	( )	( )	32. I am preoccupied with the desire to be thinner.
( )	( )	( )	( )	( )	( )	33. I don't know what's going on inside me.
( )	( )	( )	( )	( )	( )	34. I have trouble expressing my emotions to others.
( )	( )	( )	( )	( )	( )	35. The demands of adulthood are too great.
( )	( )	( )	( )	( )	( )	36. I hate being less than best at things.
( )	( )	( )	( )	( )	( )	37. I feel secure about myself.
( )	( )	( )	( )	( )	( )	38. I think about bingeing (over-eating).
( )	( )	( )	( )	( )	( )	39. I feel happy that I am not a child anymore.
( )	( )	( )	( )	( )	( )	40. I get confused as to whether or not I am hungry.
( )	( )	( )	( )	( )	( )	41. I have a low opinion of myself.
( )	( )	( )	( )	( )	( )	42. I feel that I can achieve my standards.
( )	( )	( )	( )	( )	( )	43. My parents have expected excellence of me.
( )	( )	( )	( )	( )	( )	44. I worry that my feelings will get out of control.
( )	( )	( )	( )	( )	( )	45. I think that my hips are too big.

ALWAYS	USUALLY	OFTEN	SOMETIMES	RARELY	NEVER	
( )	( )	( )	( )	( )	( )	46. I eat moderately in front of others and stuff myself when they're gone.
( )	( )	( )	( )	( )	( )	47. I feel bloated after eating a normal meal.
( )	( )	( )	( )	( )	( )	48. I feel that people are happiest when they are children.
( )	( )	( )	( )	( )	( )	49. If I gain a pound, I worry that I will keep gaining.
( )	( )	( )	( )	( )	( )	50. I feel that I am a worthwhile person.
( )	( )	( )	( )	( )	( )	51. When I am upset, I don't know if I am sad, frightened or angry.
( )	( )	( )	( )	( )	( )	52. I feel that I must do things perfectly, or not do them at all.
( )	( )	( )	( )	( )	( )	53. I have the thought of trying to vomit in order to lose weight.
( )	( )	( )	( )	( )	( )	54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
( )	( )	( )	( )	( )	( )	55. I think that my thighs are just the right size.
( )	( )	( )	( )	( )	( )	56. I feel empty inside.
( )	( )	( )	( )	( )	( )	57. I can talk about personal thoughts or feelings.
( )	( )	( )	( )	( )	( )	58. The best years of your life are when you become an adult.
( )	( )	( )	( )	( )	( )	59. I think that my buttocks are too large.
( )	( )	( )	( )	( )	( )	60. I have feelings I can't quite identify.
( )	( )	( )	( )	( )	( )	61. I eat or drink in secrecy.
( )	( )	( )	( )	( )	( )	62. I think that my hips are just the right size.
( )	( )	( )	( )	( )	( )	63. I have extremely high goals.
( )	( )	( )	( )	( )	( )	64. When I am upset, I worry that I will start eating.

APPENDIX B

Eating Questionnaire

1. Do you get uncontrollable urges to eat and eat until you feel physically ill? 1 No 2 Yes

2. Are there times when you are afraid that you cannot voluntarily stop eating? 1 No 2 Yes

3. Have you ever had an episode of eating an enormous amount of food in a short space of time (an eating binge)? 1 No 2 Yes

4. Do you consider yourself a binge-eater? 1 No 2 Yes

5. If you have ever binged, do you make yourself vomit after eating too much? 1 No 2 Yes 3 Not Applicable

6. If you have ever binged, do you feel miserable and annoyed with yourself afterwards? 1 No 2 Yes 3 Not Applicable

In order to control you weight, do you use . . .

7. Diet pills

never 1
less than once every four weeks 2
1 to 3 times every four weeks 3
once every week 4
2 to 6 times every week 5
once every day 6
more than once every day 7

8. Laxatives

never 1
less than once every four weeks 2
1 to 3 times every four weeks 3
once every week 4
2 to 6 times every week 5
once every day 6
more than once every day 7

9. Diuretics or water pills

never 1
less than once every four weeks 2
1 to 3 times every four weeks 3
once every week 4
2 to 6 times every week 5
once every day 6
more than once every day 7

10. If you binge eat, what is the average number of days between your episodes of binge eating?

    1 = every day
    2 = 1-3 days
    3 = 4-6 days
    4 = 7-10 days
    5 = 11-14 days
    6 = 15-21 days
    7 = once a month
    8 = never

11. Have you ever forced yourself to vomit after eating? __1__ No __2__ Yes

12. How frequently do you force yourself to vomit after eating?

    never __1__
    less than once every four weeks __2__
    1 to 3 times every four weeks __3__
    once every week __4__
    2 to 6 times every week __5__
    once every day __6__
    more than once every day __7__

13. Do you have any other type of eating problem? __1__ No __2__ Yes

APPENDIX C

BECK DEPRESSION INVENTORY

Instructions: This is a questionnaire. On the questionnaire are groups of statements. Please read the entire group of statements in each category. Then pick out the one statement in that group which best describes the way you feel today, that is, right now! Circle the number beside the statement you have chosen. If several statements in the group seem to apply equally well, circle each one.

Be sure to read all the statements in each group before making your choice.

A. 0 I do not feel sad
1 I feel sad
2 I am sad all the time and I can't snap out of it
3 I am so sad or unhappy that I can't stand it

B. 0 I am not particularly discouraged about the future
1 I feel discouraged about the future
2 I feel I have nothing to look forward to
3 I feel that the future is hopeless and that things cannot improve

C. 0 I do not feel like a failure
1 I feel I have failed more that the average person
2 As I look back on my life all I can see is a lot of failures
3 I feel I am a complete failure as a person

D. 0 I get as much satisfaction out of things as I used to
1 I don't enjoy things the way I used to
2 I don't get real satisfaction out of anything anymore
3 I am dissatisfied or bored with everything

E. 0 I don't feel particularly guilty
1 I feel guilty a good part of the time
2 I feel quite guilty most of the time
3 I feel guilty all of the time

F. 0 I don't feel I am being punished
1 I feel I may be punished
2 I expect to be punished
3 I feel I am being punished

G. 0 I don't feel disappointed in myself
1 I am disappointed in myself
2 I am disgused with myself
3 I hate myself

H. 0 I don't feel I am any worse than anybody else
1 I am critical of myself for my weaknesses or mistakes
2 I blame myself all the time for my faults
3 I blame myself for everything bad that happens

I. 0 I don't have any thoughts of killing myself
1 I have thoughts of killing myself but I would not carry them out
2 I would like to kill myself
3 I would kill myself if I had the chance

J. 0 I don't cry any more than usual
1 I cry more now than I used to
2 I cry all the time now
3 I used to be able to cry but now I can't cry even though I want to

K. 0 I am no more irritated now than I ever am
1 I get annoyed or irritated more easily than I used to
2 I feel irritated all the time now
3 I don't get irritated at all by the things that used to irritate me

L. 0 I have not lost interest in other people
1 I am less interested in other people than I used to be
2 I have lost most of my interest in other people
3 I have lost all of my interest in other people

M. 0 I make decisions about as well as I ever could
1 I put off making decisions more than I used to
2 I have greater difficulty in making decisions than before
3 I can't make decisions at all any more

N. 0 I don't feel I look any worse than I used to
1 I am worried that I am looking old or unattractive
2 I feel that there are permanent changes in my appearance that make me look unattractive
3 I believe that I look ugly

O. 0 I can work about as well as before
1 It takes extra effort to get started at doing something
2 I have to push myself very hard to do anything
3 I can't do any work at all

P. 0 I can sleep as well as usual
1 I don't sleep as well as I used to
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
3 I wake up several hours earlier than I used to and cannot get back to sleep

Q. 0 I don't get any more tired than usual
1 I get tired more easily than I used to
2 I get tired from doing almost anything
3 I am too tired to do anything

R. 0 My appetite is no worse than usual
1 My appetite is not as good as it used to be
2 My appetite is much worse now
3 I have no appetite at all any more

S. 0 I haven't lost much weight, if any lately
1 I have lost more than 5 pounds
2 I have lost more than 10 pounds
3 I have lost more than 15 pounds

I am purposely trying to lose weight by eating less
Yes_____
No _____

T. 0 I am no more worried about my health than usual
1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation
2 I am very worried about physical problems and it's hard to think of much else
3 I am so worried about my physical problems, I cannot think about anything else

U. 0 I have not noticed any recent change in my interest in sex
1 I am less interested in sex than I used to be
2 I am much less interested in sex now
3 I have lost interest in sex completely

APPENDIX D

QUESTIONNAIRE 1

Circle the number on the scale which best describes your feelings and beliefs.

1. In your opinion, how well do you expect to perform on the "Concept Formation" task?

1	2	3	4	5	6	7	8	9
Very well								Very poorly

2. How sure are you of the prediction you have just made about your performance on this task?

1	2	3	4	5	6	7	8	9
Very sure								Very unsure

APPENDIX E

HYPOTHESIS CHECKLIST

PROBLEM #_____

_____Figure on left	_____Circle
_____Figure on right	_____Line above figure
_____Large figure	_____Line below figure
_____Small figure	_____Striped figure
_____Triangle	_____Plain figure

_____Other:_____

APPENDIX F

SELF-STATEMENT TEST

1	2	3	4	5	6	7	8	9
NEVER		HARDLY EVER		SOMETIMES		OFTEN		VERY OFTEN

1. I was thinking that I should try harder.
2. I was thinking that I feely badly about how I'm doing.
3. I was thinking that I feel nervous.
4. I was thniking that this problem can't be solved.
5. I was thinking that I'm unhappy.
6. I was thinking that I feel calm.
7. I was thinking that I want to eat.
8. I was thinking that this experiment is stupid.
9. I was thinking that I feel ugly.
10. I was thinking that I feel competent.
11. I was thinking that I'm doing well.
12. I was thinking that this task is difficult.
13. I was thinking that I feel fat.
14. I was thinking that this experimenter must think I'm stupid.
15. I was thinking that I'm bored.
16. I was thinking that I feel good about myself.
17. I was thinking that I don't have much control over how I do.
18. I was thinking that I'm a poor problem-solver.
19. I was thinking that the experimenter is rude.
20. I was thinking that this experiment is unfair.
21. I was thinking that I like doing these problems.
22. I was thinking that the experimenter is nice.
23. I was thinking that I'm wasting my time.
24. I was thinking that I don't feel good about how I look.

APPENDIX G

QUESTIONNAIRE 2

1. How difficult did you find this "Concept Formation" problem?

1	2	3	4	5	6	7	8	9
very difficult				somewhat difficult				not difficult at all

2. How well do you feel you did on this problem?

1	2	3	4	5	6	7	8	9
not well at all								very well

3. How satisfied are you with your performance on this problem?

1	2	3	4	5	6	7	8	9
not satisfied at all				somewhat satisfied				very satisfied

APPENDIX H

ANAGRAM PERFORMANCE

SUBJECT NUMBER _____ GROUP _____

TRIALS TO CRITERION _____ FAILURES _____

MEAN SOLUTION TIME _____

ANAGRAM	CORRECT RESPONSE	LATENCY (CORRECT RESPONSE)
ULATF	FAULT	
UCAES	SAUCE	
LARDT	TRIAD	
AVRYG	GRAVY	
BIATH	HABIT	
NUOTD	DONUT	
RTIBB	BIRTH	
KEASC	CAKES	
OPDTA	ADOPT	
EESTS	SWEET	
ACEHB	BEACH	
UTRTF	FRUIT	
ERLKC	CLERK	
GEALB	BAGEL	
TOANB	BATON	
NDAYC	CANDY	
NGAOT	TANGO	
CAENP	PECAN	
DEOLM	MODEL	

APPENDIX I

Discrimination Problem Questionnaire

Circle the number on the scale which best describes your feelings and beliefs.

1. In your opinion, how much was your performance on the problems determined by your ability?

Very little 1 2 3 4 5 6 7 8 9 Very much

2. In your opinion, how much was your performance on the problems determined by the difficulty of the problems?

Very little 1 2 3 4 5 6 7 8 9 Very much

3. In your opinion, how much was your performance on the problems determined by how hard you tried?

Very little 1 2 3 4 5 6 7 8 9 Very much

4. In your opinion, how much was your performance on the problems determined by luck?

Very little 1 2 3 4 5 6 7 8 9 Very much

5. How important was it to you that you perform well on the experimental task?

Not at all 1 2 3 4 5 6 7 8 9 Very important

6. In your opinion, how much was your performance on the problems a good indicator of how well you will perform on other problem solving tasks?

Not at all 1 2 3 4 5 6 7 8 9 Very much

7. In your opinion, what degree of control did you have in producing successful results on these problems?

No control 1 2 3 4 5 6 7 8 9 Very much control

8. On how many problems did you discover the principle?

none one two three four five six

9. Do you feel that more trials would have enabled you to discover the principle?

Definitely not Possibly Probably Definitely yes

Not applicable (I solved all the problems)

APPENDIX J

Anagram Task Questionnaire

Circle the number on the scale which best describes your feelings and beliefs.

1. In your opinion, how much was your performance on the anagrams determined by your ability?

Very little 1 2 3 4 5 6 7 8 9 Very much

2. In your opinion, how much was your performance on the anagrams determined by the difficulty of the anagrams?

Very little 1 2 3 4 5 6 7 8 9 Very much

3. In your opinion, how much was your performance on the anagrams determined by how hard you tried?

Very little 1 2 3 4 5 6 7 8 9 Very much

4. In your opinion, how much was your performance on the anagrams determined by luck?

Very little 1 2 3 4 5 6 7 8 9 Very much

5. How important was it to you that you perform well on the anagram task?

Not at all 1 2 3 4 5 6 7 8 9 Very important

6. In your opinion, how much was your performance on the anagrams a good indicator of how well you will perform on other anagram solving tasks?

Not at all 1 2 3 4 5 6 7 8 9 Very much

7. In your opinion, what degree of control did you have in producing successful results on these anagrams?

No control 1 2 3 4 5 6 7 8 9 Very much control

APPENDIX K

CONSENT FORM

NAME_____

SOCIAL SECURITY NUMBER_____

I, the undersigned, hereby agree to participate in the study entitled "Concept Formation". I understand that my participation will involve working on a number of concept formation tasks and judging a number of stimuli, as well as attempting to solve a number of anagrams. I further understand that I will be asked to complete a number of questionnaires concerning these tasks. I understand that I can terminate my participation in this experiment at any time without consequences affecting my grade in Introductory Psychology, and without loss of credit. I will receive one point of extra credit toward my grade in Introductory Psychology.

SIGNATURE_____

DATE_____

APPENDIX L

CONSENT FORM II

NAME_____

SOCIAL SECURITY NUMBER_____

I, the undersigned, hereby acknowledge that I have been informed of the true nature of the study entitled "Concept Formation". I understand that any feedback that I may have received about my performance was not a true indication of my performance. I further understand that the study is actually an investigation of the effects of loss of control upon problem-solving. Finally, I agree not to discuss any aspects of the study with anyone until the end of the Winter (1984) quarter classes.

Any questions concerning the study should be directed to Kathleen Hart or Thomas Ollendick at the numbers listed below.

SIGNATURE_____

DATE_____

Kathleen J. Hart, Project Coordinator
961-5291

Thomas H. Ollendick, Faculty Supervisor
961-6451

William W. Schicht, Human Subjects Committee
961-

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