



NOTICE

The quality of this microfiche is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us a poor photocopy.

Previously copyrighted materials (journal articles, published tests, etc.) are not filmed.

Reproduction in full or in part of this film is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30. Please read the authorization forms, which accompany this thesis.

THIS DISSERTATION
HAS BEEN MICROFILMED
EXACTLY AS RECEIVED

AVIS

La qualité de cette microfiche dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de mauvaise qualité.

Les documents qui font déjà l'objet d'un droit d'auteur (articles de revue, examens publiés, etc.) ne sont pas microfilmés.

La reproduction, même partielle, de ce microfilm est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30. Veuillez prendre connaissance des formules d'autorisation qui accompagnent cette thèse.

LA THÈSE A ÉTÉ
MICROFILMÉE TELLE QUE
NOUS L'AVONS REÇUE

The Effects of a Modelling Treatment Program Upon
Sex-Role Stereotypes and Achievement Behavior
of Women

Christine M. Dacey

Thesis Submitted
to the School of Graduate Studies
of the University of Ottawa
in partial fulfillment of the requirements
for the Doctor of Philosophy degree, in Psychology

Ottawa, Canada, 1979

The Effects of a Modelling Treatment Program Upon
Sex-Role Stereotypes and Achievement Behavior
of Women

Table of Contents

Chapter	Page
Acknowledgements.....	1
List of Tables.....	11
List of Figures.....	v
Abstract.....	vi
Introduction.....	1
I Review of Literature.....	3
Impact of Female Stereotypes and Achievement Behavior of Women.....	3
Discrimination Against Competent Women and Achievement Behavior of Women.....	8
Fear of Success and Achievement Behavior of Women.....	13
Atkinson's Expectancy Value Theory and Achievement Behavior of Women.....	26
Social Learning Process (Modelling) and Achievement Behavior of Women.....	31
Summary.....	39
Rationale and Hypotheses.....	43
II Method.....	54

Table of Contents continued...

Chapter		Page
(Method continued...)		
	Subjects.....	54
	Materials.....	55
	Dependent Measures.....	60
	Procedure.....	69
III	Results.....	75
IV	Discussion.....	111
	Power of the Treatment Condition.....	113
	Issues Related to the Dependent	
	Measures.....	121
	Issues Regarding Subject Variables.....	125
	Conclusion.....	128
	References.....	130
	Appendices.....	146

Acknowledgements.

I would like to take this opportunity to express my gratitude to Dr. Henry Edwards, my thesis supervisor, for the guidance and assistance he has offered toward the completion of this thesis. Also, a very special thanks to Dr. Michael McCarrey for his supervision and assistance. I would like to thank Dr. Richard Clément for his interest and contributions. I am grateful to the soon-to-be Dr. Gary Durak for his assistance in completing this project. A special acknowledgement to Michael Holtzleiter, Stephanie Sawyer, Pat Gervaise, and Carol Lehman, friends who contributed to this study.

List of Tables

Table Number		Page
1	Summary Table of the Oneway ANOVA for the Otis IQ Score.....	77
2	Summary Table of the Oneway ANOVA for the Semantic Differential Score.....	78
3	Difference Between Mean Scores on Items 1 and 2 of the Weekly Evaluation Form.....	81
4	Difference Between Mean Scores on the Modelling Evaluation Form After Week 1 and Week 4.....	82
5	Differences Between Mean Scores on Modelling Evaluation Form After Week 1 and Week 4 for the Three Subgroups of Items.....	84
6	Summary Table of the Oneway ANOVA for the Achievement Score.....	88
7	Summary Table of the Oneway ANOVA for the Test Anxiety Score (TAS).....	90

List of Tables continued...

Table Number		Page
8	Summary Table of the Oneway ANOVA for the Midterm Examination Grade.....	91
9	Summary Table of the Oneway ANOVA for the Revised Test Anxiety Score (TAS).....	93
10	Differences Between Mean Scores on Dependent Measures as a Function of Level of Involvement of Subjects.....	96
11	Differences Between Mean Scores on the Dependent Measures as a Function of Perceived Similarity to Model.....	98
12	Summary Table of the ANCOVA for the Achievement Scale.....	100
13	Summary Table of the ANCOVA for the TAS Scale.....	100a
14	Summary Table of the ANCOVA for the Examination Grade.....	100b

List of Tables continued...

Table Number		Page
15	Difference Between Mean Scores on the Pre- and Post-Tests of the Achievement Scale and the Test Anxiety Scale (TAS).....	102
16	Difference Between Mean Scores on the Special Psychology Achieve- ment Test for the Modelling and the Study Skills Groups.....	104
17	Differences Between Mean Scores on the Midterm Examination as a Function of Level of Achievement and Level of Test Anxiety.....	107
18	Summary Table of the Oneway ANOVA for the Midterm Examination Score as a Function of Level of Resultant Achievement Motivation.....	109

List of Figures

Figure Number

Page

1

Development and expression of
sex-role related behavior in
college women.....

38

Abstract

A study was conducted to test the idea that exposure to a modelling treatment program would have a significant impact upon sex-role stereotypes and, thus, upon the achievement behavior of university women. Achievement behavior was described in terms of Atkinson's model and was quantified on the following dependent measures: (1) Mehrabian-Bank Achievement Scale; (2) Sarason Test Anxiety Scale; and (3) midterm psychology examination score. Eighty-four university women volunteers, divided into three groups, completed the four week treatment program. The modelling group had four exposures to a live female model who demonstrated behaviorally via "self talk" a coping approach to more facilitative achievement behaviors. The study skills group had four exposures to a live female teacher who assumed a mastery role and presented study strategies to aid in the examination preparation. The control group received no treatment. The results indicated that the modelling treatment was not significantly more effective in enhancing achievement behavior than were the control conditions. However, subjects' perceptions of the model's success increased over the four week program. Also, subjects who had higher expectations for success demonstrated greater achievement than those with lower expectations. Results were discussed in terms of treatment methodology, with suggestions offered to increase the efficacy of the program.

Introduction

Despite the widespread publicity given to the women's movement, the literature suggests that many women continue to exhibit traditional sex-role behaviors and, thus, remain inhibited in the expression of their achievement needs. The external efforts which have been initiated in our society to promote change in the achievement-related behavior of women have been successful to a relatively small degree thus far. In an effort to promote more substantial and more meaningful change, the internal, psychological factors (personal attitudes and values) which maintain traditional sex roles for women have recently been addressed (Parsons, Frieze, & Ruble, 1976).

It is the opinion of the present writer that the internal, inhibitory factors regarding achievement need to be attenuated in order to allow women the freedom to grasp the opportunities which are becoming available to them. Thus, the concern of the present study is to provide a treatment program which is successful in promoting such change in the achievement-related behavior of women.

Although relatively few studies have been reported which address the present concern, correlational studies have

hinted that a strong association exists between high achievement expression in women and exposure to a competent female role model. Therefore, on the basis of such research and upon social learning theory, a treatment program involving modelling by a competent female role model is designed and presented to promote change in women's achievement-related behavior.

Consequently, the first two sections of the literature review pertain to the impact of sex-role stereotypes and discriminatory practices upon achievement behavior in women. The third section addresses the question "Why do women devalue their own and other women's successful performance?", describing the internal barriers inhibiting women's achievement behavior. The fourth section defines Atkinson's achievement model and discusses the difficulties in applying this model to women's achievement behavior. The following section describes the modelling literature, initially in a general way and, then, more specifically as it relates to achievement behavior in women. A summary follows which integrates the material presented in the preceding sections. Subsequently, a description of the theoretical rationale for the study is presented and a formal statement is made of the experimental hypotheses under investigation.

Chapter I

Review of Literature

Impact of Female Stereotypes and Achievement Behavior of Women

In 1957, McKee and Sherriffs reported defined sex-role stereotypes for men and women. The masculine image conveyed (a) rational competence and ability, and (b) vigor, action, and effectiveness; while the female stereotype reflected (a) social skills and graces, and (b) warmth and emotional expression.

Broverman, Vogel, Broverman, Clarkson, and Rosenkrantz (1972) reported that there exists clearly defined sex-role stereotypes for men and women which are accepted by a large segment of our society. They asked 100 men and women in three undergraduate psychology classes to list all the characteristics, attributes, and behaviors on which they thought men and women differed. Any factor which appeared at least twice on these listings ($N = 122$) was included in their questionnaire. The items were put into bipolar form with the two poles separated by 60 points. Subjects were instructed to indicate the extent to which each item characterized an adult man, an adult woman, and themselves. At the time of publication, 599 men and 383 women had responded to the questionnaire.

The sample included both single and married individuals, ranging in age from 17 to 60 years, and ranging in education from an elementary school level to an advanced graduate degree level.

An analysis of the responses yielded a cluster of positively valued masculine traits including competence, aggressiveness, and achievement and a cluster of positively valued feminine traits reflecting warmth and expressiveness. Masculine characteristics were perceived to be desirable more often than feminine characteristics. More importantly, both men and women were found to incorporate the positive and the negative traits of the appropriate stereotype into their self-concept. Since more feminine characteristics are negatively valued than masculine traits, women tend to have a more negative self-concept than do men. Broverman et al. added "The tendency for women to denigrate themselves in this manner can be seen as evidence of powerful social pressures to conform to sex-role standards of society" (p. 75).

In the same study, Broverman et al. reported ratings regarding the characteristics of a healthy man, a healthy woman, and a healthy adult, sex unspecified, completed by 79 practicing mental health professionals, including 46 male and 33 female clinical psychologists, psychiatrists, and psychiatric social workers. Healthy women were rated as more submissive and less independent than either mature healthy men or healthy adults, sex unspecified. Consequently, women

are placed in a double bind by the fact that there exists different standards for women than for adults. Broverman et, al. concluded that, if women adopt the behaviors specified for adults, they risk being criticized for their failure to be appropriately feminine. However, if they adopt the behaviors which are designated as feminine, they do not measure up to the standards for adult behavior.

The ascription of lesser desirability to the female has been repeatedly demonstrated in the literature. In 1939, Smith requested 8 - 15 year old children to vote on which sex possessed the most socially desirable traits. As age increased, the male was placed in an increasingly better light than the female by both male and female students. Thus, girls learned to value boys more than themselves as they matured. Recently, Mendelsohn and Dobie (1970) reported similar results. Fernberger (1948) demonstrated that college students casted male rather than female story characters into situations requiring intelligence and "all around superiority." Again, the extent to which sex-role stereotypes influence the self-concepts of women should be considered.

Touhey (1974) further illustrated the negative stereotyping directed towards women. The research illustrated that activities perceived as essentially "masculine" in nature were often viewed more favorably than those which were perceived as essentially "feminine." In the experiment, Touhey presented male and female subjects with descriptions

of five traditionally male occupations -- architect, professor, lawyer, physician, and scientist. For each profession, the subjects were given an indication that either (1) the percentage of women in these fields was increasing rapidly, so that they would soon constitute a majority of the persons in it, or (2) the percentage of women was relatively stable and would not increase in the years ahead. Both groups of subjects were asked to rate the prestige of each occupation. The results indicated that the subjects who anticipated female majorities consistently rated the occupations lower than those who expected continued male domination. In other words, the prestige of each field was sharply reduced when it was viewed as one which would be increasingly dominated by women.

In addition to negative stereotyping, women have been subjected to discriminatory practices with respect to employment and education (Bass, Krusell, & Alexander, 1971; Bowman, Wortney, & Greyser, 1965; Dixon, 1976; Knudsen, 1969; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976; Trieman & Terrell, 1975). Women have been refused jobs and training simply because it was felt, as women, that they were not suited for the particular endeavor. Even when women have succeeded in obtaining jobs, they were frequently overlooked when promotions or raises were being entertained (O'Leary, 1974).

More women have entered the working force in the last 20 years, but their employment is concentrated in the lower paid,

less prestigious occupations (Knudsen, 1969). The percentage of women in professional and technical occupations decreased from 42% in 1950 to 39% in 1972; however, the percentage of women clerical workers increased from 59% to 75% over the same period of time (U.S. Department of Labor, 1972, cited by Parsons, Frieze, & Ruble, 1976). These statistics are even more alarming when one considers that a larger percentage of working women are college trained today. Income differences between males and females doing the same job are, on the whole, widening (Trieman & Terrell, 1975). In addition, the gap between salaries of women and men full-time workers continues: in 1939, women earned 58% of what men earned and in 1973, they earned only 57% of what men earned. Considering all sources of income, women received 46% of male receipts in 1947 and only 35% in 1972 (Dixon, 1976).

Promotional decisions regarding women are to a large extent made by men in positions of authority (O'Leary, 1974). Consequently, a woman must often rely upon the attitude of a male to obtain a promotion. In 1965, a study of male attitudes toward women executives was conducted (Bowman, Wortney, & Greyser). Male executives rated their attitudes toward female executives in the mildly favorable to mildly unfavorable range (while 48% of a comparable sample of female executives rated their attitudes in the strongly favorable category). The males sampled felt that women had no significant negative effects on efficiency and production, but one-third

3

of them felt that females in managerial positions had a "bad" effect on employee morale. Of the sampled males, 51% felt that women were temperamentally unfit for management, and 81% felt that men were uncomfortable with a female boss. Only 27% reported feeling comfortable working with a woman.

Bass, Krusell, and Alexander (1971) studied managers' perceptions of women and their relationship to work. The most significant factor that managers indicated was that other men and women prefer having male supervisors, as they are uncomfortable with female supervisors. Women were also perceived as lacking in dependability as a function of their "biological" and "personal" characteristics. Bass et al. also noted that men who did not work with women had more positive regard for women than men who did and managers who were in a superior position to females shared the least favorable attitudes toward women.

Research has indicated that contact between equals most facilitates positive attitudes (Allport, 1958). However, as long as women continue to constitute a minority in the professional and technical fields, and they represent a majority in various "dead end" low status jobs (Bem & Bem, 1970), they will not have the opportunity for equal contact with male managers and, consequently, positive attitudes will not be fostered.

Discrimination Against Competent Women and Achievement Behavior of Women

"American society values success and the model upon which the definition of success is based is essentially a male sex-role appropriate one" (O'Leary, 1974, p. 811).

McGregor (1967) wrote

The model of the successful manager in our culture is a masculine one. The good manager is aggressive, competitive, firm and just. He is not feminine, he is not soft and yielding or dependent or intuitive in the womanly sense. The very expression of emotion is widely viewed as a feminine weakness that would interfere with effective business processes (p. 23).

To the extent that this mode of thinking still prevails, the competent woman or the woman who has chosen to step outside traditional roles to pursue success and achievement, suffers most from discriminatory practices and negative stereotyping. Much research supports the contention that there is a societal bias against the recognition of female competence (Deaux & Taynor, 1973; Goldberg, 1968; Kiesler, 1975; Pheterson, Kiesler, & Goldberg, 1971). Consequently, competent women's efforts are frequently downgraded relative to those of men, and they receive less praise and smaller financial rewards for comparable performances.

Goldberg (1968) instructed college females to rate professional articles on value, persuasiveness, profundity, writing style, and competence. The authors of the articles were hypothetically dealing in either traditionally masculine (law) or traditionally feminine (dietetics) fields. Results indicated that subjects of both sexes rated identical papers

higher when the articles were attributed to male authors. Similarly, Pheterson, Kiesler, and Goldberg (1971) reported that college women judged entries in an art contest that were attributed to females less favorably than they did those attributed to males. Deaux and Taynor (1973) demonstrated that highly competent male applicants for a study abroad were judged superior to females of equally high merit. The results of these investigations support the contention that the achievements of competent women are frequently devalued to those of men.

The literature suggested that men and women holding conventional sex-role beliefs devalued the accomplishments of women in traditionally masculine fields more than did those who hold liberal views (Hagan & Kahn, 1976; Spence, Helmreich, & Stapp, 1975). Such devaluation became more poignant when men anticipated actual interactions with competent women than when they did not (Hagan & Kahn, 1976). Hagan and Kahn (1976) reported that males liked competent women, but only when they simply observed their performance and were not involved in the interaction. Both males and females tended to exclude a competent woman from their group more often than a competent man and to include an incompetent woman more often than an incompetent man. Although on a leadership measure, a competent woman was preferred to an incompetent woman, the competent woman was placed once again in an unpleasant position. Hagan and Kahn suggested that a woman will be given the

status commensurate with her performance, but the men she is working with will not like her and will prefer to exclude her from the group. Consequently, the competent woman will not be reinforced for working up to her potentials and she will tend to perform less well in order to hold her job and to gain acceptance. In this sense, she is punished for her competency.

Shaffer and Wegley (1974) demonstrated that an aspiring career woman might easily adopt a masculine sex-role performance to impress her employer. However, in adopting such a role, she seeks becoming socially ostracized from peers of both sexes. Consequently, competency is again perceived to place women in a double bind.

In this era of the women's liberation movement, one might expect that discriminatory practices and prejudiced attitudes directed towards women would be decreasing. However, as noted earlier, statistics and research imply that overt discriminatory practices with regard to education and occupation are still prevalent in our society (Dixon, 1976; Knudsen, 1969; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976; Trieman & Terrell, 1975). Research also demonstrates that prejudiced attitudes towards women still exist to a significant degree (Hagan & Kahn, 1976; Hough & Allen, 1975; Kiesler, 1975).

There have been several recent attempts which have failed to support the contention that American women are

biased against themselves (Hough & Allen, 1975). Two such investigations were replications of the Goldberg (1968) and Pheterson et al. (1971) studies; one was a replication of the Goldberg study with age of subject used as an independent variable; and one concerned favorability ratings of male and female cartoon characters. However, Hough and Allen questioned their findings; they were skeptical as to whether a reported change in public attitudes towards women necessarily reflected a change in private attitudes among women. They hypothesized that it may no longer be fashionable to express antifemale attitudes, although women may still adhere to them.

In an attempt to test their hypothesis, they asked 42 American female college subjects to rate the capability of women and men in various professions (masculine, feminine, and neutral) under three conditions: (1) Bogus Pipeline, in which the experimenter tells the subjects, in effect, "if you do not tell me the truth about your feelings, I will find you out"; (2) Bogus Pipeline Control, in which the experimenter observes subjects' responses, but does not claim to be able to detect distortions; and (3) an anonymous questionnaire. A 3 (condition) x 3 (occupation) x 2 (sex) x subjects analysis of variance was performed. Results supported the notion that antifemale expressions on the part of female college students may be less fashionable now than before the "women's movement" was initiated, but that today's ex-

pressions may be more "lip service" to women's lib than a reversal of self-depreciation tendency. The results further suggested that the impact of the women's movement may be more in terms of public than private attitudinal expressions.

Fear of Success and Achievement Behavior of Women

In the study of racial or ethnic prejudice, it has been demonstrated that expectations often have a habit of causing their own confirmation. Black children who are expected to perform more poorly than whites by middle class teachers have been shown to lower their performance to meet such negative expectations (Rubovits & Maehr, 1973). In the same light, women have been shown to lower their performance to meet the negative stereotypes assigned to them by our culture (Morgan & Mausner, 1973).

Morgan and Mausner (1973) employed 28 male and 28 female high school students to serve as subjects for their study. The subjects had completed the first half of the Hidden Figures Test and had scored in either the upper or lower quartile. For the second half of the test, the subjects were paired such that one member of the pair was drawn from the higher and the other member from the lower quartile. In the social situation, "high" males depressed their performance only slightly; however, "high" females lowered their performance significantly. In fact, in half of the dyads in which the female was from the "high" quartile, she actually performed more poorly than the "inferior" male.

Other research reports indicated that women tend to devalue their successful performance by attributing their success to luck or chance (Deaux, 1976; Deaux & Emswiller, 1974). Deaux and Emswiller (1974) demonstrated that male and female subjects who evaluated the performance of either a male or female stimulus person on either a male- or female-related task overall rated males as being more skillful than females. A good performance attributed to a female was seen more often to be a result of chance. Consequently, the male was given more responsibility for his success because the success was attributed to internal factors. The female, on the other hand, was found to discount her success by attributing it to external factors.

Why do women devalue their own and other women's successful performances? One popular theory postulates that many women have learned to equate success or achievement with a loss of femininity. Women have come to believe that the attainment of excellence in intellectual or occupational pursuits will make them less of a woman and will lead to such negative consequences as social rejection or social disapproval. Thus Horner (1971) hypothesized that women often develop a "Fear of Success".

According to Horner (1969), in achievement-oriented situations, a competent woman is often caught in a double-bind. She wants to succeed in order to live up to her own standards of performance but she worries that if she succeeds,

she will not be living up to societal expectations concerning the female role. Consequently, Horner proposed that the desire to achieve in a woman is often contaminated by the motive to avoid success. When fear of success conflicts with a desire to be successful, the result is an inhibition of achievement motivation.

Horner (1969) built her motive to avoid success theory around three main hypotheses. First, it would be far more characteristic of women than of men to exhibit the motive to avoid success. Second, it would be more characteristic of women who are capable of success and who are career-oriented to exhibit the motive to avoid success than of women not so motivated. She reasoned that women who are not seeking success should not be threatened by it. Third, anxiety over success would be greater in competitive situations (when one's intellectual performance is evaluated against someone else's) than in noncompetitive ones (when one works alone).

In order to test these hypotheses, Horner (1968) presented 90 female and 88 male undergraduates at the University of Michigan the standard TAT achievement motivation measure (McClelland, Atkinson, Clark, and Lowell, 1953), but as verbal leads rather than as pictures. She administered an additional verbal lead, which reportedly connoted a high level of accomplishment, to the subjects in a mixed-sex competitive achievement situation. The females responded to the lead "After first term finals, Anne finds herself at the

top of her medical school class." For the males, the lead read "After first term finals, John finds himself at the top of his medical school class." Horner scored the stories for FOS imagery according to a present-absent system.

Horner reported that fewer than 10% of the men responded negatively to the successful male cue and that these males focused primarily on John's rather dull personality. Consequently, greater than 90% of the men in the study showed strong positive feelings toward John's success.

However, in response to the female cue, Horner reported that 65% of the women were disconcerted, troubled, or confused by the cue. Their responses were reportedly filled with negative consequences. Horner (1972) cited a typical story written by a female: "Anne deliberately lowers her academic standing the next term and in a subtle way helps Carl to bring his grades up. She subsequently drops out of med school, they marry, and Carl goes on in school while she raises their family" (pp. 162-163).

Consequently, as a result of her findings, Horner considered her first hypothesis to be supported.

In a second session, Horner randomly assigned the subjects to one of three experimental conditions: (1) a non-competitive condition in which each subject worked alone; (2) a same-sex competitive condition in which the subjects worked in homogeneous sex groups; and (3) a mixed-sex competitive condition in which subjects worked in mixed-sex

groups. Each group of subjects was administered a number of tasks similar to those performed in the first session, allowing each subject to serve as his/her own control. All three conditions employed the same tasks with the same instructions.

In order to test her third hypothesis, Horner used a within-subject design to compare the performance of the 30 females who worked in the noncompetitive situation in the second session to their performance in the mixed-sex competition during the first session. Horner reported that 13 of the 17 girls in this group who had scored high in the motive to avoid success performed at a significantly lower level in the mixed-sex competitive situation than they did in the noncompetitive situation. Twelve of the 13 women in the group who had scored low in the fear of success did better under the competitive situation, as did most of the male subjects (2/3) in this group. (The chi square difference between the groups was 11.37, $p < .01$).

As a final test of motivational differences, Horner (1968) asked the subjects to indicate on a scale from 1 to 100 "How important was it for you to do well in this situation?" In the competitive situation, the mean level of performance reported by subjects high in anxiety about success was significantly lower than for subjects low in anxiety about success ($p < .05$). In the noncompetitive condition, the difference was approaching significance in the same direction

($p < .10$). For the subjects who had a high motive to avoid success, differences in mean level of importance between the noncompetitive condition and the competitive situations were significant ($p < .05$), but no significant differences were found between the conditions for the subjects low in motive to avoid success.

Horner's findings instigated an extensive research undertaking in the field of the achievement motivation of women. As additional research has been conducted in this area, inconsistent findings have been reported and criticisms have been launched at Horner's analysis.

Zuckerman and Wheeler (1975) criticized Horner's theoretical and methodological approaches. They argued that (1) Horner's cue for Anne achieving success is presented in a male-dominated field (i.e. medical school). Consequently, Horner may have been measuring what Tresemer (1974) referred to as "fear-of-sex-role-inappropriateness." Several investigators have furthered investigated this concept (Alper, 1974; Feather & Raphelson, 1974; Katz, 1971; Monahan, Kuhn, & Shaver, 1974; Robbins & Robbins, 1973). Generally, the findings demonstrated that both males and females wrote more FOS stories to the Anne cue than to the John cue, implying that subjects' responses are at least partially determined by the cultural beliefs shared by both sexes. It is further suggested that the significant differences found between the percentages of male and female FOS imagery in Horner's study may be

more a function of the sex of the protagonist in the verbal cue rather than the sex of the subjects.

Zuckerman and Wheeler (1975) further argued that (2) Horner may have employed inappropriate statistical methods in analyzing her data. Horner conducted t-tests for differences between means and reported that the difference between the competitive conditions and the noncompetitive condition was significant for high FOS subjects and not significant for low FOS subjects. The correct procedure would have involved computing for each group of subjects the differences between the competitive and noncompetitive conditions and to compute a t-test between the two groups on the difference scores. According to such a computation, based on Horner's original data, no significant differences were found to exist between the high and low FOS groups.

Finally, Zuckerman and Wheeler (1975) criticized Horner for inadequately defining a "competitive" situation.

Tresemmer (1974) reported inconsistent findings in the percentage of FOS imagery found in men and women across 61 studies which he reviewed. The percentage of women who wrote FOS themes ranged from 11% to 88%, the median being 47%, while the percentage of men with FOS themes ranged from 14% to 86%, the median being 43%.

Hoffman (1974), on the other hand, in replicating Horner's original study, reported a 65% frequency of FOS imagery in females, which is comparable to that reported by Horner.

Consequently, the validity of the FOS concept has been questioned. Tresemer (1974) suggested that a subjective scoring bias by the coders may partially account for the inconsistent findings of FOS imagery. Robbins and Robbins (1973) demonstrated that five female scorers tended to find more FOS imagery than four male scorers, when they independently scored 119 stories for FOS imagery.

Tresemer (1974) also proposed that a common mistake has been demonstrated in the scoring of the FOS imagery. All negative themes in the story (e.g. references to murder, drugs), including antecedents of success, have been labelled FOS imagery. However, the correct procedure is reportedly to score only negative consequences of success as FOS. Consequently, the scoring method employed by a coder may definitely influence the nature of the results. Horner provided no objective scoring method.

A further criticism launched against the research concerning FOS imagery in women is that few studies have related FOS imagery to actual behavior, in order to determine if the fantasy measure is a valid predictor of behavior. Morgan and Mausner (1973) conducted such a study and reported an inconsistency in the motive to avoid success between the behavioral and the fantasy measures in men and women. It was suggested that even when the motive to avoid success was not expressed in fantasy, learned sex-role behavior produced behavioral avoidance of success by girls but not by boys in

mixed-sex interactions.

"The situation in which the motive to avoid success is supposed to be aroused has never been defined" in the FOS literature (Zuckerman & Wheeler, 1975, p. 941). Some investigators have apparently assumed that FOS would be aroused when females were asked to perform tasks which are inconsistent with their sex roles, e.g. when females are confronted with a male competitor or with a masculine-type task (Feather & Simon, 1973; Heilbrun, Kleemeier, & Piccola, 1974; Karabenick & Marshall, 1974; Makosky, 1972; Morgan & Mausner, 1973; Peplau, 1973; Sorrentino & Short, 1974). It has been assumed that FOS would be aroused when the value of success is emphasized, e.g. when subjects are given achievement-arousal instructions or when subjects compete on a task after having been told of their "success" on a previous task (Karabenick & Marshall, 1974). None of these studies have reportedly produced consistent results.

Consequently, researchers have devoted much time and effort over the last decade to the further exploration of the FOS concept proposed by Horner. Recently, Tresemer (1976) pooled the findings of over 100 studies assessing "fear of success" and he concluded the following: (1) the hypothesis that there is a gender difference in FOS has not been generally supported; (2) males and females seem to respond similarly in regards to "fear of success" imagery to a cue depicting an achieving female; (3) the proportions of "fear

of success" imagery elicited by both men and women in response to verbal cues has decreased over the last decade; (4) FOS has shown no overall relationship to ability, to gender-role identification, and to other anxiety scales; and (5) the relationship between the "fear of success" imagery and performance in different kinds of situations (e.g. female achievement behavior in competition with men) is unclear due to the many differences in the designs used. Tresemer suggested that future research should involve the "meticulously careful definition of the constructs involved and of the experimental situation in which they are hypothetically at work" (p. 234).

Sadd, Lenauer, Shaver, and Dunivant (1978) suggested that the more general definition of FOS proposed by Horner (1969), that is, "the fear that success in competitive situations will lead to negative consequences" (p. 38), can be considered acceptable, based upon Tresemer's (1976) findings. However, they emphasized that the more specific definition of FOS proposed by Horner (1969) which included the idea that success in women will lead to "loss of femininity" cannot be supported, based upon Tresemer's (1976) findings. Accepting the more general definition of FOS as a starting point, the authors were confronted with a second difficulty, regarding how to measure FOS. Due to the inadequacy of the TAT instrument employed by Horner, many new measures have been developed to explore FOS (Cohen, 1975; Good & Good, 1973;

Horner, Tresemer, Buens, & Watson, 1973; Pappo, 1973; Spence, 1974; Zuckerman & Allison, 1976). However, there is little consensus among researchers as to which instrument is the best.

Sadd et al. (1978) suggested that much of the confusion and inconsistency in the FOS literature is due to measurement problems. They attempted to take a few steps toward remedying this problem by undertaking a factor analytic study of eight measures of FOS and fear of failure. They included a study of the fear of failure instruments due to recent findings of Shaver (1976) and Jackaway and Teevan (1976) which suggested that FOS may not be distinct from what achievement motivation researchers refer to as fear of failure ("a capacity to experience shame given nonattainment of a goal," Weiner, 1972, p. 200). Consequently, Sadd et al. posed two questions: (a) Are FOS and fear of failure measurably distinct? and (b) To what extent do the recently devised objective tests of FOS measure a unitary (i.e. unidimensional) construct? To answer these questions, Sadd et al. administered five FOS measures and two fear of failure measures to 166 males and 249 female university students ($N = 415$). The measures employed were objectively scored measures, due to their easier administration and scoring and because they are more likely to be reliable. The FOS measures included the following: (1) Spence's (1974) measure which was the most similar to Horner's original measures;

(2) Good and Good's (1973) 29 item self-report measure; (3) Zuckerman and Allison's (1976) 27 item measure; (4) Pappo's (1973) measure which was directly tied to the academic situation and which measured a neurotic form of FOS based upon Sullivanian theory; and (5) Cohen's (1975) FOS measure which also measured a neurotic form of FOS but was based upon Freudian theory. The fear of failure measures included the following: (1) Sarason's Test Anxiety Scale (TAS) (i.e. 1972, which includes the scale items) and (2) Alpert and Haber's (1960) Achievement Anxiety Test (AAT) which contains two subscales, one measuring debilitating anxiety (AAT-) and the other measuring facilitating anxiety (AAT+).

The statistical analyses which they completed were accomplished in stages: (1) the reliabilities (internal consistency coefficients) of the scales were computed for the sample and, since they were acceptable, mean scores for males and females were compared; (2) the scales were inter-correlated, separately for males and females, to determine how strongly they related to each other; (3) each scale was factor analyzed, and 37 subscales were created; and (4) the 37 subscales were factor analyzed yielding five orthogonal factors. The five new factors created included the following:

- (1) Concern about the Negative Consequences of Success:
This factor reflects items which are concerned with
"jealousy, exploitation, criticism, sabotage, rejection,
burdensome responsibility, and pressure following success"

(p. 412). Factor 1 comes closest to the general definition proposed by Horner (1969) for FOS.

(2) Self-deprecation and Insecurity:

This factor reflects "failure to live up to one's own standards, self-consciousness, unassertiveness, and behavioral manifestations of insecurity" (p. 412).

Factor 2 is composed solely of first-order factors from Pappo's (1973) and Cohen's (1975) measures.

(3) Test Anxiety:

This factor is made up solely of factors from the TAS, AAT+, and AAT-. Although achievement motivation researchers refer to test anxiety as the more general "fear of failure", the authors questioned this label since the scales are measuring anxiety only within one specific situation -- the testing situation.

(4) Attitudes Toward Success in Medical School:

This factor is derived solely from the factors of Spence's measure of FOS, with no contribution from any other measures.

(5) Extrinsic Motivation to Excel:

This factor is composed of items which reflect the extreme importance of success, status, and power.

There is no mention of fear or negativity of success.

Factor 5 was not anticipated and it is the least well understood of the five factors.

Sadd et al. concluded from their results that FOS and

fear of failure are not measurably distinct. FOS, as measured by Pappo (1973) and Cohen (1975), is closely related to measures of test anxiety (fear of failure) but FOS, as measured by Spence (1974), is not. The authors suggested that Atkinson's model of achievement motivation be reevaluated in light of the FOS research.

Atkinson's Expectancy Value Theory and Achievement Behavior of Women

Atkinson, in his expectancy value theory of achievement motivation (Atkinson & Feather, 1966), viewed motives as latent and stable personality characteristics which are presumed to be acquired during early childhood. When an individual expects that performance will be evaluated against some standard of excellence, motives are aroused. A person who possesses a high motive for success will have a large capacity for feeling proud at doing well, while an individual who has a high motive to avoid failure is likely to have a strong feeling of shame over failure. The tendencies to approach success and to avoid failure within an achievement situation are a result of these underlying motives, interacting with situational variables. Motives are, therefore, behaviorally determinant in the sense that they lead to approach or avoidance tendencies (Jackaway & Teevan, 1976).

According to Atkinson's model, the resultant tendency to approach an achievement-oriented task is a function of the motive for success (need for achievement) minus the motive

to avoid failure (fear of failure), this quantity multiplied by the incentive value of success and the expectancy for success in the specific achievement situation. Therefore

Tendency to Approach Achievement Situation =

$$f ([M_S - M_{AF}] \times \text{Incentive} \times \text{Expectancy})$$

This traditional model for achievement motivation has resulted in conflicting experimental results in research involving women. With male subjects, studies have indicated increases in achievement motivation scores in response to experimental achievement arousal conditions which stress intelligence and leadership ability (McClelland, Clark, Roby, & Atkinson, 1949; Veroff, Wilcox, & Atkinson, 1953) and have shown significant relationships between achievement motivation and risk-taking behavior (Atkinson, 1957; Atkinson & Litwin, 1960), problem-solving effectiveness (French, 1958; French & Thomas, 1958), and academic performance (Pierce & Bowman, 1960; Ricciuti & Sadacca, 1955). However, few comparable studies employing female subjects have shown either consistency with the findings for men or internal consistency with each other (Lesser, 1973).

Horner (1968) postulated her "Fear of Success" hypothesis, within Atkinson's model, in an attempt to resolve these apparently contradictory results. She postulated that the motive to avoid success is aroused primarily in women with high achievement motivation who are working in competitive, achievement-arousing situations. Such fear of success (FOS)

inhibits need achievement and thus lowers performance scores. Thus, Horner suggested that Atkinson reevaluate his achievement model in light of the FOS literature, in order to increase its applicability to both men and women.

Recent FOS literature (Jackaway & Teevan, 1976; Sadd et al., 1978; Shaver, 1976; Tresemer, 1976) has indicated that (1) Horner's original hypothesis suggesting gender differences in FOS may not be supported; (2) there is no general consensus as to the appropriate way to measure FOS; (3) FOS, as it is presently defined by the instruments, is not a unidimensional construct; and (4) FOS may not be theoretically and/or measurably distinct from fear of failure. In light of these discrepancies and inconsistent findings regarding FOS, Shaver has suggested that "Atkinson's framework may well prove inadequate, as many fear of success researchers have assured me, but this cannot simply be taken for granted" (1976, p. 318). Shaver further suggested that since FOS, like fear of failure, presumably inhibits or interferes with the motivation to engage in a task, by expanding the fear of failure concept to include a combination of fear of failure and fear of success, Atkinson's model may not require significant change.

Atkinson and Birch (1978) recognized the difficulties in establishing a valid measurement of achievement-motivation for women. However, according to the authors, the issues related to this problem "remain complex and controversial"

(p. 165) and, thus far, research has served only to "sharpen [the] definition of the problem but has not achieved simple clarity or consensus" (p. 169). Thus, at the present time, Atkinson adheres to his theory of motivation, but keeps abreast of the issues concerning the achievement phenomenon of women.

Other researchers who have been perplexed by the contradictory findings in the achievement literature regarding women have explored a second aspect included in Atkinson's model -- the "expectancy" construct. According to Tangri (1975), it has often been assumed that the expectancy for success is equal for all subjects within a given situation. However, males and females have been shown to have different initial expectations for success within an achievement-oriented situation (Frieze, 1975). Frieze distinguished between a subjective probability for success (P_s) and an objective probability estimate, in reference to Atkinson's "expectancy" concept. She stated that the objective probability for success, which often takes the form of norms for success, cannot be exchanged for P_s in Atkinson's model, due to the fact that females often demonstrate lower expectations than do males.

Tangri (1975) attempted to explain the lower expectations for success which women exhibit. First, women have a tendency toward personal devaluation which would lead to lower expectations for success, and, secondly, a woman's realistic awareness that she is a member of a group that is

realistically denied success would tend to lower the expectations for success. Consequently, because Atkinson's model for achievement is a multiplicative function, lower expectations for success would necessarily lead to a lower resultant tendency for achievement in women. Tangri, therefore, suggested that the Ps construct be given important consideration in the study of the achievement behavior of women.

Bardwick (1971) has suggested that the contradictory and inconsistent findings in the achievement literature concerning women is not a difficult problem. She stated that

while men may develop a motive to achieve that remains consistent over their life spans, women experience both a desire to achieve and an anxiety related to achieving, the desire and anxiety occurring in different amounts at different times during their lives (pp. 167-168).

According to Bardwick, women may develop a motive to achieve which is perceived in terms of vocation, but, simultaneously, they may be dependent upon the love, praise, and support of others for feelings of self-esteem and thus use achievement as a means of securing affection. Thus, when studying the achievement behavior of women, one must consider the relationship between affiliation and achievement motives, taking into account the extent to which achieving behaviors derive from achievement or other motives and determining whether achieving is perceived as a potential threat to affiliation.

Atkinson's expectancy value theory can be described as a cognitive approach to the understanding of achievement behavior. Accordingly, a high level of need achievement in an individual is dependent upon arousing and processing the necessary cognitive expectancies for success which are congruent with a high level of achievement performance. This model alone, however, has not proven sufficient in predicting the achievement behavior of women (Lesser, 1973).

A second model, social learning theory, describes achievement behavior as a sex-role related behavior which is acquired through the socialization process. More specifically, the learning of sex-role behavior occurs through the principles of modelling and reinforcement. This model, however, is also inadequate in predicting the achievement behavior of women.

Although neither the reinforcement model described by social learning theorists nor the cognitive model advanced by achievement motivation theorists has singularly proven adequate to describe the achievement behavior of women, an integration of the two models would seem to provide a more complete understanding. Thus, the present investigation supports the contention that a woman may be able to arouse and process the necessary cognitive expectancies consistent with a high level of achievement by observing and modelling the appropriate cognitive strategies demonstrated by a competent female role model.

Social Learning Process (Modelling) and Achievement
Behavior of Women

According to Bandura (1970) and social learning theory, "virtually all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of other people's behavior and its consequences for the observer" (p. 350). Consequently, emotional responses can be learned by allowing the observer to witness the affective responses of others undergoing painful or pleasurable experiences, and fearful or avoidance behaviors can be extinguished by allowing the subject to observe a model approach a feared object without the model experiencing adverse consequences.

Bandura (1970) rejected the idea that modelling is synonymous with mere imitation. He and his associates reported several experiments in which a higher-order form of modelling was required (Bandura & Harris, 1966; Bandura & McDonald, 1963; Bandura & Mischel, 1965). In these studies, generalizing modelling effects were studied. Subjects were exposed to a model who displayed a consistent pattern of behavior to diverse stimuli and then the subjects were observed by different experimenters, in different social settings with the models absent, and with different stimulus items. The results demonstrated that observers responded to a new stimulus situation in a manner which was consistent with the models' behavior, even though the subjects had never observed

the models' behavior under these new circumstances.

In this higher-order form of modelling, the performer's behavior conveys information to observers about the characteristics of appropriate responses. Observers must abstract common attributes exemplified in diverse modelled responses and formulate a principle for generating similar patterns of behavior. Responses performed by Ss that embody the observationally derived rule are likely to resemble the behavior that the model would be inclined to exhibit under similar circumstances, even though the Ss had never witnessed the model's behavior in these new situations (p. 352).

Bandura employs the use of a "mastery" model which manifests competency and mastery throughout the modelling treatment program.

Meichenbaum (1971), on the other hand, promotes a "coping" model or a model who demonstrates initial apprehension or fearful behavior, who subsequently overcomes the fear, and finally who performs the final behavioral act at a mastery level. According to Meichenbaum, a coping model increases the perceived similarity between the observer and the model and facilitates modelling effects.

Geer and Turteltaub (1967) hypothesized that a modelling treatment may facilitate behavioral change by inducing in the observer the self-instructions "If the other subject could do it, so can I."

Consequently, a coping model, as opposed to a mastery model, would provide the subjects with the means or self-instructions necessary in order that they can cognitively

mediate the required behavioral change.

Meichenbaum (1971) reported a study in which he assessed the efficacy of mastery vs. coping modelling behavior and the model's concomitant self-verbalization vs. non-verbalization on reducing avoidance behavior in female undergraduates toward nonpoisonous snakes. The modelling treatment involved the subjects observing three televised female models in the same approach situation. Behavioral and affective self-report measures indicated that the coping models significantly enhanced fear reduction over the mastery models. The models' self-verbalizations in the coping situation significantly enhanced treatment effectiveness. Consequently, the coping model with self-verbalizations was the most effective treatment in fear reduction.

Keniston and Keniston (1964) proposed that interaction with or observation of a successful female model might alter negative self-evaluations or negative attitudes towards achievement in women. Almquist and Angrist (1971) and Baruch (1972) reported results which lend support to such a hypothesis. Almquist and Angrist conducted a longitudinal study with 110 women from a small, private college, over their four years of study. Questionnaires were administered each fall and tape-recorded interviews were recorded with the subjects each spring, concerning adult role conceptions, occupational plans, work experience, classwork, grades, school activities, dating, social life, and marriage plans.

An index of career salience was formed on the basis of three items on the senior questionnaire. A strong correlation was found to exist between career salience and maternal employment during the women's college years ($p < .001$). In the interviews, those women who showed such a strong association demonstrated a favorable definition of the working mother role. They saw that it is possible to combine marriage and a career, that it can be enjoyable, and that their fathers did not strongly object.

Using 86 college females as subjects, Baruch (1972) found that the subjects who had interacted with a competent mother model evaluated women's competence highly, but those whose mothers did not work and provide such a competency model defined achievement as masculine and devalued feminine competence. In this study, even recently begun maternal employment was associated with high evaluations of women's competence. Consequently, it was suggested that the competent model need not be the mother. Particularly for young women who are at an age when they are seeking new models, goals, and values, it was suggested that college faculty might be able to fulfill the role of the competent feminine model.

Goldstein (1979) supported Baruch's hypothesis that a same-sex faculty member may be able to fulfill the role of a competent model. In a study employing 55 male and 55 female Ph.D. students, it was found that students who had worked with same-sex advisors (role models) published sig-

nificantly more research articles during the four years after graduation than did students who had worked with cross-sex advisors. The author warned the reader to interpret the results cautiously, due to the fact that the study did not control for such factors as: (1) importance of rapport or interpersonal style between the student and the advisor; (2) similarity of cognitive style between the student and the advisor; (3) students' expectations of their relationship with the advisors; and/or (4) reasons as to why a student chooses a same-sex or opposite-sex advisor. Thus, although no cause-and-effect relationship can be established from the available data, the results can be viewed as supportive of the hypothesis that interaction with a competent female role model may have facilitative effects on the achievement behavior of women.

In contrast to Baruch's and Goldstein's findings, Neath-Gelvin and Kiesler (1975) reported that exposure to a successful female model did not alter female expectations toward success. However, Baruch's and Goldstein's subjects experienced a long interaction with the competent model (their mothers), whereas Neath-Gelvin and Kiesler's subjects had only a single exposure. In their study, 52 male and 52 female college students, who were preparing for the Law School Aptitude Test (LSAT), were exposed to the credentials and scores of another student (model) who had applied to law school a year earlier. The model was described as either male or female,

and he/she performed either successfully or unsuccessfully on the LSAT. The results of the study suggested that the subjects' expectations for success were based more on comparisons with the models' performance than on imitation. Both males and females expected to do better if the model was female ($p < .05$). Female expectations, however, were not raised by information that the female model had been successful. The authors explained such results by concluding that (1) a single exposure to the model may not be sufficient to alter female expectations; (2) a successful female model may increase other females' expectations only if the model gives the impression of being equal or less competent than the subject in some aspects of her performance; and (3) a personal relationship between the female and the model may increase the chances for positive comparisons. Neath-Gelvin and Kiesler concluded that the factors suggested above may change the perceived probabilities of success for the individual female and, therefore, her expectations or attitudes toward success may change, even though the majority of women in our society are not so successful.

Such emphasis on modelling behavior is congruent with M. Brewster Smith's (1968) (see Figure 1) formulation of and social learning theorists' approach to the development and expression of sex-role related behavior of women. Accordingly, societal dictates are translated into personal attitudes and values and consequent behavior through the process of

socialization. Parents model and reinforce appropriate sex-role behaviors for their children and, consequently, lay the groundwork "which perpetuates traditional stereotypic beliefs concerning the personalities and abilities of men and women" (Parsons, Frieze, & Ruble, 1976, p. 3).

Consequently, the negative attitudes and negative self-evaluations which women espouse and demonstrate in success-oriented situations may best be understood as learned through the process of modelling. According to social learning theory, women acquire a firm sex-role identity along with the appropriate sex-role behaviors and the attitudes concerning the relative status of men and women by initially modelling the behavior of the parents and later by the modelling of substitute parental figures, e.g. teachers, ministers, characters introduced by the media, etc. (Baron & Byrne, 1977).

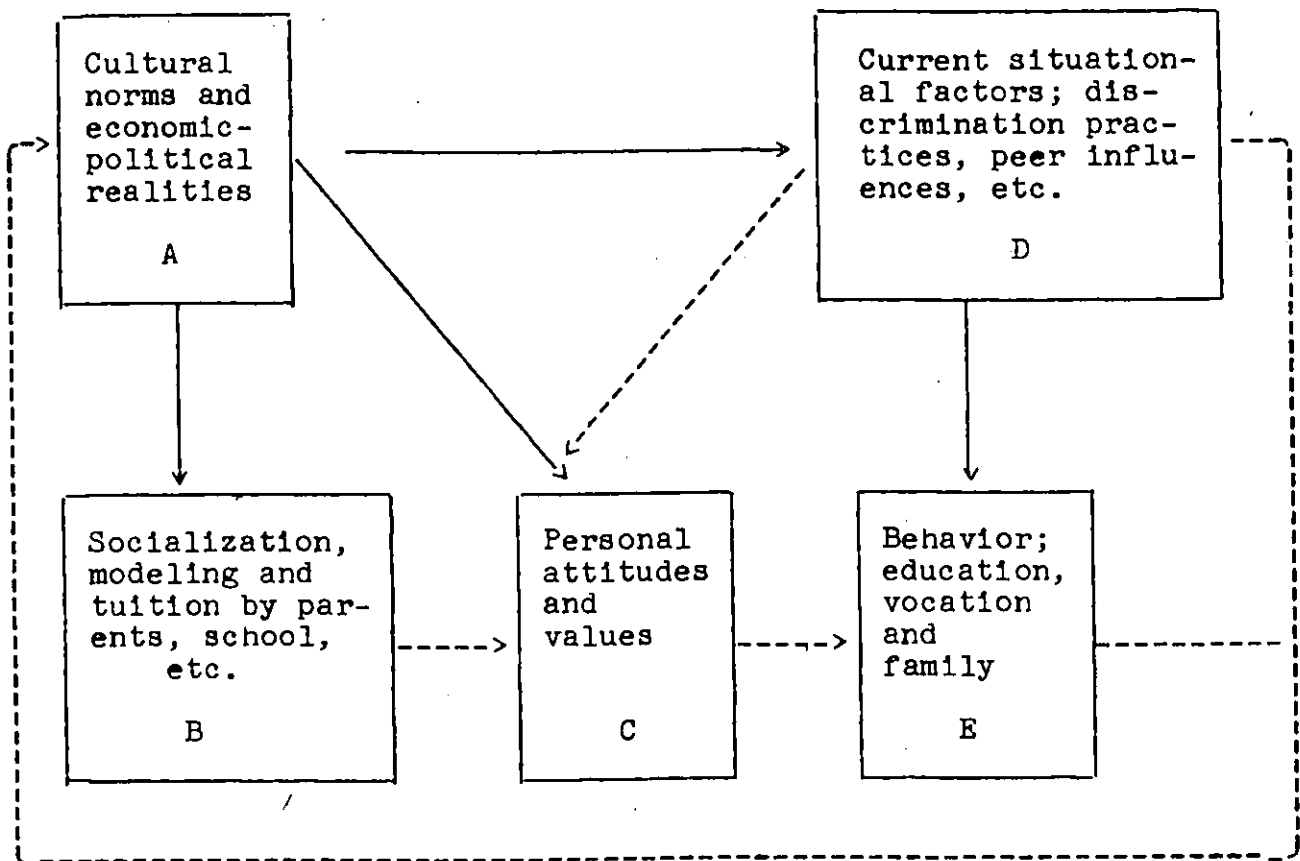


Figure 1

Development and expression of sex-role related behavior in college women.

Summary

The competent woman or the woman who has chosen to step outside the traditional role to pursue success and achievement, suffers from negative sex-role stereotyping and discriminatory practices in our society (Baron & Byrne, 1977). Much research supports the contention that there is a societal bias against the recognition of female competence (Deaux & Taynor, 1973; Goldberg, 1968; Hagan & Kahn, 1976; Kiesler, 1975; Pheterson, Kiesler, & Goldberg, 1971; Shaffer & Wegley, 1974; Spence, Helmreich, & Stapp, 1975). In response to such societal impediments, women have often adopted and expressed self-depreciative attitudes, demonstrated by a lowered performance and/or a misattribution of their successful performance to external rather than to internal causes in achievement-oriented situations (Deaux, 1976; Deaux & Emswiller, 1974; Hoffman, 1974; Horner, 1969; Morgan & Mausner, 1973; Peplau, 1973; Sorrentino & Short, 1974; Tresemer, 1974).

In the late 60's and early 70's, much research was conducted in an attempt to elaborate and delineate this self-depreciative attitude expressed by women (Deaux & Emswiller, 1974; Feather & Simon, 1973; Heilbrun, Kleemeier, & Piccola, 1974; Hoffman, 1974; Horner, 1968, 1969, 1971; Karabenick & Marshall, 1974; Makosky, 1972; Morgan & Mausner, 1973; Peplau, 1973; Sorrentino & Short, 1974; Tresemer, 1974). Horner (1968) initiated such research, proposing her "fear

of success" model; Tangri (1972) followed with a "fear of loss of femininity" hypothesis and, subsequently, Tresemer (1974) proposed a "fear-of-sex-role-inappropriateness" model. Although many methodological criticisms were launched during this phase of research (Tresemer, 1974; Zuckerman & Wheeler, 1975), the self-depreciative hypothesis gained empirical validity. The more recent research in this area suggested that the "fear of success" phenomenon continues to exist (Atkinson & Birch, 1978; Deaux, 1976; Dixon, 1976; Hagan & Kahn, 1976; Hough & Allen, 1975; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976), although discrepant findings continue to be reported in the literature (Sadd et al., 1978; Tresemer, 1976).

Horner originally postulated her FOS construct within the context of Atkinson's expectancy value theory of achievement motivation. The FOS construct was used to help explain the inconsistent findings in the literature regarding the achievement behavior of women within the Atkinson model (Tresemer, 1976). In light of the FOS research, it was proposed by Horner (1969) and Sadd et al. (1978) that Atkinson reevaluate his achievement model. Shaver (1976), however, suggested that, due to the inconsistent findings in the FOS literature, no significant changes be made in the model. Instead, the fear of failure concept should be expanded to also include the fear of success construct, since both constructs are postulated to inhibit achievement performance.

Frieze (1975) and Tangri (1975) suggested that the inconsistent findings in the achievement literature regarding women may be a function of the lower initial expectations for success which women exhibit. Consequently, Frieze (1975) indicated that the "expectancy" concept in Atkinson's model be given important consideration. The lower expectations for success demonstrated by women may be a result of a sense of personal devaluation and/or a result of societal impediments (Tangri, 1975). Bardwick (1971) suggested that, unlike men, many women have a fused motive to affiliate and to achieve. Thus, in a study of the achievement behavior of women, Bardwick suggested that the intensity of both of these motives be given consideration.

Consequently, competent women are confronted with both external and internal barriers to success within achievement oriented situations. Societal expectations, negative sex-role stereotypes, and discriminatory practices inhibit women's successful performance externally and negative self-evaluations, negative attitudes, and feelings of inadequacy inhibit women's successful performance internally. In an attempt to "free" women from such constraints, external efforts have been initiated (ERA, Committee on Status of Women in Canada). Such efforts were launched in order to weaken the rigid social role structures imposed upon women, with the expectations that a change in societal dictates would allow for a change in the sex-role expression of women. However, such

efforts have been only minimally successful, as prejudice against competent women continues to prevail (Deaux, 1976; Dixon, 1976; Hagan & Kahn, 1976; Hough & Allen, 1975; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976).

The present investigation is proposing a new direction to attenuating the prejudiced attitudes directed towards women, by focusing on the internal, psychological factors which inhibit women's achievement-related performance. More specifically, the present investigation will attempt to facilitate a change in achievement-related behavior of competent women by teaching them more positive attitudes towards being successful. Such a project is undertaken with the hope that a change in personal attitudes, expectations, and behavior in individual women will constitute the necessary first steps to attenuating the general prejudiced attitudes of society towards competent women.

To the author's knowledge, minimal research has been reported which has attempted to focus on changing the internal barriers to women's successful performance in achievement-related situations. Keniston and Keniston (1964) proposed that the interaction with or observation of a successful female model might alter the negative attitudes towards success in women. The findings of Almquist and Angrist (1971), Baruch (1972), and Goldstein (1979) lent support to such a hypothesis. The emphasis upon modelling in the development and expression of achievement-related behavior of women is

congruent with the position of social learning theorists and with the process of socialization.

The present investigation will attempt to provide a miniature resocialization experience for women by presenting them with more positive behaviors to employ within achievement situations. The technique of modelling will be introduced to facilitate such positive expressions regarding success.

Rationale and Hypotheses

The competent woman who chooses to step outside the traditional role is often confronted with negative sex-role stereotyping (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; Fernberger, 1948; Hagan & Kahn, 1976; Hough & Allen, 1975; Kiesler, 1975; McKee & Sherriffs, 1957; O'Leary, 1974; Smith, 1939; Touhey, 1974), and to discriminatory practices with regard to education and employment (Bass, Krusell, & Alexander, 1971; Bowman, Wortney, & Greyser, 1965; Dixon, 1976; Knudsen, 1969; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976; Trieman & Terrell, 1975). Such external barriers to successful achievement performance have resulted in feelings of inadequacy and in negative expectations toward success in women, which is demonstrated in achievement-related situations by their lowered performance and/or misattribution of their successful performance to external rather than to internal causes (Deaux, 1976; Deaux & Emswiller, 1974; Deaux & Taynor, 1973; Goldberg, 1968; Hagan & Kahn, 1976;

Hough & Allen, 1975; Kiesler, 1975; Morgan & Mausner, 1973; Pheterson, Kiesler, & Goldberg, 1971; Shaffer & Wegley, 1974).

Theoretically, a model is needed to explain how the external factors inhibiting women's achievement behavior are internalized and, thus help to maintain traditional sex-role behaviors. Parsons, Frieze, and Ruble (1976) introduced such a model, based upon the work of M. Brewster Smith (1968). This model, described earlier, is congruent with a social learning approach to the development and expression of sex-role behavior in women.

According to social learning theory, women acquire their sex-role identity, along with the appropriate sex-role behaviors and the attitudes concerning the relative status of men and women, through the socialization process, and more specifically, through the process of modelling (Baron & Byrne, 1977).

In recent years, society has begun to acknowledge that the external barriers exist and has initiated efforts in order to allow women the opportunity to adopt a more androgynous sex-role expression. Such efforts include the women's liberation movement and legislative acts, including the proposed Equal Rights Amendment (ERA). In spite of these efforts, the literature suggested that both men and women continue to exhibit prejudiced attitudes towards women (Deaux, 1976; Dixon, 1976; Hagan & Kahn, 1976; Hough & Allen, 1975;

Kiesler, 1975; O'Leary, 1974; Parsons, Frieze, & Ruble, 1976).

The efforts which have been initiated to attenuate the dilemma which women face in our society have been external to the woman and thus have not attempted to deal directly with her internalized attitudes, values, and expectations regarding achievement behavior. It is the opinion of the present writer that, before meaningful change will occur, and, before women will grasp the opportunities being made available to them, the internal, psychological factors will necessarily need to be addressed.

Within a social learning framework, women will need to be resocialized, in order to develop new behaviors which will facilitate their achievement performance and in order to learn to attribute their successes to internal rather than to external factors. The present investigation is proposing such resocialization by exposing women to a female role model who demonstrates achievement-oriented behaviors and who increases the attainability and the reward value of these behaviors. The purpose of the present investigation is, thus, to test the idea derived from social learning theory that exposure to a competent female role model will have significant effects on the achievement performance of women.

Such a hypothesis was suggested by Keniston and Keniston (1964). They proposed that the observation of or interaction with a successful female model may alter negative attitudes in women regarding success. Almquist and Angrist (1971) and

Baruch (1972) supported this hypothesis. Almquist and Angrist reported that career-oriented students more frequently had mothers who worked than did noncareer-oriented students. Baruch found that female students who had interacted with a competent mother model evaluated women's competence highly, but those whose mothers did not work and provide such a competency model devalued female competence. Even recently begun maternal employment was associated with high evaluations of women's competence, which led to the hypothesis that the competent model need not be the mother but may be a mother substitute, e.g. a college professor.

Neath-Gelvin and Mesler (1975), however, failed to support such a hypothesis. Female college students' expectations for success on the LSAT were not raised by the information that a female model had been successful on the exam. However, the lack of significant findings in this study may at least partially be explained in terms of the weakness of the modelling treatment employed. Four criticisms of this method are offered by the writer. First, the models employed may be considered as mastery models (Bandura, 1970). Meichenbaum (1971) demonstrated that a coping model with self-instructions is more effective in facilitating modelling effects than is a mastery model. Secondly, the models were not live models and, therefore, the subjects were given little opportunity to identify with the models. Third, the subjects received a single exposure to the model which may not have

been sufficient to produce change in achievement behavior. Fourth, the participants had no opportunity to role play and thus to receive feedback and practice regarding their attempts at enacting the modelled behaviors.

More recently, Goldstein (1979) reported that female Ph.D.'s who had female advisors (female role models) published significantly more research than did women who had male advisors (male role models). Although no cause-and-effect relationship can be established from the data, such findings may be considered as supportive of the hypothesis that exposure to a female role model may have significant effects upon the achievement behavior of women.

In summary, Baruch's (1972), Almquist and Angrist's (1971), and Goldstein's (1979) research leads one to the hypothesis that exposure to a female role model who demonstrates achievement-oriented behavior will be an effective treatment.

In order for the modelling treatment to be effective in promoting a resocialization experience, the female role model must demonstrate behaviors which will facilitate the achievement behavior of women. Achievement has traditionally been defined within the context of a masculine model (Bardwick, 1971). Atkinson's expectancy value model (1966) is able to predict the direction, magnitude, and persistence of achievement behavior in male students, but not consistently in females (Bardwick, 1971). Through the socialization process, many women have not developed the necessary qualities to work

within this male model. In fact, many women have learned more "feminine" behaviors which tend to inhibit their achievement performance (Bardwick, 1971; Frieze, 1975; Horner, 1968; Tangri, 1975).

Earlier, the internalized, inhibitory sex-role stereotypes were referred to as "negative self-evaluations", "negative expectations", a "self-depreciative attitude" towards being successful and an external attribution of success when success does occur. Other researchers have suggested that sex-role socialization teaches women to rely more on external than internal controls (Brannigan & Tolor, 1971), and to be relatively unable to realistically evaluate their intellectual abilities (Oakley, 1972). In a more detailed fashion, Horner, Frieze, Tangri, and Bardwick have attempted to delineate the inhibitory effects of sex-role socialization upon achievement behavior.

Horner (1968, 1969, 1972) attempted to explain a woman's inhibition of achievement in terms of the FOS construct. She postulated that a woman will not perform as well as she is capable of performing because she fears the negative consequences of success, including fears of a loss of femininity, being regarded as unpopular, unattractive, and a bookworm, and being rejected, lonely, unmarriageable, and ostracized.

Frieze (1975) and Tangri (1975) suggested that a woman's initial expectations for success within an achievement situation are lower than a male's expectations, as a result of the

cultural stereotypes assigned to women and of the sense of personal devaluation evidenced by women in achievement situations. Such lower expectations tend to inhibit a woman's achievement performance.

Bardwick (1971) suggested that women are motivated to achieve in situations in which they expect to receive praise, love, and support from others for their achievement, while men are cued to achieve by internal standards of excellence. Particularly during the college years, a woman will tend to inhibit her achievement performance if the achievement is perceived as a probable threat to affiliation.

In summary, the literature has suggested that the following factors are relevant to an understanding of the inhibition of the achievement behavior of many women, due to the socialization process: (1) the self-depreciative attitude in achievement situations; (2) the reliance on external rather than internal controls; (3) the inability to assess own intellectual abilities; (4) the fear of negative consequences following successful performance; (5) lower expectations for success; (6) the potential threat to the affiliative motive within a given achievement situation; and (7) the external attribution of any success that does occur. Because the concern of the present investigation is to facilitate achievement behavior, these inhibitory factors need to be dispelled and replaced by more appropriate achievement-oriented behaviors.

Thus, the purpose of the present investigation is to

test the idea derived from social learning theory that the resocialization of women in their attitudes, expectations, and behaviors regarding achievement situations will be an effective treatment to facilitate the achievement behavior of women. Based upon the research cited earlier (Almquist & Angrist, 1971; Bandura, 1970; Baruch, 1972; Goldstein, 1979), the resocialization treatment will include exposing women to a competent and an accessible female role model. However, it does not appear that exposure to a mastery model will provide a sufficient treatment to produce change in achievement behavior (Neath-Gelvin & Kiesler, 1975). Therefore, the resocialization experience will involve the female role model demonstrating a coping approach to more facilitative achievement behaviors. Thus, the experimental group will be exposed to a female model who provides instructions and a live example of how to work from the inhibitory achievement behaviors, detailed above, to more appropriate behaviors required for successful achievement performance.

Therefore, the independent variable in the present study will be the treatment manipulation, administered to University of Ottawa women under three conditions: (1) Experimental treatment; (2) Study Skills treatment; and (3) No treatment control.

The Experimental treatment will involve exposing the university women to four modelling sessions in which the female role model demonstrates behaviorally via "self-talk" a

coping approach to successful performance, on the midterm psychology examination. This treatment will be a concrete, experiential one, emphasizing practice.

The Study Skills treatment will also involve exposing university women to four study sessions with the female teacher. However, here the teacher will serve as a mastery model who provides study skills information as to how to study for the midterm psychology examination. This control group will, therefore, be exposed to a competent female instructor, yet the women will be provided with study skills information only, with no exploration of their reward value nor of the impact of success on the women's femininity. Thus, they will not be exposed to the complete resocialization experience, as outlined above. Consequently, although exposure to the model may have some positive effects on their achievement behavior, these women are expected to perform at a lower level than that of the experimental group, because factors such as FOS, the incentive value of success, and the sex-role stereotypes will operate to their detriment (Bardwick, 1971; Frieze, 1975; Horner, 1968, 1969, 1972; Tangri, 1975).

The third condition is a no treatment control condition. The women in this group will not benefit from exposure to a female role model and, therefore, their achievement is expected to be lower than that of either of the other groups.

Achievement behavior will be defined in terms of Atkinson's expectancy value model, which was described earlier.

According to this model, the achievement behavior of the university women will be quantified on the following dependent measures: (1) Mehrabian's and Bank's Achievement Scale (1978), which will provide the need for achievement measure specified in Atkinson's formula; (2) Sarason's Test Anxiety Scale (TAS, 1972), which will serve as the measure of fear of failure within Atkinson's model; and (3) the midterm introductory psychology examination score (University of Ottawa, December, 1978)', which will represent the resultant achievement behavior, in terms of Atkinson's model. Thus:

$$\text{Midterm Exam Score} = f([\text{Mehrabian's nAch score} - \text{TAS}] \times \text{Situational Variables})$$

Thus, if the Experimental treatment is effective in attenuating the more traditionally stereotyped "feminine" behaviors and in facilitating the more appropriate behaviors, within Atkinson's model, the following results are expected: (1) a higher score on the Mehrabian-Bank Achievement Scale; (2) a lower score on the TAS; and (3) a higher score on the midterm psychology examination.

In order to test the effects of the treatment manipulation upon the achievement behavior of university women, the following hypotheses are proposed:

Hypothesis I: The Experimental treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in

university women than is the Study Skills control treatment. Since the Experimental treatment deals more directly with negative self-evaluations, FOS, and the lack of accessibility of success behavior for females, it is expected to be a better treatment than study skills information alone.

Hypothesis II: The Experimental treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in university women than is no treatment.

Hypothesis III: The Study Skills control treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in university women than is no treatment. To the extent that they are exposed to a female model, the Study Skills control group is expected to exhibit more appropriate achievement behaviors than the control group, which will not receive any exposure to a model.

Chapter II

Method

In order to test the previously stated hypotheses, the present investigation studied the effects of the following treatment conditions: (1) Modelling treatment; (2) Study Skills control treatment; and (3) no treatment control, with reference to the following dependent measures: (1) Mehrabian-Bank (1978) Achievement Scale; (2) Sarason's (1972) Test Anxiety Scale (TAS); and (3) the midterm psychology examination score (December, 1978).

The method section of this report presents a description of the subjects, measures, and procedures which were followed in the present investigation.

Subjects

One-hundred and twenty university women, who were enrolled in the Introductory Psychology course at the University of Ottawa from September, 1978 to April, 1979, volunteered to participate in the present study, earning class marks for their participation. Of these original volunteers, 84 subjects completed the four week treatment program. Thus, there was a 30% attrition rate; however, 25% of the women who terminated early did not even attend the initial session. Consequently, 95% of the women who did commit themselves to

the treatment program and who actually attended the initial session, completed the program. The 84 women whose data were used in this study can be considered highly motivated subjects, as the treatment required approximately five hours of their time, outside of the classroom.

Demographic Data

All subjects were asked to complete the Life History Questionnaire (LHQ), in order to obtain information which might prove relevant to an understanding of the results of the present study.

From this data, it was found that 86% of the subjects were first year university students, who had a median age of 19 years. The majority of the students reported attaining an overall mark of A or B in their high school studies.

One-hundred percent of the subjects reported a desire to pursue a career after graduation. Ninety-one percent of the subjects intend to work full-time after university, 49% for financial reasons and 42% for "other" reasons. Eighty-eight percent of the women intend to marry, with 76% expressing a desire for children. Consequently, there is a general trend noted in the group of women to both marry and pursue a career, which is consistent with the less traditional role being emphasized in today's society.

Materials

In the present investigation, four treatment sessions were administered to both the Modelling group and to the

Study Skills group over a four week period of time. The overall objective of the sessions was to help students successfully prepare for and complete a university examination. All sessions involved the presentation of a script by a live model to a group of subjects. The live female model was a 24 year old theatre student from the University of Ottawa, who was given a stipend for her participation in this study. All sessions were videotaped; consequently, a camera, a videorecorder, and a monitor were required for all sessions.

Modelling Treatment

During the modelling sessions, the model assumed the role of a student who was preparing for her midterm psychology examination. She dressed casually for the sessions, in order to resemble in appearance a typical university student. The sessions were enacted within a classroom, provided by the University of Ottawa, with simplistic props being employed to create the setting of a study area, perhaps within the model's bedroom. A desk and chair served as the primary props, with books, papers, and pencils being placed on the desktop.

Four scripts were prepared by the writer for the modelling sessions, based upon information obtained from introductory psychology students at the University of Ottawa during the summer trimester, 1978, and upon information regarding female achievement behavior reported in the literature by

Horner (1968, 1969, 1971, 1972), Kiesler (1975), and others, as outlined in the first chapter. The scripts were written according to the coping model approach suggested by Meichenbaum (1971), as opposed to the mastery model approach purported by Bandura (1970). According to such an approach, a model initially demonstrates the behavior to be altered, subsequently begins changing the behavior until she performs the final behavioral act as the mastery or competent model (Meichenbaum, 1971). Consequently, in the present investigation, during each session, the model began with more negative, defeating behaviors in her preparation for the examination, and she worked her way through to more successful behaviors, consistent with high achievement behavior on the examination. The scripts she role-played consisted of her thoughts or "self-talk" at a particular time period in her preparation for the examination (see Appendix A).

The first script was concerned with the "self-talk" of the model one week before the examination. She began the session by verbalizing her feelings that a passing mark would be adequate for her on the exam. However, as the session progressed, she changed her self-expectations and decided to rearrange her time schedule in order to place more priority on her studying, giving less time to social events. She wanted to do well on her exam in order to gain a sense of inner satisfaction.

The second session presented the "self-talk" of the

model regarding her preparation for the exam the weekend before the test. On Friday night she was at home studying for the exam, while her friends were out partying. She began the session questioning whether doing well on the exam was really important to her and wondering whether she was missing too much by not being with her friends. She considered putting her studies aside and joining her friends. However, as the scene progressed, she reaffirmed her decision to stay at home and study, according to the schedule she had devised for herself.

The third session described the model's "self-talk" on the morning of the examination. She was anxious about the exam and afraid that she would be disappointed with her performance. She also feared that her friends would reject her if she did better than they did. She had thoughts of postponing her exam. However, as the session progressed, she decided to take the exam, doing as well as possible.

The final session presented the "self-talk" of the model immediately following the exam. She began by remembering how she usually felt after an exam -- blah, disgusted, and disappointed. But today she felt proud of herself. She felt that she did well on the exam, due to the fact that she had prepared herself adequately.

In addition to the scripts described above, an Introduction to the study was presented to the subjects at the beginning of the first session (see Appendix A). The Intro-

duction described the typical stereotyped behavior that many women exhibit in achievement situations and encouraged the subjects to examine their own behavior and to begin filling in the "gaps" in their own sex-role training. The Introduction was included in order to increase the subjects' awareness of their own achievement-related behavior and to motivate them to desire to alter such behavior.

At the beginning of the second, third, and fourth modelling sessions, a summary of the previous session was provided, along with a brief introduction to the present session. Also, homework assignments were given by the model at the end of each session, with typed copies distributed to the subjects. Subjects were requested to complete the assignments before the following session. The homework assignments encouraged the subjects to become aware of their own "self-talk" in regard to their examination preparation, and to attempt to alter their negative "self-talk" by behaviorally rehearsing the modelled response.

Study Skills Treatment

In regard to the study skills treatment, the model assumed the role of a teacher who offered study information to the subjects concerning how to successfully prepare for the midterm examination. She altered her appearance somewhat from the modelling condition by combing her hair differently and/or adding a blazer to her clothes outfit in order to communicate the role she was assuming. All sessions were

held within a classroom provided by the University of Ottawa, with simplistic props, such as a chair and a desk, being employed to further create a classroom atmosphere.

Four lectures conveying study skills information on how to prepare for the midterm examination were prepared by the writer, with the assistance of a university professor. The four lectures were written to coincide within the temporal frameworks outlined for the modelling sessions (see Appendix B). Thus, the first and second lectures were concerned with how to prepare for the examination during the weeks before the exam, the third lecture gave study suggestions on how to prepare for the test on the morning of the examination, and the final lecture was concerned with how to handle the thoughts and feelings experienced after the examination had been completed. Also, homework assignments were given each week which encouraged the subjects to spend time before the following session implementing the study ideas which had been presented to them during the previous session.

Dependent Measures

Pre-treatment measures were administered to all subjects and included the following:

- (1) Semantic Differential: This scale was developed by Osgood, Suci, and Tannenbaum (1957) as a tool to measure the meanings of words. The Semantic Differential represents "a standardized and quantified procedure for measuring the connotations of a

given concept for an individual" (Anastasi, 1968, p. 534). Each concept is rated on a number of 7-point descriptive scales, with the ends of the scales being bipolar adjectives (they have opposite meanings). Intercorrelations and factorial analyses of the original set of 50 scales developed by Osgood led to three major factors: Evaluative (good-bad, pleasant-unpleasant, clean-dirty); Potency (strong-weak, large-small); and Activity (active-passive, fast-slow).

For quantitative treatment, responses on the Semantic Differential can be assigned numerical values from 1 to 7. The concepts to be rated can be chosen to fit whatever problem is under investigation. The Semantic Differential has been applied in research on such diverse problems as clinical diagnosis and therapy (Osgood & Luria, 1954), vocational choices (Hunt, 1967), and consumers' reactions to products and brand names (Mindak, 1956).

In the present investigation, subjects were asked to rate the concept "MYSELF" on eight descriptive scales. The instructions which were given for the administration of the Semantic Differential are presented in Appendix C, and the measure itself is presented in Appendix D. Two of the scales tapped the activity dimension (slow-fast, active-

passive), and the six remaining scales tapped the potency dimension (wise-foolish, hard-soft, unsuccessful-successful, weak-strong, important-unimportant, rugged-delicate). This measure was employed as an index to determine whether the subjects could benefit from the treatment program. If a ceiling effect existed, the power of the treatment program could not be determined. Thus, the six scales representing the potency dimension were used to check for such a ceiling effect. The responses on each scale were assigned a numerical value from 1 to 7. Consequently, the subjects could potentially score from 0 to 42 on this measure. The mean score obtained was 29, with a standard deviation of 3.712. This score was interpreted as indicative that the subjects would be able to profit from the treatment experience.

- (2) Life History Questionnaire: This measure is a 23-item questionnaire which was constructed by the writer, based upon a similar questionnaire form employed by Lehman (1979) (see Appendix E). It was included in the study in order to obtain relevant personal information from the subjects, which might contribute to an understanding of the results of the present study. Five items of the LHQ were completed by the subjects prior to the treatment

sessions, because it was felt that the treatment might bias the responses of the subjects to these items.

The Post-treatment measures were administered to all subjects at the end of the final week of treatment. These measures included the following:

(1) Otis Self-Administering Test of Mental Ability-Higher Examination-Form A

This measure was included as an estimate of IQ level and as a potential covariate. It has been demonstrated that achievement performance is positively correlated with IQ level (Matarazzo, 1972, pp. 281-288). The original pool of subjects was randomly divided into three treatment groups, and, thus theoretically, the IQ scores should have been normally distributed among the groups. However, to ensure the comparability of the groups, the Otis test was included.

All subjects were administered Form A of the Otis Higher Examination. This is a 75-item, multiple-choice test which must be completed within a 30 minute time period.

Reliability measures have been reported for this instrument, based upon parallel forms of the test. For the Higher Examination, correlation coefficients of .917 (Group I) and .925 (Group II) were obtained between Forms A and B. The values of the probable error of a

score determined from the above groups were 2.56 and 2.68, respectively.

Validity of the test items was established through the method of standardization. The items on the Higher Examination were administered to 1000 high school students in California and in Illinois and to 1000 grammar school pupils in Minnesota. Those items which significantly distinguished between students who progressed slowly through school and those who progressed rapidly through school were included in the test. Other validity indices include a correlation of .889 between the Higher Examination and the Advanced Examination, which was taken two years earlier, based upon a sample of 180 students; a correlation between scores on the Higher Examination and "scholarship," as reported by the principal of a high school in Maine, of .55 for Grade 11 ($N = 240$) and .57 for Grade 12 ($N = 204$); and a correlation between scores on the Higher Examination and scholarship, as reported by teachers of a high school in California, of .59 ($N = 157$).

Based upon the scores of 2516 college students from 21 colleges and universities, the median score on the Higher Examination is 53 points, which can be converted into an IQ score of 111.

(2) Mehrabian-Bank (1978) Achievement Scale

This measure served as one of the three dependent

measures in the present investigation. Based upon Atkinson's Achievement model, this scale represents a measure of the motive to succeed. The scale is a 38-item questionnaire, balanced for response bias, such that 19 items are positively worded and 19 are negatively worded. Subjects are asked to respond to each item by using a 9-point scale which ranges from +4 (strong agreement) to zero (neither agreement nor disagreement) to -4 (strong disagreement) (see Appendix F).

This questionnaire is an expanded version of Mehrabian's (1969) scale. Reliability and validity measures are based on the responses of 76 male and 66 female university undergraduates. Mehrabian reports high internal consistency as evidenced by a coefficient of .91 obtained from use of the Kuder-Richardson formula. The measure is also independent of social desirability, as it correlated .02 with the Crowne and Marlowe (1960) social desirability scale.

The scale correlated with Jackson's (1967) Achievement scale .74, .59 with Mehrabian's (1969) measure of achieving tendency for males, and .68 with Mehrabian's (1969) measure of achieving tendency for females. All three of these correlation coefficients were significant at the .01 level.

The norms reported for this scale for female subjects include a mean score of 46, with a standard deviation of 36.

(3) Test Anxiety Scale (TAS): This measure was published in a manual by Sarason in 1972 and it served as one of the dependent measures in the present investigation. According to Atkinson's achievement model, the TAS was employed to measure the motive to avoid failure. Test anxiety, or the tendency to avoid failure, has been described by Atkinson (1965) as "an inhibitory tendency that functions to oppose and dampen the tendency to undertake achievement-oriented activities" (p. 16). Thus resultant achievement motivation has been defined by Atkinson (1966) as the need Achievement score minus the Test Anxiety score. Mehrabian (1978) originally designed his Achievement scale to reflect the need Achievement score minus the Test Anxiety score quantity; however, a weak negative relationship was found to exist between Mehrabian's scale and the TAQ (Weiner & Potepan, 1970). Consequently, it was decided to include the TAS in the present study.

The TAS consists of 37 statements which were taken from Mandler and Sarason's (1952) Test Anxiety Questionnaire (TAQ). However, the statements were rewritten to fit the requirements of a true-false test rather than the graphic rating scale of the TAQ. The TAS is used as a self-report measure of anxiety which is aroused in a testing situation (see Appendix G).

(4) Midterm Introductory Psychology Examination

Grade: This grade was obtained for all subjects with their verbal permission and it served as the third dependent variable. In terms of Atkinson's Achievement model, the examination grade served as a measure of resultant achievement performance. The examination consisted of 100 multiple-choice questions, which were computer scored. Based upon a population of 1068 students, the mean score obtained on the exam was 65, with a standard deviation of 12.5. A coefficient of internal consistency of .8683 was reported, using the Kuder-Richardson Formula. An item analysis of the examination is completed each year with those items having low discrimination value being discarded. On this basis, the examination grade can be considered a reasonably valid index of achievement behavior.

(5) Life History Questionnaire: The remaining 18 items of this questionnaire, which was described earlier, were completed, following the termination of the treatment program (see Appendix E).

(6) Modelling Evaluation Form: This form was administered to the Modelling Treatment group only, after they had completed the first and the fourth modelling session. This is a 14-item questionnaire to which the subjects responded on a four-point continuum (see Appendix H). The form was constructed by the author,

based upon a similar questionnaire devised by Neath-Gelvin and Kiesler (1975). It includes three main subgroups of items: (1) the first four questions are concerned with the subjects' perceptions of the model's success within the examination situation; (2) the second subset of five questions (#5,6,7,8,14) is concerned with the subjects' self-perceptions of success within the examination situation; and (3) the third subset of four items (#9,10,11,12) is concerned with external (family, peers, society) attitudes toward female competency and success. The questionnaire was included in the study in order to help determine the effectiveness of the modelling treatment.

(7) Weekly Evaluation Form: This questionnaire was completed by the Modelling treatment group after each of the four modelling sessions. The evaluation form was constructed by the writer in order to measure the relevancy of each of the modelling situations to the subjects and to gauge the amount of involvement felt by the subjects during each session. The form consists of three questions, each of which is responded to on a 5-point scale (see Appendix I).

After the initial treatment program had been completed, the no treatment control group was offered the modelling condition, in order to ethically fulfill the original expectancies created by this writer. These

subjects were also requested to complete the Weekly Evaluation Form after each modelling session.

(8) Special Psychology Achievement Test: This 35-item, multiple-choice test was constructed by the writer to coincide with the material being presented in the introductory psychology course during the second trimester, 1979 (see Appendix J). The test items were taken from the test manuals of Siegel (1978), Hoepfner and Chamblin (1974), and Smith and Dallinger (1976). The test was administered to 14 of the Modelling group subjects, in order to ascertain whether any significant modelling effects could be demonstrated after a two month latency period, following the completion of the treatment program. Serving as the sole control group, 14 of the subjects in the Study Skills treatment group also completed the test. At the time of the test administration, the no treatment control subjects had already received the modelling condition, for the reasons described above, and, consequently, they were no longer appropriate for use as control subjects.

Procedure

The procedure which was followed in this investigation is detailed below:

(1) During the summer trimester, 1978, this writer met with 15 volunteer female students from an introductory psychology course at the University of Ottawa to discuss the ideas presented by Horner (1968, 1969, 1971) and Kiesler

(1975) regarding women's behavior in achievement situations. Such a discussion was instrumental to the writer in the construction of the modelling scripts. The scripts were written and then presented to several women graduate students in order to obtain feedback. The scripts were then taken to the thesis proposal committee for approval.

(2) In November, 1978, volunteer subjects were recruited to participate in this study. The writer prepared a brief introduction concerning the purpose of this study and delivered it to four introductory psychology classes at the University of Ottawa. Women who were interested in altering their achievement-related behavior were encouraged to participate. The necessity of committing oneself to the four week program was emphasized. The Pre-treatment measures were administered to all subjects at this time.

(3) One-hundred and twenty female subjects were randomly selected from the list of volunteers and they were randomly assigned to one of the three treatment conditions: (1) Modelling group; (2) Study Skills control group; and (3) No treatment control group. All subjects in the modelling and study skills treatment groups were informed by telephone as to the time and the location in which the treatment sessions would take place. The no treatment control subjects were telephoned and informed that, due to a greater than expected number of volunteer subjects, their treatment sessions would be postponed until after the Christmas break.

(4) Two weeks prior to the initial treatment session, the writer met with the female model to rehearse the scripts that she would be role-playing during the treatment sessions. After this initial rehearsal, the writer met with the model each week prior to the treatment sessions, to ensure an adequate presentation of the scripts.

(5) Five weeks prior to the scheduling of the midterm psychology examination, the first treatment sessions were held. The subjects in the modelling condition met from 12:30 to 1:00 on Wednesday with the live model. The subjects in the study skills group met from 1:00 to 1:30 with the live model. The first session for the modelling group included an Introduction to the sessions and the role-playing of the first modelling script, as detailed earlier. The study skills group received an introduction to the sessions and the first study skills lecture, as described earlier. Both groups of subjects were given homework assignments to complete before the next treatment session. The modelling group completed the Weekly Evaluation Form and the Modelling Evaluation Form after the initial session.

(6) All subjects in the modelling and study skills groups were telephoned and reminded of the session to be held the following Wednesday.

(7) The second session for the modelling and the study skills groups was held the following Wednesday, at the same time and location as the previous week. The respective scripts were presented to each group by the live model.

Homework assignments were given to the subjects to complete before the next session. The modelling group completed the Weekly Evaluation Form after the treatment session.

(8) Subjects in the modelling and study skills groups were telephoned and reminded of the next treatment session.

(9) The third session for the modelling and the study skills groups was held the following Wednesday, at the same time and location as before. The respective scripts for each group were presented by the live model. Homework assignments were given to the subjects to complete before the next session. The modelling group completed the Weekly Evaluation Form after the treatment session.

(10) Subjects in the modelling and study skills groups were telephoned and reminded of the final session to be held the following week.

(11) The fourth and final treatment session was presented to the subjects in the modelling and the study skills groups one week later, at the same time and location as before. The respective scripts were presented to each group by the live model. A conclusion to the sessions was also presented to each group, encouraging the subjects to use the new skills they had learned during the treatment sessions. The modelling group completed the Weekly Evaluation Form and the Modelling Evaluation Form after the final treatment session.

(12) The no treatment control subjects were telephoned and instructed as to the time and place for the completion

of the Post-treatment measures.

(13) All subjects completed the Post-treatment measures on the Thursday and Friday of the fourth week of treatment. Subjects were administered the measures in a group, with the Otis being given first, in order to control for the 30 minute time limit required for this test. After the Otis was completed, subjects were free to complete the remaining measures at their own pace.

(14) Subjects completed the midterm psychology examination the week following the final treatment session.

(15) During the second week of January, 1979, subjects were telephoned in order to gain their verbal permission for the release of their examination grades. Also, at this time, the no treatment control subjects were instructed as to the time and location of the modelling sessions which were being offered to them, to fulfill the writer's ethical responsibilities to provide these subjects with a treatment program.

(16) The modelling treatment was offered to the control group during the first two weeks of February, 1979. The subjects were shown the videotapes of the original sessions, with two sessions given per week for two weeks. The author was interested in the effect that a greater concentration of sessions per week would have on the subjects' achievement-related behavior. The subjects completed the Weekly Evaluation Form after each treatment session. After the completion

of the four-session treatment program, subjects were readministered the TAS and Achievement scales. Only 13 of the original 28 subjects completed these sessions.

(17) The subjects in the modelling and study skills groups were contacted by telephone and asked to meet with the examiner to complete a Special Psychology Achievement Test. The test was administered during the last week of February in four group sessions. Fourteen subjects from each of the two treatment groups completed the testing.

(18) The final stage of the study involved providing the subjects with feedback regarding the purpose and findings of this investigation.

Thus, a detailed description of the subjects, materials, measures, and procedure employed in this investigation has been provided. The following chapter will present the results of the statistical analyses completed on the data. The major experimental hypotheses were tested using a one-way analysis of variance, according to the SPSS computer program package (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). The .05 level was established as an acceptable level of significance in the present study.

Chapter III

Results

In the present investigation, the treatment served as the independent variable: (1) Modelling treatment, which was administered to the experimental group; (2) Study Skills treatment, which was administered to a control group; and (3) No treatment, which involved a second control group. The effects of the treatment condition were measured on the following dependent measures: (1) Mehrabian-Bank (1978) Achievement Scale; (2) Sarason (1972) Test Anxiety Scale (TAS); and (3) midterm grade on the introductory psychology examination at the University of Ottawa (December, 1978).

Initially, statistical analyses were completed in order to ensure that the treatment groups were essentially equivalent on the Otis IQ and Semantic Differential scales and that the use of covariate analysis was not necessary.

Investigation of the Effects of Randomization on the Otis IQ and Semantic Differential Variables

With respect to IQ, the following null hypothesis is tested: There are no significant differences in the Otis IQ scores between the treatment groups. The means, standard deviations, and variances are presented in Appendix K. A one-way analysis of variance is completed, with the treatment

group serving as the independent variable and the Otis IQ score serving as the dependent variable. The F ratio is not statistically significant, $F(2,81) = .152$, $p < .857$ (see Table 1). Consequently, the null hypothesis is not rejected. Further inspection of the means and standard deviations of the treatment groups indicates that the three group means are within .148 standard deviations of each other. Consequently, the treatment groups are considered similar with respect to IQ.

To check whether or not the treatment groups are comparable on the Semantic Differential variable, the following null hypothesis is tested: There are no significant differences between treatment groups on the Semantic Differential score. The means, standard deviations, and variances are presented in Appendix L. A one-way analysis of variance is completed, with the treatment groups serving as the independent variable and the Semantic Differential score serving as the dependent variable. The F ratio is not statistically significant, $F(2,81) = .167$, $p < .845$ (see Table 2). Consequently, the null hypothesis is not rejected. Further inspection of the means and standard deviations of the treatment groups indicates that the three group means are very close, lying within .162 standard deviations of each other. Consequently, the treatment groups are considered similar with respect to the Semantic Differential score.

Having established the comparability of the treatment

Table 1
Summary Table of the Oneway ANOVA for
the Otis IQ Score

Source	df	SS	MS	F	F PROB.
Between Groups	2	46.0625	23.0313	.152	.857
Within Groups	81	12237.9375	151.0856		
Total	83	12284.0000			

Table 2
Summary Table of the Oneway ANOVA for
the Semantic Differential Score

Source	df	SS	MS	F	F PROB.
Between Groups	2	4.6875	2.3438	.167	.845
Within Groups	81	1139.1875	14.0640		
Total	83	1143.8750			

groups with respect to the Otis IQ score and the Semantic Differential score, the next step in the analyses of the data involves a manipulation check, to determine whether the subjects perceived the modelling treatment to be effective. Questionnaires were administered in order to gauge how relevant the subjects perceived the treatment and how involved they felt themselves to become during the treatment sessions.

Analyses Regarding the Effectiveness of the Modelling Treatment

The Weekly Evaluation Forms and the Modelling Evaluation Form were used to ensure treatment effectiveness.

Weekly Evaluation Forms -- Items 1 and 2

The means and standard deviations for the first two items are presented in Appendix M. On the first item, a score of 3 indicates that the subjects found the modelling situation to be moderately relevant for college students in general and, on the second item, a score of 3 indicates that they perceived the sessions to be moderately relevant to themselves. Hence, a mean score of 3 or above over the 4 weeks of treatment is considered as indicating that the subjects felt the treatment to be relevant and scores below 3 suggest that the subjects felt the sessions to be irrelevant. The data indicate that the subjects both perceived the treatment to be relevant for college students in general ($M = 3.50$) and relevant for themselves ($M = 3.13$). However, it should be noted that the subjects rated the sessions as

significantly more relevant for college students in general than they did for themselves, $t(27) = 3.10$, $p < .01$ (see Table 3).

Following the initial sessions, the control group itself was placed in the modelling condition and Weekly Evaluation Forms were given to the subjects to cross-validate the above findings. Again, the subjects perceived the modelling treatment as relevant for college students in general ($M = 3.6$) and they perceived the treatment to be relevant to themselves ($M = 3.45$) (see Appendix N). Consequently, on the basis of the above results, the modelling treatment sessions can be considered as being relevant to the university women who participated in the present investigation.

Modelling Evaluation Form

To further explore the efficacy of the treatment sessions, the responses to the items on the Modelling Evaluation Form are analyzed. The means and standard deviations for each item on this questionnaire completed after Week 1 and Week 4 of the treatment program are presented in Appendix O. A t -test is completed to test the following null hypothesis: There are no significant differences between the mean scores on the Modelling Evaluation Form after the first and fourth weeks of treatment. The t ratio is statistically significant, $t(27) = -2.17$, $p < .05$ (see Table 4). The null hypothesis is rejected and, thus, the treatment sessions can be regarded as effective in increasing perceived success and competency.

Table 3

Difference Between Mean Scores on Items 1 and 2 of
the Weekly Evaluation Form

Variable	N	Mean	Standard Deviation	T-Value	df	2-Tail Prob.
Item 1	28	3.5	.9	3.10	27	.005**
Item 2		3.1	1.2			

**p < .01

Table 4
 Difference Between Mean Scores on the
 Modelling Evaluation Form After
 Week 1 and Week 4

Variable	N	Mean	Standard Deviation	T-Value	df	2-Tail Prob.
Week 1	28	43.143	3.759	-2.17	27	.039*
Week 4		44.786	4.685			

* $p < .05$

The Modelling Evaluation Form is composed of three subgroups of items: (1) those involving the subjects' perceptions of the model's success within the examination situation; (2) those involving the subjects' self-perceptions of success within the examination situation; and (3) those involving external (family, peers, and society) perceptions of female success and competency. The means and standard deviations for each subgroup of items after the first and fourth weeks of treatment are presented in Appendix P. A t-test is completed between the mean scores after the first week of treatment and those after the fourth week of treatment for each subgroup of items. The results indicate that the subjects perceived the model as being significantly more successful within the examination situation after the fourth session than after the first session, $t(27) = 4.61, p < .001$ (see Table 5). However, there are no significant differences in self-perceptions from the first to the fourth week, $t(27) = .76, p < .456$, or in the external perceptions regarding female success and competency from the first to the fourth week, $t(27) = .42, p < .676$ (see Table 5).

Consequently, the subjects perceived the modelling treatment as effective for the model. However, the treatment sessions did not alter the subjects' self-perceptions of success within the examination situation, nor did the sessions alter the subjects' perceptions of external attitudes toward female success and competency.

Table 5

Differences Between Mean Scores on
Modelling Evaluation Form After
Week 1 and Week 4 for the Three Subgroups of Items

Variable	N	Mean	T-Value	df	2-Tail Prob.
Subgroup 1					
Week 1	28	11.714	-4.61	27	.000***
Week 4		13.679			
Subgroup 2					
Week 1	28	16.821	.76	27	.456
Week 4		16.607			
Subgroup 3					
Week 1	28	11.893	.42	27	.676
Week 4		11.786			

***p < .001

Weekly Evaluation Form -- Item 3

Given the above, it is decided to check the involvement of the subjects within the modelling treatment by using item 3 of the Weekly Evaluation Form. The means and standard deviations are presented in Appendix Q. A score of 3 indicates that the subjects felt moderately involved during the sessions. Hence, a mean score above 3 over the 4 weeks of treatment is considered as indicating that the subjects were involved in the sessions and scores below 3 are indicative that the subjects felt uninvolved during the sessions. The data indicate that the subjects rated themselves as moderately involved ($M = 3.31$).

The subjects in the control group, who completed the modelling sessions following the initial treatment program, also completed item 3 on the Weekly Evaluation Form. They also perceived themselves as being moderately involved in the sessions ($M = 3.4$) (see Appendix Q).

Consequently, the subjects can be considered as moderately involved in the treatment sessions.

To summarize, these tests indicate that the subjects perceived the modelling treatment used in this study as moderately relevant, more relevant for the college population in general than for themselves, and, over time, they perceived the gains made by the model, rather than the gains made by themselves. They also reported being moderately involved during the sessions. Thus the treatment may be regarded as

significant and effective, but as a mild treatment.

Once the comparability of the treatment groups has been established and the effectiveness of the manipulation studied, analyses related to the testing of the experimental hypotheses are computed and described below.

Pearson Correlation Coefficients Between Test Measures

A matrix of intercorrelations is computed among the following variables: (1) Otis IQ; (2) Semantic Differential; (3) Mehrabian-Bank Achievement Scale; (4) Test Anxiety Scale; and (5) the midterm psychology examination score (see Appendix R). Significant positive correlations are found between the Otis IQ score and the midterm psychology exam score ($r = .4100$), and between the Semantic Differential score and the Achievement score ($r = .5298$). A significant negative correlation is found between the Otis IQ score and the Test Anxiety score ($r = -.4307$). Contrary to the data reported by Mehrabian (1969), the relationship between the Achievement Scale and the TAS, although negative, cannot be considered significant ($r = -.1920$, $p < .08$).

Because no significant correlations are found to exist between the dependent measures (Achievement Scale, TAS, and Midterm grade), three one-way analyses of variance are computed to test the experimental hypotheses, as opposed to one multivariate analysis of variance.

Analyses of Variance

The following experimental hypotheses are tested:

(1) The Modelling treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in university women than is the Study Skills control treatment.

(2) The Modelling treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in university women than is no treatment.

(3) The Study Skills treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the Test Anxiety Scale, and a higher score on the midterm psychology examination in university women than is no treatment.

The first analysis of variance tests the effects of the Modelling treatment on the Achievement score. The means, standard deviations, and variances for each group on this scale are presented in Appendix S. The F ratio is not statistically significant, $F(2,81) = .839$, $p < .439$ (see Table 6). The modelling treatment is not significantly more effective in promoting achievement behavior than are the control treatments.

The second analysis of variance tests the effect of the modelling treatment on the Test Anxiety score. The means, standard deviations, and variances on the TAS for each group

Table 6
Summary Table of the Oneway ANOVA for
the Achievement Score

Source	df	SS	MS	F	F PROB.
Between Groups	2	1390.1250	695.0625	.839	.439
Within Groups	81	67111.8125	828.5408		
Total	83	68501.9375			

are presented in Appendix T. The F ratio is not statistically significant, $F(2,81) = 2.180$, $p < .117$ (see Table 7). The effectiveness of the modelling treatment in reducing test anxiety is not confirmed.

The third analysis tests the effects of the modelling treatment on the midterm grade on the introductory examination. The means, standard deviations, and variances for each group on this examination are presented in Appendix U. The F ratio is not statistically significant, $F(2,81) = .295$, $p < .749$ (see Table 8). The modelling treatment is not more effective than the control treatments in promoting higher examination scores on the psychology midterm.

Item Analyses of the Dependent Measures

Given the fact that the above hypotheses cannot be confirmed, certain speculations are made as to the underlying reasons and are presented below. First, some of the items of the Test Anxiety and Achievement Scales might have low discrimination value and thus might have reduced the power of the treatment. In order to investigate this hypothesis, an item analysis is completed for both of these measures.

The item analysis of the TAS yields 10 items which do not correlate significantly with the total score on the test. Therefore, the TAS tests are rescored, omitting these 10 items. The revised means, standard deviations, and variances for each of the groups are presented in Appendix V. The one-

Table 7

Summary Table of the Oneway ANOVA for
the Test Anxiety Score (TAS)

Source	df	SS	MS	F	F PROB
Between Groups	2	170.6484	85.3242	2.180	.117
Within Groups	81	3169.9414	39.1351		
Total	83	3340.5898			

Table 8
Summary Table of the Oneway ANOVA for
the Midterm Examination Grade

Source	df	SS	MS	F	F PROB.
Between Groups	2	55.3125	27.6563	.295	.749
Within Groups	81	7600.7500	93.8364		
Total	83	7656.0625			

way analysis of variance is redone, using the revised scores on the TAS. The F ratio is not statistically significant, $F(2,81) = 1.563$, $p < .214$ (see Table 9). Therefore, even when the non-discriminating items are removed from the dependent variable, the non-significant results of the analysis of variance remain.

A second item analysis is computed on the Mehrabian-Bank Achievement Scale. All items except one (#10) correlate significantly with the total Achievement score. Therefore, the scale seems to hold up under the scrutiny of the item analysis and the previous analysis of variance is accepted.

Consequently, the TAS and Achievement Scales seem to be reasonably valid indices and, therefore, poor item discrimination on these measures does not explain why the predictions in this study are not confirmed. Further speculation as to why significance cannot be established leads to an exploration of the power of the statistical tests which were used to test the major experimental hypotheses.

Power of the Test

The power of a statistical test, with respect to the experimental hypothesis, is the probability that the decision rule rejects the null hypothesis when in fact it is false (Winer, 1971). In the present investigation, the power of the analysis of variance is computed for each of the dependent variables, using the tables provided by Cohen (1969). For

Table 9

Summary Table of the Oneway ANOVA for the
Revised Test Anxiety Score (TAS)

Source	df	SS	MS	F	F PROB.
Between Groups	2	90.7383	45.3691	1.563	.214
Within Groups	81	2351.6797	29.0331		
Total	83	2442.4180			

the Achievement Scale, the power of the test is 21%. Consequently, there were 21 chances out of 100 that the null hypothesis would be rejected, when in fact it should have been rejected 100% of the time ($\alpha = .05$, the number of treatments (k) = 3, and $n = 28$). For the TAS, the power of the test is found to be 45% ($\alpha = .05$, $k = 3$, and $n = 28$). Finally, for the midterm psychology exam, the power of the test is less than 11% ($\alpha = .05$, $k = 3$, and $n = 28$). Thus, since the power of the three statistical tests employed is low, the chances of establishing significance in the study are relatively poor. Due primarily to the minimal differences between treatment means on the dependent measures, the power would have remained low, even if the sample size had been doubled. Consequently, the notion that the treatment was weak is further supported.

Effect of Personal Involvement Upon Dependent Measures

Since the treatment was a mild but significant one, it is possible that the treatment would be more powerful for the subjects who reported the more personal involvement than for those who did not report it. Therefore, the subjects in the modelling group are divided into two groups, on the basis of their scores on items 2 and 3 of the Weekly Evaluation Form, to see if the experimental hypotheses can be supported by one subgroup and not the other. Those subjects who have a mean score greater than 3 on these two items combined are indicating that they found the modelling sessions to be at

least moderately relevant to them and/or they felt at least moderately involved in the sessions. These subjects ($n = 18$) are placed in the High Relevancy/Involvement Group. Those subjects who have a mean score of less than 3 on the two items are placed in the Low Relevancy/Involvement Group ($n = 10$). T-tests are completed to test the following null hypothesis: There are no significant differences in achievement behavior, as measured by the Achievement Scale, the TAS, and the midterm psychology examination score, between subjects in the High Relevancy/Involvement Group and those in the Low Relevancy/Involvement Group. A t-test is completed on the Achievement scores between the two groups and the t ratio is not statistically significant, $t(26) = .576$, $p < .568$. A second t-test is completed on the TAS scores and the t ratio is not statistically significant, $t(26) = .354$, $p < .725$. Finally, a third t-test is completed between the two groups on the midterm examination score. The t ratio is not statistically significant, $t(26) = 1.29$, $p < .208$. Therefore, the null hypothesis cannot be rejected (see Table 10).

Thus, the subjects who perceived the treatment sessions as relevant to themselves and who were involved in the sessions did not score significantly higher in achievement behavior, as measured by the dependent variables, than those low on the Relevancy/Involvement index.

Effect of Perceived Similarity To Model Upon Dependent Measures

A live model was employed in the present study in order to

Table 10
Differences Between Mean Scores on
Dependent Measures as a Function of Level of
Involvement of Subjects

Variable	N	Mean	Standard Deviation	T- Value	df	2-Tail Prob.
Achievement						
Low	10	70.300	24.056	.576	26	.568
High	18	62.556	38.139			
TAS						
Low	10	15.300	5.697	.354	26	.725
High	18	14.556	5.078			
Exam						
Low	10	72.600	9.454	1.290	26	.208
High	18	67.500	10.291			

increase perceived similarity between the model and the subjects. Perceived similarity was measured by item 5 of the Modelling Evaluation Form, which was administered after the first and fourth treatment sessions. A score of 1 or 2 on the item indicates perceived dissimilarity to the model, while a score of 3 or 4 indicates perceived similarity. After the first treatment session, subjects reported themselves to feel somewhat similar to the model ($\bar{M} = 2.7$) and, after the fourth treatment, there was no substantial change in these perceptions ($\bar{M} = 2.7$) (see Appendix O). In order to determine whether perceived similarity to the model was facilitative in promoting modelling effects and, thus, in increasing achievement behavior, subjects are divided into two groups, a High Similarity and a Low Similarity Group, with the mean score serving as the point of division. Thus, subjects who have a score above the mean of 2.7 are placed in the High Similarity Group ($n = 17$), while those scoring below 2.7 are placed in the Low Similarity Group ($n = 11$). A t -test is conducted between the two groups for each of the dependent measures. The t ratio on the Achievement Scale is not statistically significant, $t(26) = .04$, $p < .969$; the t ratio on the TAS is not statistically significant, $t(26) = -1.44$, $p < .162$; and the t ratio on the midterm examination is not statistically significant, $t(26) = .97$, $p < .340$ (see Table 11). Consequently, perceived similarity to the model does not have a significant impact on level of

Table 11
Differences Between Mean Scores on the
Dependent Measures as a Function
of Perceived Similarity to Model

Variable	N	Mean	Standard Deviation	T- Value	df	2-Tail Prob.
Achievement						
Low	11	65.636	35.121	.04	26	.969
High	17	65.118	33.528			
TAS						
Low	11	13.091	4.230	-1.44	26	.162
High	17	15.941	5.595			
Exam						
Low	11	71.636	11.902	.97	26	.340
High	17	67.824	8.869			

achievement behavior, as measured by the dependent variables.
Effect of Self-Expectations for Success Upon Dependent Measures

Frieze (1975) and Tangri (1975) proposed that a woman's expectations for success are instrumental to her level of achievement performance. In order to test this hypothesis, the responses of the Experimental group to the second subgroup of items on the Modelling Evaluation Form are studied. This evaluation form had been administered after the first and fourth weeks of treatment, with no significant difference found between the scores of the two administrations. Thus, in the present analysis, the responses obtained after the fourth week of treatment are arbitrarily selected to represent subjects' self-expectations for success. A median split is completed, in order to divide the subjects into a High Expectations and a Low Expectations Group. With a median score of 16.5, 14 subjects are placed into the High Expectations Group and 14 subjects are classified in the Low Expectations Group. An analysis of covariance is conducted between these two groups, on each of the dependent measures, with IQ serving as the covariate. The F ratio on the Achievement measure is statistically significant, $F(1,27) = 11.142$, $p < .003$ (see Table 12); the F ratio on the TAS measure is not statistically significant, $F(1,27) = .878$, $p < .358$ (see Table 13); and the F ratio on the examination measure is statistically significant, $F(1,27) = .4.026$, $p < .050$ (see Table 14).

Table 12
 Summary Table of the ANCOVA
 for the Achievement Scale

Source	df	SS	MS	F	F PROB.
Covariates					
IQ	1	4290.121	4290.121	5.956	.022
Main Effect					
TRT	1	8025.086	8025.086	11.142	.003*
Explained	2	12315.207	6157.602	8.549	.001
Residual	25	18006.863	720.274		
Total	27	30322.070	1123.040		

** p < .01

Table 13
Summary Table of the ANCOVA
for the TAS Scale

Source	df	SS	MS	F	F PROB.
Covariates					
IQ	1	109.586	109.586	4.541	.043
Main Effects					
TRT	1	21.184	21.184	.878	.358
Explained	2	130.770	65.385	2.709	.086
Residual	25	603.335	24.133		
Total	27	734.105	27.189		

Table 14
 Summary Table of the ANCOVA
 for the Examination Grade

Source	df	SS	MS	F	F PROB.
Covariates					
IQ	1	395.488	395.488	4.830	.037
Main Effects					
TRT	1	329.640	329.640	4.026	.050*
Explained	2	725.128	362.564	4.428	.023
Residual	25	2046.977	81.879		
Total	27	2772.105	102.671		

*p < .05

Consequently, higher expectations for success, with the effects of IQ level removed, are facilitative in promoting Achievement and examination performance, but do not significantly impact upon level of test anxiety.

Analysis of Post Hoc

Given the original expectancies which had been created in the no treatment control subjects, the writer felt ethically committed to provide them with the modelling treatment after they had served their function as control subjects. This gave the opportunity for the following analysis.

Thirteen of the original 28 control subjects attended the modelling sessions twice per week for two weeks, as opposed to once a week for four weeks as in the original study, in order to evaluate the effects of a more concentrated program. The TAS and Achievement Scales which they completed as a post-treatment measure in the original study were used as pre-treatment measures in the present analysis. The subjects were retested on these measures after the modelling sessions (see Appendix W), in order to test the following null hypothesis: There are no significant differences in achievement behavior, as measured by the Achievement and TAS Scales, before and after a modelling program. A t -test between the pre- and post-treatment measures of the Achievement Scale yields a statistically non-significant t ratio, $t(12) = -1.52$, $p < .155$. The t -test computed on the pre- and post-treatment measures of the TAS leads to a statistically non-significant t ratio, $t(12) = -.34$, $p < .739$ (see Table 15). Consequently, the null hypothesis cannot be rejected.

Table 15

Difference Between Mean Scores on the Pre- and
Post-Tests of the Achievement Scale and
the Test Anxiety Scale (TAS)

Variable	N	Mean	Standard Deviation	T- Value	df	2-Tail Prob.
Achievement						
Pre	13	52.385	24.599	-1.52	12	.155
Post		59.000	27.234			
TAS						
Pre	13	15.923	7.826	- .34	12	.739
Post		16.308	7.920			

Analysis of Post Hoc Employing a Special Psychology Achievement Test

Before concluding that the hypotheses in this study cannot be confirmed, a final analysis is completed to test the idea that the modelling effects, while not immediately accessible following treatment, might influence behavior following an initial latency period. In order to test this hypothesis, two months after the treatment was completed, subjects in the modelling group and in the study skills control group were asked to complete a special Psychology Achievement Test, as described in the previous chapter. The study skills group served as the sole control group for this analysis, due to the fact that the no treatment control group had already received the modelling condition, as explained earlier in this chapter. The means, standard deviations, and variances are presented in Appendix X. Thirteen subjects from each of the two treatment groups participated, to test the following null hypothesis: There are no significant differences in achievement-related behavior, as measured by the Special Psychology Achievement Test, between subjects who received the modelling treatment and those who received the study skills control treatment two months prior. The t -test indicates that there are no significant differences between the scores of the two groups, $t(24) = -.18$, $p < .858$ (see Table 16). Consequently, the null hypothesis cannot be rejected.

Table 16
 Difference Between Mean Scores on the
 Special Psychology Achievement Test for the
 Modelling and the Study Skills Groups

Variable	N	Mean	Standard Deviation	T- Value	df	2-Tail Prob.
Special Achievement Test						
Modelling	13	22.462	4.737	-.18	24	.858
Study Skills		22.769	3.919			

In summary, the statistical analyses of the data are unable to confirm the experimental hypotheses^p. The modelling treatment is not statistically more effective in promoting achievement behaviors in university women than are the control treatments. However, the power of the statistical tests is low, suggesting that it is difficult to establish significance under the conditions of the present investigation. Also, expectations for success are found to be instrumental to achievement behavior, as measured by the Achievement Scale and the examination performance, but not by the TAS.

Analyses Investigating the Applicability of Atkinson's Achievement Model

Past research has reported inconsistent findings regarding the adequacy of Atkinson's achievement model in describing female achievement behavior. To test the applicability of this model to the group of university women employed in the present study, and thus to offer further empirical evidence in regards to this issue, the following analyses are completed.

According to Atkinson's model, performance on the midterm examination is expected to be greater for women high in need achievement than it is for those low in need achievement. In order to test such a prediction, a median split is completed on the scores from the Mehrabian-Bank Achievement Scale. With a median score of 59.5, 42 subjects fall into the High Need Achievement Group and 42 subjects are placed into the

Low Need Achievement Group. A t -test is conducted between the two groups, with the examination scores serving as the dependent variable. The t ratio is not statistically significant, $t(82) = -1.55$, $p < .126$ (see Table 17). Therefore, the strength of the motive to succeed, as measured by the Mehrabian-Bank Achievement Scale, does not have a significant impact upon performance level on the midterm examination.

The motive to avoid failure is regarded as an inhibitory factor to achievement behavior. Thus, according to Atkinson's model, subjects low in this motive should perform better on the midterm examination than those high in this motive. In order to test this hypothesis, TAS scores are divided into two groups, based upon a median split. With a median score of 15.5, 42 subjects are considered as High in test anxiety and 42 subjects as Low in test anxiety. A t -test is conducted between the two groups, with the examination score serving as the criterion variable. The t ratio is not statistically significant, $t(82) = .85$, $p < .397$ (see Table 17). The strength of the motive to avoid failure, as measured by the TAS, does not have a significant effect upon performance level on the midterm examination.

Consequently, as individual motives, neither the motive to succeed nor the motive to avoid failure, as defined in the present study, are able to predict performance on the midterm examination.

Atkinson defined resultant achievement motivation as the

Table 17
Differences Between Mean Scores on the
Midterm Examination as a Function of Level of
Achievement and Level of Test Anxiety |

Variable	N	Mean	Standard Deviation	T- Value	df	2-Tail Prob.
Exam						
Low Achievement	42	68.786	9.792	-1.55	82	.126
High Achievement		72.000	9.250			
Exam						
Low TAS	42	71.286	9.590	.85	82	.397
High TAS		69.500	9.651			

strength of the motive to succeed minus the strength of the motive to avoid failure ($M_S - M_{AF}$). According to this model, subjects who have a higher resultant achievement motive ($M_S > M_{AF}$) are expected to perform better on the midterm examination than those who have a lower resultant motive ($M_{AF} > M_S$). To test this hypothesis, a median split is completed on the Mehrabian-Bank Achievement Scale scores and the Test Anxiety Scale scores, as indicated above, and the subjects are classified, accordingly, into the following four groups: (1) High Need Achievement - Low Test Anxiety ($n = 24$); (2) Low Need Achievement - High Test Anxiety ($n = 24$); (3) High Need Achievement - High Test Anxiety ($n = 18$); and (4) Low Need Achievement - Low Test Anxiety ($n = 18$). A one-way analysis of variance is performed, with Groups serving as the independent variable and the midterm examination score serving as the dependent variable. The F ratio is not statistically significant, $F(3,80) = .929$, $p < .431$ (see Table 18). The strength of the resultant achievement motive, as defined by the Mehrabian-Bank Achievement Scale score minus the Test Anxiety Scale score, has not been shown to have a significant impact upon performance level on the midterm examination.

In summary, the applicability of Atkinson's achievement model to the group of university women employed in the present investigation has not been supported.

Conclusion

Table 18

Summary Table of the Oneway ANOVA for the
 Midterm Examination Score as a
 Function of Level of
 Resultant Achievement Motivation

Source	df	SS	MS	F	F PROB.
Between Groups	3	257.6693	85.8898	.929	.4308
Within Groups	80	7398.3398	92.4792		
Total	83	7656.0078			

Statistical analyses of the data are unable to confirm the experimental hypotheses. The modelling treatment is not more effective in promoting achievement behaviors in university women than are the control groups. However, the power of the statistical tests is quite low and, thus, significance is difficult to establish under the conditions of the present study. The modelling treatment is shown to be effective in altering subjects' perceptions of the model's success within the examination situation, but self-perceptions of success and subjects' perceptions of external attitudes toward success are not affected by the treatment manipulation. Thus it is concluded that the treatment can be considered significant, but weak. Personal involvement in the treatment sessions does not impact upon achievement behavior nor does perceived similarity to the model. However, expectations for success are instrumental in promoting achievement behavior, as measured by the Achievement Scale and examination performance, but not by the TAS. The modelling effects do not influence achievement behavior, as measured by a Special Psychology Achievement Test, following a two month latency period. Finally, it is demonstrated that Atkinson's achievement model is inadequate to predict female achievement behavior in the present study.

The following section will discuss the implications of these results, with suggestions for future research in this area offered.

Chapter IV

Discussion

The present investigation is concerned with the achievement-related behavior of university women, as a function of a modelling treatment program. Eighty-four university women were randomly divided into three treatment groups: (1) Modelling treatment group; (2) Study Skills treatment control group; and (3) No treatment control group. The effects of the treatment sessions in promoting achievement behavior were measured on the following dependent variables: (1) Mehrabian-Bank Achievement Scale; (2) Sarason Test Anxiety Scale (TAS); and (3) the midterm grade on the introductory psychology examination (December, 1978). The three major experimental hypotheses under investigation were the following:

(1) A Modelling treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the TAS, and a higher score on the midterm examination in university women than is a Study Skills control treatment.

(2) A Modelling treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the TAS, and a higher score on the mid-

term examination in university women than is no treatment.

(3) A Study Skills control treatment is more effective in promoting a higher score on the Mehrabian-Bank Achievement Scale, a lower score on the TAS, and a higher score on the midterm examination than is no treatment.

Statistical analyses of the data were unable to confirm the hypotheses. The modelling treatment was not statistically more effective in promoting achievement behaviors in university women than were the control treatments.

Although the subjects perceived the model as being more successful within the examination situation after the fourth treatment session than she was after the first session, they did not alter their self-perceptions of success, nor did they respond with more positive achievement behaviors on the dependent measures employed. Consequently, the modelling treatment can be considered as significant and effective, because it did promote change in the subjects' perceptions of the model's success, but it must be considered as a mild treatment, in the sense that it did not have a significant impact on the subject's achievement behavior.

Despite the fact that the treatment was only mildly effective, it was designed to be a strong treatment. In fact, on paper, it was a more powerful treatment than had been proposed in past research. The present study took into consideration the limitations of the treatment proposed by Neath-Gelvin

and Kiesler (1975) and attempted to improve upon them by (1) employing a live model, instead of a paper-and-pencil description of a model; (2) increasing the number of exposures to the model from one session to four sessions; and (3) presenting the model as a coping model, as opposed to a mastery model. Despite such attempts to enhance treatment effectiveness, the modelling condition did not have a significant impact upon the achievement behavior of the subjects.

In an effort to understand the implications of these findings, the following issues are presented.

Power of the Treatment Condition

Modelling has been demonstrated to be instrumental in the development of sex-appropriate behaviors. Through the socialization process, parents model and reinforce appropriate sex-role behaviors for their children (Parsons, Frieze, & Ruble, 1976). However, in the present investigation, the writer is interested in altering the previously established sex-role attitudes and behaviors manifested by women in achievement situations.

Mussen (1973) suggested that such sex-role behaviors become fairly well-established in children by the approximate age of four years. Once these behaviors are established, they tend to be maintained over a considerable span of time. Kagan and Moss (1962) supported the idea that sex-role behaviors are highly stable behavior patterns. Employing the subjects from the Fels Research Institute's longitudinal

population, they studied the relationship between childhood and adulthood manifestations of such characteristics as aggression, passivity, dependency, achievement motivation, anxiety, heterosexual behavior, and sex-typed activities. The subjects were intensely observed at four developmental periods during childhood and rated on each of the characteristics. When the subjects were between the ages of 20 to 30 years, each characteristic was reassessed. Kagan and Moss reported that the tendency to act in sex-appropriate ways was highly stable from early childhood to adulthood for both men and women.

In light of the above, the achievement behaviors of university women may be quite difficult to alter, due to their stability and long-term reinforcement by parents, peers, and society. Four exposures to a live model were insufficient to effect change and it is unlikely that merely increasing the exposures to the model would provide a sufficiently powerful treatment.

Bandura and Jeffery (1973) demonstrated that modelling effects can be facilitated by rehearsal of the modelled response. Such rehearsal, whether accomplished overtly or covertly, allows the individual to form a "summary representation" of the model's behavior and thus increases the retention of the modelled response. Thus, in the present investigation, a more powerful treatment package would include both the modelling and the behavioral rehearsal of appro-

priate achievement behaviors. Although the subjects were encouraged to complete homework assignments after each treatment session, which would have required the behavioral rehearsal, the execution of such exercises was not under the systematic control of the experimenter. Thus, the impact of behavioral rehearsal upon the achievement behavior of the subjects could not be determined, and, therefore, warrants further investigation.

In addition to increasing the retention of modelled responses, a performance-oriented approach contributes several additional dimensions to the modelling package. Culbertson (1957) demonstrated that subjects }who participated in a 15 minute role-playing session differed significantly on several measures from subjects who simply observed the session. Participants spent more time attending to the given role than did observers, they showed a higher level of emotional involvement in the role than did observers, and they perceived the drama in terms of feelings, thoughts, and emotions, whereas the observers perceived the session in terms of the situation and action of the characters. Thus, the involvement of the participants in the sessions seems to differ both quantitatively and qualitatively from that of the observers.

Such a distinction in the type of involvement evidenced by the subjects is fruitful in the understanding of the results of the present study. The subjects in this study may be classified as "observers" in the sense that they were not

placed in a role-playing condition. Although they reported an overall feeling of involvement in the sessions, it is likely that such involvement remained on a cognitive level, with minimal affective, experiential participation occurring. Such a hypothesis is supported by the findings that the subjects, as "observers", were able to "see" the progress in achievement behavior made by the model as a result of the treatment, but they did not alter their self-perceptions of success, nor did they incorporate the modelled responses and demonstrate behavioral changes in achievement, as a result of the treatment.

In other words, the methodology of the treatment program did not require that the subjects become involved in the kinesthesia of the modelling sessions. Using Bandura's words (1977), "symbolic procedures have much to contribute as components of a multiform performance-oriented approach, but they are insufficient by themselves" (p. 79). The modelling treatment alone may have provided the cognitive impetus necessary to effect behavioral change, but neglected the experiential dimension. Thus, future research is warranted, in which the treatment used in the present study is taken one step further to include modelling sessions coupled with a role-playing or behavioral rehearsal condition.

In addition to increasing the level and quality of involvement of the subjects, overt behavioral rehearsal also provides a source of feedback for the subjects as to the correct-

ness of the new behavioral responses they are attempting. Such a "corrective learning experience" has been suggested by Bandura (1977) to be facilitative to behavioral change. It provides an opportunity for the subjects to experience the impact of their new behaviors and to gain a sense of mastery as a result of their successful performance. In Bandura's terms (1977), subjects' "expectations of personal efficacy" are increased as a result of a successful performance. Without a performance-oriented component included in the modelling process, "individuals can come to believe that a particular course of action will produce certain outcomes, but question whether they can perform these actions" (p. 79).

Thus, in the present investigation, the subjects may have estimated that the model's behavior would lead to successful achievement performance, and, consequently, they perceived her as more successful as a result of the treatment. However, their expectations of personal efficacy (self-expectations for success) were not altered by the modelling treatment and, thus, no behavioral changes were recorded on the dependent measures. It is likely that, had the expectations of the subjects been increased through the inclusion of a performance-oriented condition, achievement behavior may have been increased. Such a hypothesis is suggested by Bandura (1977) and supported by the findings in the present study that women who had higher expectations for success demonstrated greater achievement behavior on the Mehrabian-Bank Achieve-

ment Scale and the midterm examination.

In summary, the results of the present investigation suggest that the treatment package employed was not powerful enough to effect change in the achievement behavior of the university women, as measured by the dependent measures. Women's attitudes and behaviors within achievement situations are engrained during childhood and remain relatively stable over time. In order to alter such resistant behaviors, it is suggested that the treatment package include a performance dimension, as required by a role-playing or behavioral rehearsal condition. Such a condition would promote greater attention to and retention of modelled responses in the subjects, in addition to providing a more experiential dimension to the treatment. Also, feedback would be available to the subjects regarding the correctness of their performance and, thus, subjects would have an opportunity to increase their self-expectations for success. Such additional components included in the modelling treatment are considered by Bandura (1977) to be facilitative to behavioral change.

There is strong evidence to suggest that a performance-oriented condition may provide a more powerful treatment package. However, Sears, Rau, and Alpert (1965) would advocate placing more emphasis on the relationship between the model and the subjects, in order to enhance treatment effectiveness. They argued that social learning theory principles provide an incomplete explanation for the development



of sex-role related behaviors. They rejected the imitation hypothesis as being "deceptively simple" and proposed that sex-role related behavior is acquired through the more subtle process of identification.

...sex typing has been interpreted by non-psycho-analytic theorists as an instance of primary identification. Gender roles are very broad and very subtle. It would be difficult to imagine that any kind of direct tuition could provide for the learning of such elaborate behavioral, attitudinal, and manneristic patterns as are subsumed under the rubrics of masculinity and femininity (1965, p. 171).

Bandura and Walters (1963) denied that there is a distinction between what has been referred to as imitation and as identification. However, Kagan (1958) argued that the identification process is based upon an intimate relationship between the identifier and the model, whereas, the imitation process emphasizes the learning of specific, discrete behaviors.

According to the developmental identification hypothesis espoused by Sears et al. (1965), the principal factors for instigating identification are the love and affection the identifier has for the model. Thus, if the child's relationship to his parent is nurturing and rewarding, that parent's behavior, including his/her activities, speech, and mannerisms, acquires positive value. In the parent's absence, the child will manifest these behaviors in order to reproduce some of the feelings originally associated with the parent's presence.

Thus, in the present investigation, if one accepts the

identification hypothesis as a more complete theoretical explanation for the acquisition of achievement-related behaviors in women, the relationship established between the model and the subjects becomes of primary importance. Although the results of the study indicated that the subjects perceived the model as being somewhat similar to themselves, the subjects did not have the opportunity to establish an intimate relationship with the model over the four week period of the treatment program. This lack of an in-depth relationship between the model and the subjects could help to explain why the successful achievement behaviors attributed to the model were not incorporated by the subjects.

In order to further explore the effect that the quality of the relationship between the model and the subjects has on the acquisition of achievement behaviors, further research is warranted. Such research might consider a treatment design involving individual sessions between the model and the subjects. The one-to-one contact would enable the necessary bonding between the model and the subject to occur. An example of such a treatment paradigm is offered by the writer. A university student who is experiencing difficulties in her achievement behavior would be paired with a woman who is an exemplar student and who could serve as a strong role model. Their interactions as roommates over a school term would serve as the modelling treatment. The exemplar student would be the collaborator of the investigator and would provide

a natural modelling experience for the other student within a highly individualized, intimate, on-going interaction. The university student may be aware that the living arrangement is an experimental situation; however, there would be no necessity for disguising the conditions. Such a paradigm would provide a real live context in which identification is likely to take place.

In summary, there is strong evidence to suggest that the modelling treatment employed in the present study was weak. Two reasons are proposed in order to explain why the treatment was not as powerful as it was originally designed to be: (1) the achievement behavior of women is a sex-appropriate behavior which is deeply engrained in childhood and is highly resistant to change; therefore, a treatment more powerful than the modelling condition is needed to effect change; and (2) the social learning theory principles are incomplete in their explanation of the development of sex-role behavior, and the identification hypothesis provides a more complete rationale. In order to test the above ideas, future research is warranted.

Issues Related to the Dependent Measures

The effectiveness of the treatment program can be measured only to the extent that the dependent measures employed are valid. In the present investigation, achievement behavior was measured in terms of Atkinson's achievement model. This model has been demonstrated to be predictive of male achieve-

ment behavior, but has been inconsistent in the prediction of female achievement behavior (Bardwick, 1971). In order to provide further empirical data regarding the applicability of the model to the female, analyses were completed using the test scores on the dependent measures of the 84 university women employed in the present study. Neither the motive to succeed, as measured by the Achievement Scale, nor the motive to avoid failure, as measured by the Test Anxiety Scale, were shown to significantly impact upon students' achievement performance on the midterm examination. The resultant achievement motive, as measured by the Achievement Scale score minus the Test Anxiety Scale score, also did not have a significant impact upon examination performance. Consequently, the analyses support the contention that the achievement model is not predictive of the university women's achievement behavior.

One way of understanding such results is to take the view that the criterion measure employed, examination performance, is not conducive to the study of achievement behavior as defined within Atkinson's model. It has been speculated that the study of achievement behavior can be accomplished on three levels. Researchers describe achievement in terms of performance on (1) trivial tasks such as anagram tests, or (2) one shot academic tasks including university examinations, or (3) life-time career performance. It has been further suggested that the study of achievement behavior within Atkinson's model

may be most appropriate at the third level, although researchers continue to work at the first and second levels.

In the present investigation, performance on a midterm examination was employed as the criterion measure, which indicates that the study of achievement was measured on the second level. Although it can be argued that level of academic performance is very much related to later career performance and thus to a study of achievement performance on the third level, the use of examination scores may have restricted the generalizability of results to the second level. Consequently, future research may consider employing a criterion measure which more directly describes achievement behavior on the third level. In doing so, Atkinson's model may prove efficacious in predicting the achievement behavior of women.

Another way of understanding such results is that, irrespective of the type or power of the treatment program, the dependent measures employed, as defined within Atkinson's model, are inadequate to describe the achievement phenomenon of women. Cronbach (1970), as well as Mehrabian (1975) and others, have suggested that it is generally males who construct the instruments to measure achieving tendency and, consequently, these measures may not be appropriate to describe the achievement phenomenon of women. Mehrabian (1975) suggested that, in light of the fact that theories of achievement have not been shown to relate well to females

Farley, 1972; Weiner & Potepan, 1970), "a different or altered theory is necessary to account for achievement in women" (p. 12). The achievement phenomenon from the point of view of the woman may be experienced differently from that of a male and, consequently, may need to be described and measured in a different manner. Rather than attempting to "fit" women into an achievement model which was established based upon a male population, it may be more efficacious to design a model which is salient for women.

Bardwick's (1971) distinction between the affiliative and achievement motives in women, Horner's (1968, 1969, 1971) research on the "Fear of Success" phenomenon, and Tangri's (1975) and Frieze's (1975) hypothesis regarding the lower expectations for success in women contribute to the development of such a model. Thus, future researchers may find it beneficial to consider including measures which reflect the ideas of Bardwick, Horner, and others in the field of the psychology of women to describe the achievement phenomenon of women. Such measures may be employed in addition to or in place of the measures defined within Atkinson's model.

There is a third and, perhaps, less radical way of understanding the lack of significant findings in the present investigation. Accepting the dependent measures employed as valid indices of achievement behavior, it is possible that they were not sensitive enough indicators to detect subtle changes in the subjects' achievement behaviors. In light of the fact that the modelling condition provided a weak treatment, any changes in subject behavior may have been quite minimal and, therefore, insufficient to be reflected on the standardized test measures employed.

More specifically, the modelling treatment employed was designed to alter university women's achievement behaviors

within the context of their preparation for and execution of the midterm examination. The standardized test measures, on the other hand, required more generalized achievement responses. Although Bandura and his associates (Bandura & Harris, 1966; Bandura & McDonald, 1963; Bandura & Mischel, 1965) demonstrated that a higher order form of modelling occurs, i.e. the modelling effects become generalized to related situations, it is possible that such generalization did not occur, particularly because the power of the treatment program was weak.

Therefore, in order to design a more specialized treatment package, future research should consider developing a measure which is more sensitive to the subtle changes resulting from the specific modelling program. Such a measure, included along with the standardized measures, would enable a more complete understanding of the effects of the treatment program upon achievement behavior.

Issues Regarding Subject Variables

The university women who served as subjects in the present investigation were volunteer subjects from the introductory psychology courses at the University of Ottawa, who earned class marks for their participation. From the research conducted by Rosenthal and Rosnow (1970), it has been suggested that volunteer subjects may be a source of potential bias in experimental outcomes, due to the personal characteristics of the volunteer. Volunteer subjects tend to be brighter than nonvolunteer subjects on standardized IQ tests. However, no

consistent relationship has been found to exist between volunteering and achievement, as measured by school grades. The pre-testing completed in the present study on the Otis IQ test indicated that most subjects tended to fall within the high average to bright normal range ($M = 109.7$, $s = 12.2$), which is consistent with the norms reported for college students on the Otis. Consequently, the volunteer subjects in the present study do not tend to be brighter than university students in general and thus, they can be considered as fairly representative of a university population, in terms of academic potential.

On the achievement measures, however, the subjects scored significantly higher than was anticipated, based upon the available norms. The reported mean score for females on the Mehrabian-Bank Achievement Scale is 46 ($s = 36$); however, the present group of women obtained a mean score of 60 ($s = 29$). A t -test indicated that there is a statistically significant difference at the .01 level between the two means, $t(148) = 2.56$. Thus, the subjects in the present study may be considered "above average" in their motive to achieve. The mean score on the midterm examination for the introductory psychology class was 65 ($s = 12.5$), while the mean score obtained by the subjects in the present study was 70.4 ($s = 9.6$). A t -test conducted between the two means indicated that the difference is statistically significant at the .001 level, $t(1150) = 4.815$. Thus, the subjects may be considered as "above average"

in achievement performance.

It is unclear as to the reason why the women who are generally above average in achievement performance volunteered to participate in the present investigation. Perhaps, due to the extensive amount of time required of the subjects, only those women who were highly motivated to achieve completed the treatment program. Those less motivated may either have not volunteered for the study or dropped out of the program before its completion. In any case, it appears that the women who volunteered for this study were not the subjects for whom the program would have been most beneficial. The subjects in the present study may be considered more likely than university students in general to prepare themselves for and to successfully execute the midterm examination. The factors which were earlier postulated to inhibit the achievement performance of women are not likely to be as detrimental for these women, based upon their achievement scores. Since the subjects, in general, had the skills available to score above average on the achievement measures, the incentive value for them to incorporate the modelled responses was probably quite low. Consequently, the chances of demonstrating significant treatment effects in the present study were also quite low.

Rather than employing volunteer subjects from large university classes, future researchers may consider obtaining women who attend a University Counselling Center as subjects.

Such a population would seem appropriate from the point of view that their incentive value for changing achievement behaviors would likely be greater than that of the present group of subjects.

However, it may be that researchers have devoted too much energy to attempting to describe women's achievement behavior in terms of a need-deficit model. Given the findings that the women in this study can be considered as high achievers, a need-arousal model may have been more appropriate to a study of their achievement performance. Perhaps it is time that researchers focused their attention upon delineating the types of cues which arouse achievement strivings in women, rather than prolonging the study of the hypothesized "problems" which women encounter in achievement situations. With such an emphasis, Atkinson's achievement model may prove appropriate in predicting women's achievement behavior.

Conclusion

The results of the present investigation indicated that the modelling treatment program presented was not effective in promoting change in university women's achievement behavior. Although the treatment program had improved upon the limitations of past research, it still did not provide a sufficient treatment condition. In light of the fact that the power of the statistical tests was found to be quite low in this study, it was suggested that the

lack of significant findings may be a reflection of methodological difficulties.

Consequently, the discussion of the results focuses on delineating possible areas of weakness in the experimental design, in order that such weaknesses can be improved upon and the experimental hypotheses can subsequently be retested. It is suggested that a more powerful treatment program may result from coupling the modelling condition with a performance-oriented condition and/or by facilitating a more intensive relationship between the model and the subjects. The dependent measures selected to quantify the effects of the treatment require careful consideration, to ensure subtle enough indices to detect treatment effects and to make certain that the measures employed are appropriate to the population being studied and to the level of achievement behavior under investigation. Although university students in general are able to profit from an achievement-enhancing program, a sampling technique other than that used in the present study is suggested, in order to reach the women who would most benefit from the program. Finally, a need-arousal model rather than a need-deficit model should be given consideration in future research.



References

- Allport, G.W. The nature of prejudice. New York: Doubleday, 1958.
- Almquist, E.M. and Angrist, S.S. Role model influences on college women's career aspirations. Merrill-Palmer Quarterly, 1971, 17, 263-279.
- Alper, T.G. Achievement motivation in college women: A now-you-see-it-now-you-don't phenomenon. American Psychologist, 1974, 29, 194-203.
- Alpert, R. and Haber, R.N. Anxiety in academic achievement situations. Journal of Abnormal and Social Psychology, 1960, 61, 207-215.
- Anastasi, A. Psychological testing. Toronto: The Macmillan Company, 1968.
- Atkinson, J.W. Motivational determinants of risk-taking behavior. Psychological Review, 1957, 64, 359-372.
- Atkinson, J.W. The mainsprings of achievement-oriented activity. In J.D. Krumboltz (Ed.), Learning and the educational process. Chicago: Rand McNally, 1965.
- Atkinson, J.W. and Birch, D. Introduction to motivation. New York: D. Van Nostrand Company, 1978.
- Atkinson, J.W. and Feather, N.T. A theory of achievement motivation. New York: Wiley, 1966.

- Atkinson, J.W. and Litwin, G.H. Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. Journal of Abnormal and Social Psychology, 1960, 60, 52-63.
- Bandura, A. Modeling theory. In W.S. Sahakian (Ed.), Psychology of learning. Chicago: Markham Publishing Co., 1970, 350-367.
- Bandura, A. Social learning theory. New Jersey: Prentice-Hall, Inc., 1977.
- Bandura, A. and Harris, M.B. Modification of syntactic style. Journal of Experimental Child Psychology, 1966, 4, 341-352.
- Bandura, A. and Jeffery, R.W. Role of symbolic coding and rehearsal processes in observational learning. Journal of Personality and Social Psychology, 1973, 26, 122-130.
- Bandura, A. and McDonald, F.J. The influences of social reinforcement and the behavior of models in shaping children's moral judgments. Journal of Abnormal and Social Psychology, 1963, 67, 274-281.
- Bandura, A. and Mischel, W. Modification of self-imposed delay of reward through exposure to live and symbolic models. Journal of Personality and Social Psychology, 1965, 2, 698-705.
- Bandura, A. and Walters, R.H. Social learning and personality development. New York: Holt, Rinehart, and Winston, 1963.

- Bardwick, J.M. The psychology of women: A study of bio-social conflict. New York: Harper and Row, 1971.
- Baron, R.A. and Byrne, D. Social psychology. Boston: Allyn and Bacon, Inc., 1977.
- Baruch, G.K. Maternal influences upon college women's attitudes toward women and work. Developmental Psychology, 1972, 6, 32-37.
- Bass, B.M., Krusell, J. and Alexander, R.H. Male managers' attitudes toward working women. American Behavioral Scientist, 1971, 15, 77-83.
- Bem, S.L. and Bem, D.J. Case study of a nonconscious ideology: Training the woman to know her place. In D.J. Bem (Ed.), Beliefs, attitudes and human affairs. Belmont, Calif.: Brooks/Cole, 1970.
- Bowman, G., Wortney, B.N. and Greyser, S.H. Are women executives people? Harvard Business Review, 1965, 43, 14-28; 164-178.
- Brannigan, G.G. and Tolor, A. Sex differences in adoptive styles. Journal of Genetic Psychology, 1971, 119, 143-149.
- Broverman, I.K., Vogel, R.S., Broverman, D.M., Clarkson, F.E., and Rosenkrantz, P.S. Sex-role stereotypes: A current appraisal. Journal of Social Issues, 1972, 28, 59-78.
- Cohen, J. Statistical power analysis for the behavioral sciences. New York: Academic Press, 1969.

- Cohen, N.E. Explorations in the fear of success. (Doctoral dissertation, Columbia University, 1974). Dissertation Abstracts International, 1975, 36, 1425B-1426B.
- Cronbach, L.J. Essentials of psychological testing. New York: Harper and Row, 1970.
- Crowne, D.P. and Marlowe, D. A new scale of social desirability independent of psychopathology. Journal of Consulting Psychology, 1960, 24, 349-354.
- Culbertson, F.M. Modification of an emotionally-held attitude through role playing. Journal of Abnormal and Social Psychology, 1957, 54, 230-233.
- Deaux, K. The behavior of women and men. Belmont, Calif.: Brooks/Cole, 1976.
- Deaux, K. and Emswiller, T. Explanations of successful performance on sex-linked tasks: What is skill for the male is luck for the female. Journal of Personality and Social Psychology, 1974, 29, 80-85.
- Deaux, K. and Taynor, J. Evaluation of male and female ability: Bias works two ways. Psychological Reports, 1973, 32, 261-262.
- Dixon, R. Measuring equality between the sexes. Journal of Social Issues, 1976, 32, 19-32.
- Farley, F.H. A note on resultant achievement motivation measures and scholastic attainment. Educational and Psychological Measurement, 1972, 32, 495-497.

Feather, N.T. and Raphelson, A.C. Fear of success in Australian and American student groups: Motive or sex-role stereotype? Journal of Personality, 1974, 42, 190-201.

Feather, N.T. and Simon, J.G. Fear of success and causal attribution for outcome. Journal of Personality, 1973, 41, 525-542.

Fernberger, S.W. Persistence of stereotypes concerning sex differences. Journal of Abnormal and Social Psychology, 1948, 43, 97-101.

French, E.G. The interaction of achievement motivation and ability in problem solving success. Journal of Abnormal and Social Psychology, 1958, 57, 306-309.

French, E.G. and Thomas, F.H. The relation of achievement motivation to problem-solving effectiveness. Journal of Abnormal and Social Psychology, 1958, 56, 46-48.

Frieze, I.H. Women's expectations for and causal attributions of success and failure. In M.T. Mednick, S.S. Tangri, and L.W. Hoffman (Eds.), Women and achievement: Social and motivational analyses. New York: John Wiley and Sons, 1975, 158-171.

Geer, J. and Turteltaub, A. Fear reduction following observation of a model. Journal of Personality and Social Psychology, 1967, 6, 327-331.

Goldberg, P. Are women prejudiced against women? Trans-action, 1968, 5, 28-30.

- Goldstein, E. Effect of same-sex and cross-sex role models on the subsequent academic productivity of scholars. American Psychologist, 1979, 34, 407-410.
- Good, L.R. and Good, K.C. An objective measure of the motive to avoid success. Psychological Reports, 1973, 33, 1009-1010.
- Hagan, R.L. and Kahn, A. Discrimination against competent women. Journal of Applied Social Psychology, 1975, 5, 362-376.
- Heilbrun, A.B., Jr., Kleemeier, C., and Piccola, G. . Developmental and situational correlates of achievement behavior in college females. Journal of Personality, 1974, 42, 420-436.
- Hoeppner, R. and Chamblin, M.H. Teacher's resource book and test bank for: Psychology, The hybrid science. New Jersey: Prentice-Hall, Inc., 1974.
- Hoffman, L.W. Fear of success in males and females: 1965 and 1971. Journal of Consulting and Clinical Psychology, 1974, 42, 353-358.
- Horner, M. Sex differences in achievement motivation and performance in competitive and noncompetitive situations. Unpublished doctoral dissertation, University of Michigan, 1968.
- Horner, M.S. Fail: Bright women. Psychology Today, 1969, 3(6), November, 36-38,62.

- Horner, M.S. Femininity and successful achievement: A basic inconsistency. In M.H. Garskof (Ed.), Roles women play: Readings toward women's liberation. Belmont, Calif.: Brooks/Cole, 1971.
- Horner, M.S. Toward an understanding of achievement-related conflicts in women. Journal of Social Issues, 1972, 28, 157-175.
- Horner, M.S., Tresemer, D.W., Berens, A.E., and Watson, R.I., Jr. Scoring manual for an empirically derived scoring system for motive to avoid success. Unpublished manuscript, Harvard University, 1973.
- Hough, K.S. and Allen, B.P. Is the 'Women's Movement' erasing the mark of oppression from the female psyche? Journal of Psychology, 1975, 89, 249-258.
- Hunt, R.A. Self and other semantic concepts in relation to choice of a vocation. Journal of Applied Psychology, 1967, 51, 242-246.
- Jackaway, R. and Teevan, R. Fear of failure and fear of success: Two dimensions of the same motive. Sex Roles, 1976, 2, 283-293.
- Jackson, D.N. Manual for the Personality Research Form. London, Canada: Department of Psychology, the University of Western Ontario, 1967.
- Kagan, J. The concept of identification. Psychology Review, 1958, 65, 296-305.

- Kagan, J. and Moss, H. Birth to maturity. New York: Wiley, 1962.
- Karabenick, S.A. and Marshall, J.M. Performance of females as a function of fear of success, fear of failure, type of opponent, and performance-contingent feedback. Journal of Personality, 1974, 42, 220-237.
- Katz, M.L. Female motive to avoid success: A psychological barrier or a response to deviancy. In V.E. O'Leary, Some attitudinal barriers to occupational aspirations in women. Psychological Bulletin, 1974, 81, 809-826.
- Keniston, E. and Keniston, K. An American anachronism: The image of women and work. American Scholar, 1964, 33, 355-375.
- Kiesler, S.B. Actuarial prejudice toward women and its implications. Journal of Applied Social Psychology, 1975, 5, 201-216.
- Knudsen, D.D. The declining status of women: Popular myths and the failure of functionalist thought. Social Forces, 1969, 48, 183-193.
- Lehman, C. Personal Communication, 1979.
- Lesser, G.S. Achievement motivation in women. In D.C. McClelland and R.S. Steele (Eds.), Human motivation: A book of readings. New Jersey: General Learning Press, 1973.
- Makowsky, V.P. Fear of success, sex role orientation of the task, and competitive conditions as variables

- affecting performance in achievement oriented situations. Paper presented at annual meeting of the Midwestern Psychological Association, Cleveland, May 1972.
- Mandler, G. and Sarason, S.B. A study of anxiety and learning. Journal of Abnormal and Social Psychology, 1952, 47, 166-173.
- Matarazzo, J.D. Wechsler's measurement and appraisal of adult intelligence. Maryland: The Williams and Wilkins Co., 1972.
- McClelland, D.C., Atkinson, J.W., Clark, R.A. and Lowell, E.L. The achievement motive. New York: Appleton-Century-Crofts, 1953.
- McClelland, D., Clark, R., Roby, T., and Atkinson, J.
The projective expression of needs: IV. The effect of the need for achievement on thematic apperception. Journal of Experimental Psychology, 1949, 39, 242-255.
- McGregor, D. The professional manager. New York: McGraw-Hill, 1967.
- McKee, J.P. and Sherriffs, A.C. The differential evaluation of males and females. Journal of Personality, 1957, 25, 356-371.
- Mednick, M., Tangri, S., and Hoffman, L. (Eds.) Women and achievement. New York: John Wiley and Sons, 1975.
- Mehrabian, A. Measures of achieving tendency. Educational and Psychological Measurement, 1969, 29, 445-451.

- Mehrabian, A. and Bank, L. A manual for the Mehrabian measures of achieving tendency. University of California, Los Angeles, 1975.
- Mehrabian, A. and Bank, L. A questionnaire measure of individual differences in achieving tendency. Educational and Psychological Measurement, 1978, 38, 475-478.
- Meichenbaum, D.H. Examination of model characteristics in reducing avoidance behavior. Journal of Personality and Social Psychology, 1971, 17, 298-307.
- Mendelsohn, R. and Dobie, S. Women's self conception: A block to career development. Unpublished manuscript, Lafayette Clinic, Department of Mental Health, Detroit, Michigan, 1970.
- Mindak, W.A. A new technique for measuring advertising effectiveness. Journal of Marketing, 1956, 20, 367-378.
- Monahan, L., Kuhn, D. and Shaver, P. Intrapsychic versus cultural explanations of the 'Fear of Success' motive. Journal of Personality and Social Psychology, 1974, 29, 60-64..
- Morgan, S.W. and Mausner, B. Behavioral and fantasied indicators of avoidance of success in men and women. Journal of Personality, 1973, 41, 457-470.
- Mussen, P. Early sex-role development. In N. Reeves, Womankind: Beyond the stereotypes. Chicago: Aldine Publishing Co., 1973, 393-418.

- Neath-Gelvin, J. and Kiesler, S.B. Competence, sex, similarity and intimacy as predictors of role model influences on male and female expectations, performances, and self-evaluations. Unpublished manuscript, University of Kansas, 1973. In S. Kiesler, Actuarial prejudice toward women and its implications. Journal of Applied Social Psychology, 1975, 5, 201-216.
- Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K. and Bent, D.H. Statistical package for the social sciences. New York: McGraw-Hill, Inc., 1975.
- O'Leary, V.E. Some attitudinal barriers to occupational aspirations in women. Psychological Bulletin, 1974, 81, 809-826.
- Oakley, A. Sex and gender. New York: Harper and Row, 1972.
- Osgood, C.E. and Luria, Z. A blind analysis of a case of multiple personality using the semantic differential. Journal of Abnormal and Social Psychology, 1954, 49, 579-591.
- Osgood, C.E., Suci, G.J. and Tannenbaum, P.H. The measurement of meaning. Urbana: University of Illinois Press, 1957.
- Pappo, M. Fear of success: A theoretical analysis and the construction and validation of a measuring instrument. (Doctoral dissertation, Columbia University, 1972). Dissertation Abstracts International, 1973, 34, 421B.

- Parsons, J.E., Frieze, I.H. and Ruble, D.N. Introduction. Journal of Social Issues, 1976, 32, 1-5.
- Peplau, L.A. The impact of fear of success, sex-role attitudes and opposite-sex relationships on women's intellectual performance. In M. Zuckerman and L. Wheeler, To dispel fantasies about the fantasy-based measure of fear of success. Psychological Bulletin, 1975, 82, 932-946.
- Pheterson, G., Kiesler, S. and Goldberg, P. Evaluation of the performance of women as a function of their sex, achievement, and personal history. Journal of Personality and Social Psychology, 1971, 19, 114-118.
- Pierce, J.V. and Bowman, P.H. Motivation patterns of superior high school students. Cooperative Research Monograph, 1960, 2, 33-66.
- Ricciuti, H.N. and Sadacca, R. The prediction of academic grades with a projective test of achievement motivation: II. Cross validation at the high school level. Princeton Educational Testing Service, 1955.
- Robbins, L. and Robbins, E. Comment on 'Toward an understanding of achievement-related conflicts in women.' Journal of Social Issues, 1973, 29, 133-137.
- Rosenthal, R. and Rosnow, R. Volunteer effects in behavioral research. In T.M. Newcomb's New directions in psychology: 4. New York: Holt, Rinehart, and Winston, Inc., 1970, 213-277.

Rubovits, P.C. and Maehr, M.L. Pygmalion black and white.

Journal of Personality and Social Psychology, 1973,

25, 210-218.

Sadd, S., Lerner, M., Shaver, P. and Dunivant, N. Objective

measurement of fear of success and fear of failure: A

factor analytic approach. Journal of Consulting and

Clinical Psychology, 1978, 46, 405-416.

Sarason, I.G.. Experimental approaches to test anxiety:

Attention and the uses of information. In C.D.

Spielberger (Ed.), Anxiety: Current trends in theory

and research. New York: Academic Press, 1972.

Sears, R.R., Rau, L. and Alpert, R. Identification and

child rearing. Stanford, Calif.: Stanford University

Press, 1965.

Shaffer, D.R. and Wegley, C. Success orientation and sex-

role congruence as determinants of the attractiveness

of competent women. Journal of Personality, 1974, 42,

586-600.

Shaver, P. Questions concerning fear of success and its

conceptual relatives. Sex Roles, 1976, 2, 305-320.

Siegel, J.M. Test bank to accompany R.E. Smith, I.G.

Sarason, and B.R. Sarason, The Frontiers of Behavior.

New York: Harper and Row, 1978.

Smith, D.L. and Dallinger, J. Student workbook to accompany:

Psychology, Its principles and meanings. New York:

Holt, Rinehart, and Winston, 1976.

Smith, M.B. A map for the analysis of personality and politics. Journal of Social Issues, 1968, 24, 15-28.

Smith, S. Age and sex differences in children's opinions concerning sex differences. Journal of Genetic Psychology, 1939, 54, 17-25.

Sorrentino, R.M. and Short, J.A. Effects of fear of success on women's performance at masculine versus feminine tasks. Journal of Research in Personality, 1974, 9, 277-290.

Spence, J.T. The Thematic Apperception Test and attitudes toward achievement in women: A new look at the motive to avoid success and a new method of assessment. Journal of Consulting and Clinical Psychology, 1974, 42, 427-437.

Spence, J.T., Helmreich, R. and Stapp, J. Likeability, sex-role congruence of interest, and competence: It all depends on how you ask. Journal of Applied Social Psychology, 1975, 5, 93-109.

Tangri, S.S. Determinants of occupational role innovation among college women. Journal of Social Issues, 1972, 28, 177-199.

Tangri, S.S. Implied demand character of the wife's future and role innovation: Patterns of achievement orientation among college women. In M.T. Mednick, S.S. Tangri and L.W. Hoffman (Eds.), Women and achievement: Social and motivational analyses. New York: John Wiley and Sons, 1975, 239-254.

- Touhey, J.C. Effects of additional women professionals on ratings of occupational prestige and desirability. Journal of Personality and Social Psychology, 1974, 29, 86-89.
- Tresemmer, D. Fear of success: Popular, but unproven. Psychology Today, 1974, 7, March, 82-85.
- Tresemmer, D.W. Current trends in research on "fear of success." Sex Roles, 1976, 2, 211-236.
- Trieman, D.J. and Terrell, K. Women, work, and wages: Trends in the female occupation structure. In K.C. Land and Spilerman (Eds.), Social indicator models. New York: Russell Sage, 1975.
- Veroff, J., Wilcox, S. and Atkinson, J.W. The achievement motive in high school and college age women. Journal of Abnormal and Social Psychology, 1953, 48, 108-119.
- Weiner, B. Theories of motivation: From mechanism to cognition. Chicago: Markham, 1972.
- Weiner, B. and Potepan, P.A. Personality correlates and affective reactions towards exams of succeeding and failing students. Journal of Educational Psychology, 1970, 61, 144-151.
- Winer, B.J. Statistical principles in experimental design. Toronto: McGraw-Hill Book Co., 1971.
- Zuckerman, M. and Allison, S.N. An objective measure of fear of success: Construction and validation. Journal of Personality Assessment, 1976, 40, 422-430.

Zuckerman, M. and Wheeler, L. To dispel fantasies about the fantasy-based measure of fear of success. Psychological Bulletin, 1975, 82, 932-946.

APPENDIX A

Scripts for Modelling Treatment Package

Introduction to Modelling Sessions

As women, we have been socialized to develop certain parts of our personalities, while suppressing the development of others. To varying degrees, we learn that we are not supposed to think rationally, we are not supposed to demonstrate competence or be successful, and we are not supposed to be powerful. Instead, we are to relate to others warmly, expressively, and emotionally and we are to be nurturing and supportive. Such traditional sex-role scripts are learned from and encouraged by our parents and are reinforced throughout our lives. An unhealthy result of such sex-role training is that we tend to have "gaps" which limit our potential to become "whole" human beings.

One such "gap" with which the present study will concern itself is our inexperience in coping with achievement-oriented situations. Being a success, whether on an exam or a school project or at a job, implies that we are rational, competent, adequate, perhaps assertive, and able to stand on our own two feet. These qualities are incongruent with the traditional feminine stereotype. Consequently, being a success suggests to many women a potential loss of femininity,

which may mean social rejection, being unpopular, loneliness, and, generally, unhappiness.

Let's stop for a minute and consider how our own sex-role training has affected our achievement behavior:

How often have we had the opportunity to achieve and be successful, on an exam, a school project, an oral presentation, as a class leader, or maybe at work or with our friends, and, instead, we performed mediocre? Perhaps we were full of excuses as to why we didn't do better -- "I didn't have the time to study" (knowing we could have found time), or "it wasn't that important to me to do well" (knowing inside that we felt disappointed with our performance). Somehow, we may have felt "safer" doing average work than risking being teased by our peers for being "so smart" or for working "so hard".

A second example:

How often have we been a success -- in a small way or in a very large way -- but felt too embarrassed to accept the praise we deserved from others? Perhaps we even apologized for our work and devalued our efforts by statements such

as "I was just lucky" or "the test was really easy" or "anyone could have done it."

Or:

Maybe we deal with our successes in a more overtly aggressive manner, defending ourselves publicly: "I deserved the award more than he did -- he's incompetent." "I'll fight you to the end to prove I'm better than you." "Nobody is going to get ahead of me."

All of the above examples may suggest that we are, to varying degrees, uncomfortable with our potential to achieve and to be successful.

Twenty years ago, women were encouraged to act out a more passive role in achievement situations. However, since that time, society has been experiencing a revolution, stimulated by the women's movement, which is questioning the whole social structure, including traditional sex-role stereotypes. One consequence of this movement has been that an ever-increasing number of women are seeking higher education and are going to work in traditional (e.g. teaching) and non-traditional (e.g. medicine) fields. An even more significant contribution of the movement is that we, as women, now have greater freedom in our choice of life style. We can now actively choose to be housewives and mothers, we can

choose to seek higher education, and/or we can choose to pursue a career. This new climate encourages more variety in our life styles and role expectations than was ever permitted in the past.

However, along with these new opportunities come added responsibilities. In addition to having the freedom to choose a suitable life style, a woman is now faced with the responsibility to make a decision about the life style she wishes to pursue. Many of us, who were raised according to the more traditional sex-role standards, need to fill in the "gaps" in our personality development before we will be able to make such a decision. Our sex-role training has inhibited our development of achievement behaviors to varying degrees, which means that our ability to handle different life styles may be limited.

The purpose of the session today and the sessions which will follow over the next month is to teach us how to begin developing positive achievement behaviors. We will learn that we can retain the valuable elements of our feminine training, our intuition, sensitivity, and nurturance, yet still allow ourselves to achieve and experience a sense of success over a job well-done. The essential requirement for these sessions is that you actively participate, by committing yourself and involving yourself in working towards personal change.

Introduction to Modelling Session 1

Situation: Final exams are approaching.

I am going to present to you a common situational problem which we, as students, all encounter -- examinations. Exams place us in an achievement situation in which we have the opportunity to be successful or unsuccessful. Today, I am going to role play a "mental script" for you concerning my approach to exams. This means that I am going to verbalize for you the thoughts that go through my mind or the internal dialogue I engage in when I think about my exams, for example, "I didn't study enough for this exam -- I'm going to do lousy." Psychologists refer to this internal dialogue as "self talk" because what we are actually doing is talking to ourselves. During the next half hour I would like you to let yourself become involved in my self talk. To what extent can you identify with my thoughts and feelings?

Modelling Script 1

Situation: Final exams are approaching.

I have a chance to get a "B" and maybe even an "A" in my psychology class. But that means I'll really have to study for my exam during the next week. I don't know if I'll have time -- I'm supposed to go to a party and then I have a date this weekend. Well, if I don't get an "A" who cares! Just so I pass. That's all that's really important to me anyway.

You know, there are a couple of girls in the dorm who seem to be studying all the time. Sure, they get high grades, but they miss out on all the fun. None of them seem to have any close friends -- and they've probably never been on a date. They must be lonely -- but I guess their studies fill up their time.

Then there's Janet. She gets high grades and isn't a bookworm, but is she ever aggressive and competitive! She always has to be on top and doesn't care whose toes she steps on in order to get there. What a "pushy" female! She scares everyone away from her -- none of the guys like her because she comes on too strong.

Well, I don't want to be a bookworm and I certainly

don't want to be an obnoxious bitch! It's easier for me to play it safe. I'll continue to do an okay job in my courses and still have time to party with my friends. I just want to be happy.

But, then again, maybe working hard and doing a good job brings happiness too. I'd like to prove to myself I can do a good job if I try and I'd like to feel proud of myself for a job well-done. I know that I could get a "B" and maybe even an "A" if I study for my exam. Why go to university if I'm not going to work?

You know, I've always envied Susan. She arranges her time so that she's able to study yet she still has time to go out. Yea, sometimes she has to pass up an invitation, but people still call her. She doesn't come across aggressively like Janet does and she seems to have an air of confidence about her. The guys like her -- maybe they even admire her? She's not afraid to admit that she's a competent woman.

But what if I tried to be like Susan? I'm scared that people would get the wrong impression of me. I might come across like Janet or maybe I'd end up a lonely bookworm! Would people really respect me and like me? Would guys still be interested in me? What if I did better than they did?

Maybe the only way to find out is to try. But am I willing to take the risk? I do owe it to myself to really

try my best for a change. Self-respect is as important for me as for anyone else. Yes, I am going to rearrange my schedule this week to make time for studying. But I'll probably have to miss the party -- do I want to do that? Yea, I am going to be ready for this exam so I can give it my best shot! There will be other parties that I'll be invited to. After all, I'm not going to change that drastically. People will still like me. Maybe I'll just feel a little more confident. Maybe I'll gain a little more respect. After all, if Susan can do it, so can I!!

Homework Assignment 1

We have completed the first session. Already you should be more aware of the "mental script" you characteristically employ when preparing for an exam. Such self-awareness is essential in order for you to benefit from these sessions. In order to increase such awareness, I would like you to take 15 minutes to a half hour during the next week imagining yourself preparing for your exams in December. As you picture yourself in this situation, jot down your "self talk", including your positive and negative thoughts. Many of your thoughts may be similar to mine -- some may be quite different. You will need this script in order to complete the next session, so it is essential that you take the time this week to write it. Remember, if you want to benefit from these sessions, you need to be involved, which entails doing your homework assignments.

Introduction to Modelling Session 2

Situation: The weekend before the final exam.

Last week I shared with you a "mental script" of how I usually approach exams and of how I was going to change my approach this time. Tonight, it is four days before the exam and I'm at home studying, instead of at a party. I'm wondering if getting a good grade is really more important than being with my friends tonight. Again, let yourself become involved in the script -- try to put yourself in my shoes. Can you identify with my thoughts and feelings?

Modelling Script 2

Situation: The weekend before the final exam.

Here it is. -- Friday night. I could be partying with my friends, having a good time -- but, instead, I'm home studying for my psychology exam! What a bummer! Probably everyone's dancing and drinking -- just really enjoying themselves. I feel like I'm really missing out. What if Pat meets a new guy? Or what if Cheryl is flirting with my new friend Gary? What if they all decide to meet someplace on Saturday and don't invite me? What if they forget about including me in the future? I'd feel pretty left out! They probably think I'm dumb for staying home tonight and studying. I wonder if they are making fun of me like they do the bookworms? You know, friends are pretty important to me. So why am I sitting here -- I should go to the party. Exams never meant very much to me before -- do they really now?

But ... I guess I'm not the only one who's not at the party. Well, Janet wasn't even invited -- nobody likes her because she's too aggressive. But Susan passed up the party in order to study. She's working at home tonight also. And she's passed up invitations before in order to study, yet people still seem to like her and still invite her out. So,

why shouldn't they treat me the same way they treat her?

I just gave my studies priority like she does.

So, yea, I guess there is a reason why I am at home tonight. I made a decision to give this exam my best shot and I'm going to do just that. I chose to work hard in order to get that "B" or "A" in my class -- nobody is forcing me to stay home. It's important to me to do well on my exam -- to prove to myself that I can be a success. So I am going to work tonight -- I'll be glad I did on Monday. I want to have a reason to be proud of myself and I want others to respect me for my achievement. ~~So~~ That's what's important to me now!

Homework Assignment 2

This week I would like you to spend 15 minutes to a half hour writing down ways in which you feel you could improve your own personal "mental script" regarding the exam situation. This means that you should refer to the script you wrote last week and replace some of the negative thoughts or fears you had with new and more positive ways of talking to yourself. You may use examples you have learned here during the sessions and include some of your own. You will need the script you write this week to complete next week's session. Remember that in order to benefit from these sessions, you are going to have to do a little homework on your own.

Introduction to Modelling Session 3

Situation: The morning of the examination.

✓ Last week when we met, I was studying for my exam on a Friday night. I had missed a party in order to study, and, at one point, I had thought about putting my books aside and leaving to have some fun. But, I stuck it out. Today is the morning of the exam. I am nervous and again worried about whether or not a good grade is worth it to me. Many of my fears surface -- can you identify with them? Join me as I role play my "mental script" this morning. Think of how you have handled this situation in the past. Would you be willing to change your way of thinking, to put aside your fears, in order to do well and to achieve?

Modelling Script 3

Situation: The morning of the examination.

Well, it's Monday morning and my exam is in two hours! I am really nervous -- I feel kinda cold and shakey. I didn't sleep well last night -- I kept tossing and turning and waking up. I wish I could be sick today -- I do feel kinda nauseous and I might have a bit of a temperature. Maybe I should stay home today and take a make-up exam next week when I'm feeling better. I made such a big deal out of studying for this exam -- I stayed home all Friday night and studied, instead of going out. What if I don't do any better today than I've done before? I'd feel really disappointed with myself. But, what if I do well, better than any of my friends do? Will they make fun of me? Will they think I'm trying to be better than they are? What if they exclude me -- I would feel awful if I found out they were going to a party without inviting me. And I wonder if my friend Gary will still be interested in me if I do well on the exam -- especially if I do better than he does? No guy likes to date a girl who is smarter than he is. It's bad for his ego -- and others would make fun of him. Guys prefer girls who are cute and feminine-looking, who are fun to be with, and who make them feel important, not inadequate.

2

So, maybe I can do "okay" on my exam and show others that I'm just the same old Mary. I could make a joke about staying home last Friday to study. That way we'll all be friends and I won't have to worry about being rejected. After all, my friends are pretty important to me.

But ... wait a minute! Haven't I been through all this before? Didn't I make a decision to try my best? Why do I want to cop out right at the end? Am I going to let myself down? Disappoint myself? For what reason -- because I'm scared? I've already decided that there are different ways to be a successful woman. I could become a bookworm and devote all my time and energy to studying. But that's not going to happen! I'm too interested in being with others -- I enjoy others too much to let myself sit around with my head buried in a book. Then again, I could become aggressive like Janet -- stepping on everyone's toes in order to get ahead. But that's not me either! The reason I want to do well is that I want to please myself. I want to gain a sense of self-satisfaction from doing well, but not at the expense of others. So, I can be like Susan. She is competent and puts her best efforts into her work, but she has time for her friends. Others regard her as feminine, they seem to respect her and like her. She doesn't try to be better than others like Janet and she's not using her studies as an escape, like the girls who do nothing but study. She is chal-

lenged by her work, does her best, and still enjoys time with others.

So, I have a choice. I can stay the way I've always been -- liked by others and fairly popular and an average student or I can decide to make a change today by putting my best efforts into my exam.

If I don't take a risk today, will I ever? I'll always wonder if I couldn't do more -- but I'll never really know. How else can I develop a sense of my strengths and limitations if I don't try myself out? I am a university student now -- if I don't begin developing a sense of myself, I will graduate without knowing where to begin. Will I just get married and have children because I don't know of any other alternatives? NO !

Whatever route I take in life, it will be because I chose it. I want a say in my life! And the only way I'll be able to make a choice later on is by beginning right now to exert some control over myself. I am going to put forth my best efforts today, using what I have studied and really concentrating on the test items. Usually I hurry through exams so I finish in time to talk to my friends. This time I'm not going to worry about anything but the questions in front of me. I'm going to put all my attention and energy into answering the questions as best as I can. Then I will be proud of myself because I did something important for me and I'll be proud, knowing I can achieve a goal if I set my mind to it.

Homework Assignment 3

This week I would like you to spend 15 minutes to one half hour imagining yourself in the exam situation, trying out some of the new ways you have learned to handle yourself. Refer to the "mental script" you wrote last week which describes new ways of talking to yourself and think about the three sessions you have shared with me, and of how I have changed my ways of thinking. Practice these new mental scripts both silently and aloud. Repeat them until they feel comfortable to you and are readily available to you. Use these scripts whenever you have the opportunity.

Introduction to Modelling Session 4

Situation: After the exam.

Remember how I was feeling last week on the morning of my exam? I was nervous and looking for excuses to treat this exam just like all the others in my past. But I stopped myself from thinking this way and spent time talking to myself more positively and confidently. I remembered that I had made a decision to do well on this exam. When I finally walked into the classroom, I felt prepared and I worked hard during the exam period, giving it my best shot. I've just finished the exam and walked out of the classroom and I'd like to share some of my feelings with you.

Modelling Script 4

Situation: After the exam.

Well, I did it! That's right -- me, Mary, the girl who used to spend all her time worrying about her social life, actually put her energy into achieving a good grade on her exam. The exam is over and I am pleased with myself. I didn't score 100%, but I sure did well! Imagine me walking out of an exam feeling confident and good about my performance! That's something new for me. In the past, I usually didn't prepare adequately for exams because there were always too many other things to do. Then the morning of the exam I felt unprepared, anxious, and I tried to "cram." When the exam was over, I felt blah! disgusted! disappointed with myself! and then ran to my friends for support -- to make sure they thought it was as hard as I did and that they had done as "lousy" as I thought I had done. But not this time! I made a change for the better and it was worth it! It was worth missing the party last Friday -- there are others coming up in the near future. The sense of accomplishment I feel now makes the time and energy I put into this exam seem worthwhile.

And I feel proud! Proud of my performance and proud of the fact that I took a risk that was important to me. I made

a decision, I stuck to it, and I accomplished my goal!

I'm a success!

Now I can relax and enjoy having fun. I deserve to go out and have a good time. I can still relate to my friends as before. The only difference in me is that I have a warm feeling inside -- a sense of self-satisfaction for a job well-done. Maybe others will notice this difference in me -- the fact that I am a bit more confident. What is really important, though, is this feeling of excitement I have about myself. It's telling me that I am changing. If I continue working at it, I will continue to have a say in my life. I will be able to make choices for myself.

This exam is just one of many situations in which I can achieve and be successful. There are numerous others in which I can practice my new "mental scripts" -- situations related to school, work, and home. The fact that I handled this situation well gives me the sense of confidence and skill I need to try again. Who said I couldn't be like Susan? I feel great about being a woman, particularly since I can be a competent, achieving, yet feminine woman!

Conclusion to the Modelling Sessions

We have completed our last session together. During this week and the weeks which follow, I hope you will put into practice the new "mental scripts" which you have learned. By this time, you have become aware of your usual approach to the exam situation, you have learned how to change your self talk, and, now, you must begin putting what you have learned into action. Take a risk, give yourself a chance to shine during your examinations in December, and in other related situations. It's up to you to make the change -- no one else can do it for you!

APPENDIX B

Scripts for Study Skills Treatment Package

Week 1

Situation 1: Final exams are approaching.

The introductory psychology course is one of the more widely attended courses in the university. Students pursuing various fields of interest, including business, nursing, the sciences, and the arts, consider this course to be relevant to their educational development. The importance of this course lies in the fact that it introduces students to an organized study of human behavior. Psychologists approach this study of human behavior in a scientific manner, dividing it into various fields of interest. These areas include: Developmental Psychology, the study of behavior over the different developmental periods, ranging from birth until old age; Experimental Psychology, the study of behavior within a laboratory setting to ensure adequate controls; Physiological Psychology, the study of behavior in terms of its relationship with physiological functions; Statistical Psychology, the study and quantification of behavior via statistical tools; Social Psychology, the study of man as he influences and is influenced by other individuals in a social

environment; Educational Psychology, the application of psychological principles to the education of children and adults in school; and Clinical Psychology, the study and treatment of behavior disorders. Many of these areas overlap in their scope of information; however, there is still a certain degree of autonomy held by each of the disciplines. In your introductory psychology course, you have begun your study of these various disciplines. As the course progresses, you will gain a more comprehensive view of all that the field of psychology encompasses.

In December, you will be given an opportunity to demonstrate your learning in the field of psychology via your mid-term examination. In approximately six weeks, you will be faced with this written exam. As it is important to do well on the exam, we would like to offer to you over the next four weeks a few hints on how to adequately prepare yourself for the examination.

The following suggestions will assist you in developing a systematic and successful study program to help you complete your exam. Students generally find it difficult to organize and complete their own study program. A major problem is developing enough self-discipline to stick to a program. It is often difficult for students to determine how much to study; for example, to determine when they are sufficiently prepared. The following study suggestions will address these and other problems that you will face in pre-

paring for your exam. Remember, the following are suggestions and, therefore, you should modify them to suit your personality, available study time, and other constraints.

The suggestions include the following:

- (1) Obtain and organize your study materials, including texts, notes, articles, labs, etc.;
- (2) Prepare facilities conducive for studying, for example, places where the noise will be minimal;
- (3) Block out your available study time -- make yourself a schedule which you will be able to follow;
- (4) Prepare yourself an examination strategy and periodically evaluate your progress.

These four study hints will be more fully detailed and elaborated over the next three weeks. It has been shown that these suggestions are important to developing a good study program. Consequently, we feel they will be of use to you in your preparation for your psychology exam, as well as in your preparation for future exams. Becoming aware of these guidelines is the first step in establishing a sound study program. Subsequently, you must implement or put these suggestions into action!

Homework Assignment 1

We have completed the first session. To increase the benefits of this study program, it is necessary for you to spend 15 minutes to one half hour during the next week jotting down a general outline which you plan to follow in your exam preparation. Include in this outline the four points which were mentioned today, improvising when necessary to fit your own needs. It is important to complete this assignment before the next session.

Week 2Situation 2: The weekend before the exam.

Last week we spent time outlining the importance of your introductory psychology course and the need for efficient preparation for your examination. As you prepare for the exam, you will probably discover that you have deficiencies in knowledge, in examination procedures, and in study habits. To overcome these deficiencies, and to, therefore, improve your chances on the exam, the following suggestions are offered:

- (1) It is important to obtain the necessary study materials before you sit down and begin studying. Make sure you have the required text(s) and have marked the specific chapters in each text for which you are responsible. If any articles from the reference section of the library are required, make sure you obtain them, photocopying them and/or summarizing them when necessary. If you missed any classes over the semester, contact your classmates to obtain a copy of their notes. Also, if there is a teaching assistant assigned to the class, find out from him/her if you missed any supplementary readings during your absence.

(2) You were given a course outline for your introductory psychology class at the beginning of the semester. Annotate the chapters and articles which were required for each of the individual lectures on the course outline. Also, mark the dates of each lecture on the outline. Make sure that your class notes correspond to the dates and topics listed on the outline.

(3) There is need for self-evaluation. Tabulation of your strong and weak areas at the beginning of your study program will help you to budget your limited study time.

(4) Locate study facilities that will be conducive to concentrated study. Factors which you should consider include noise distraction; interruptions; lighting; availability; accessibility, for example, your dorm vs. the library; and sufficient desk or table space. You will probably find different study facilities optimal for different times.

(5) Review your personal commitments from now to the exam to determine regular available study time. Formalize a schedule that you can reasonably commit yourself to.

(6) Once you have implemented a study program, record your progress on a study checklist. It is important to record time spent on each section of your outline, in order to build your confidence. Allocate your time so that you can gain the most proficiency in the least time.

(7) Tenseness should be expected during days of hard study, and, especially on the day of the exam. Studies have shown that physical exercise helps to relieve tension. Therefore, it might be a good idea to develop a regular set of exercises for yourself. Some people prefer to exercise in the home with no specific equipment required and others prefer to exercise in a gym setting, such as that provided by the University. Whatever your preference, you should consider establishing a personal exercise program.

Your introductory psychology exam is a challenge and worthy of your best effort. Explicitly develop your own psychological strategy to get yourself "up" for the exam. Pace your study program such that you will be able to operate at peak performance on the exam. Many students "give up" because they have a bad day or encounter a rough problem. Do the best you can; other students are probably no better prepared than you.

Homework Assignment 2

We have completed the second session. Last week you were asked to jot down a general outline which you plan to follow in your exam preparation. This week I would like you to further detail this outline, adding to it the points which we discussed today. Spend 15 minutes to one-half hour over the ~~next week~~ completing this outline. Once you have organized your own study program, you will be ready to begin following the steps of your outline in preparing for your exam in December. It is necessary to complete the homework assignment in order to fully benefit from these sessions.

Week 3Situation 3: The day of the examination.

Last week we outlined in detail specific guidelines which you can integrate into your study program. This week we will be concerned with how to prepare yourself on the morning of the examination and how to approach the actual execution of the examination. The general rule to be followed is: Maintain your normal routine. Don't try to break old habits on the day of the exam. This routine should include the following:

- (1) Get adequate rest the night before the exam. "Adequate rest" for you may mean six, seven, eight, or even nine hours of sleep. You should be aware of the number of hours of sleep you need to feel rested in the morning. Don't try to alter your regularly established sleep routine by sleeping more or less than usual. Studies have shown that such changes in sleep routine take weeks to adjust to. Therefore, the night before the exam is not a good time to initiate such changes.
- (2) Get up early enough to ensure that you will have ample time to carry out your usual routine. Rushing is likely to make you overly tense and nervous, which may prove detrimental to your exam performance.

- (3) Eat a nutritious breakfast. Remember, your brain needs nourishment to function properly. Many people in our society are careless of proper diet.
- (4) Allow yourself ample time to get to your exam. Again, having to rush may cause you unnecessary worry and anxiety.
- (5) Make sure you have all necessary materials for the exam available to you, including sharpened pencils, pens, and paper.
- (6) As you receive your examination, carefully read the instructions. The objective is to review the instructions and to note any special instructions.
- (7) Make note of the number of questions and glance over each question to note the exact topic and how much detail might be required.
- (8) Many students will select the question that appears easiest in order to get started and to build confidence. Some will begin with the problem that they feel is most difficult in order to get it out of the way. Once you select a question, you should usually work through to completion before leaving it. If you start another question before completing the first, you will simply have to come back to the unfinished question and by that point you'll have lost your train of thought.
- (9) Budget your time. Time should be carefully allocated in your attempt to maximize your points.

While no guarantees are made concerning the success of those who use these nine suggestions, implementation of them will promote efficient preparation. Therefore, now that you have been made aware of these guidelines, you must put them into action!

Homework Assignment 3

We have completed the third session. Over the past two weeks, you have prepared an outline which you can use in your preparation for your exams in December. Today we focused on how to prepare yourself on the morning of the exam and how to approach the execution of the exam. Over the next week, I would like you to spend 15 minutes to one-half hour writing your own outline on how to approach the examination day, using the information presented to you today. It is important that you complete the homework assignments in order to fully benefit from these sessions.

Week 4Situation 4: After the exam.

Last week we reviewed how to prepare yourself on the morning of the examination and how to approach the actual execution of the exam. Specific guidelines were outlined for you. Today, we will concern ourselves with how to handle yourself after you complete the exam.

When an exam is over, students react in a number of different ways. Some students become very depressed and just "give up." They figure that they did poorly on the exam and, even before receiving their grade, they are convinced of their failure. Other students tend to be depressed, but not to the extent of giving up. They are quite sure that they scored poorly on the exam and they generally feel disappointed with themselves and their inadequate performance. Other students are quite elated after an exam. Sometimes this "high" is a reflection of a realistic appraisal of their performance and sometimes it may merely be a reaction to the fact that the exam is over and no longer lingering over them.

The most reasonable approach to completing an exam is not to let yourself get too "up" or too "down." Try to be objective. Before you come to any definite conclusions concerning your performance on the exam, wait until you receive

the proper feedback - get your grades. Once this feedback is available to you, then make an effort to review your performance. If your grade is lower than you expected or desired, take time to find out in what area(s) you were weak and/or in what ways your study program was deficient. Then adjust your study habits accordingly. If your performance was at or above your level of expectation, then review the study habits you employed and continue working in a similar fashion in anticipation for your final exams in April. You can be pleased with yourself for applying the self-discipline necessary to properly prepare for the exam.

The study program presented over the past four weeks has been offered in an attempt to help you adequately prepare for your midterm psychology exam in December. The suggestions which have been detailed for you have been shown to be useful to other students in their preparation for exams. The program offered has made you aware of specific guidelines to follow in your preparation for an exam. It is now up to you to put these suggestions into action, molding them into a study program which fits your personal needs.

APPENDIX K

Means, Standard Deviations, and
Variances of Otis IQ Scores

Group	N	Mean	Standard Deviation	Variance
Modelling	28	110.7	10.3	106.6
Study Skills	28	109.5	12.2	148.9
No Treatment	28	108.9	14.1	197.8
Overall	84	109.7	12.2	148.0

Do not film

182 to 209

copyright

APPENDIX L
Means, Standard Deviations, and
Variances of Semantic Differential Scores

Group	N	Mean	Standard Deviation	Variance
Modelling	28	29.4	4.3	18.6
Study Skills	28	29.0	3.4	11.3
No Treatment	28	28.8	3.5	12.2
Overall	84	29.0	3.7	13.8

APPENDIX M

Means and Standard Deviations of Scores on
Items 1 and 2 of the Weekly Evaluation Form for
the Modelling Group^a

Week	Item 1		Item 2	
	Mean	Standard Deviation	Mean	Standard Deviation
Week 1	3.9	.7	3.5	1.1
Week 2	3.6	.7	3.2	1.2
Week 3	3.1	1.0	2.9	1.2
Week 4	3.3	.9	2.9	1.3
Overall	3.5	.9	3.1	1.2

^aN = 28

APPENDIX N

Means and Standard Deviations of Scores on
Items 1 and 2 of the Weekly Evaluation Form for the
No Treatment Group^a

Week	Item 1		Item 2	
	Mean	Standard Deviation	Mean	Standard Deviation
Week 1	3.6	.7	3.1	1.1
Week 2	3.5	.9	3.1	.9
Week 3	3.8	.6	3.7	.9
Week 4	3.8	.8	3.9	1.0
Overall	3.6	.7	3.4	1.0

^aN = 13

APPENDIX O

Means and Standard Deviations for Each Item on the
Modelling Evaluation Form after
Week 1 and Week 4 of Treatment

Item ^a	Week 1		Week 4	
	Mean	Standard Deviation	Mean	Standard Deviation
1	3.1	.5	3.4	.8
2	3.2	.4	3.4	.8
3	3.1	.6	3.5	.5
4	2.3	.7	3.5	.6
5	2.7	.9	2.7	.9
6	3.8	.6	3.8	.4
7	3.4	.5	3.3	.4
8	3.1	.4	3.2	.5
9	3.4	.6	3.3	.6
10	3.1	.9	3.1	.8
11	3.0	.6	2.9	.6
12	3.0	.6	2.9	.6
13	2.9	.7	2.8	.6
14	3.0	.5	3.1	.6
Over- all	43.1	3.8	44.8	4.7

^aN = 28

APPENDIX P

Means and Standard Deviations for Each Subgroup of
Items on the Modelling Evaluation Form after
Week 1 and Week 4 of Treatment

Item ^a	<u>Week 1</u>		<u>Week 4</u>	
	Mean	Standard Deviation	Mean	Standard Deviation
Subgroup 1	11.7	1.4	13.7	2.1
Subgroup 2	16.8	1.6	16.6	1.7
Subgroup 3	11.9	2.0	11.8	2.0

^aN = 28 for each subgroup of items.

APPENDIX Q

Means and Standard Deviations of Scores on Item 3 of
the Weekly Evaluation Form for the Modelling Group
and the No Treatment Group

Week	Modelling Group ^a		No Treatment Group ^b	
	Mean	Standard Deviation	Mean	Standard Deviation
Week 1	3.7	1.0	3.2	.7
Week 2	3.5	1.0	3.3	.7
Week 3	3.0	1.2	3.4	.9
Week 4	3.1	1.2	3.7	1.1
Overall	3.3	1.1	3.4	.9

^aN = 28

^bN = 13

APPENDIX R
Pearson Correlation Coefficients Between
Scores on Five Test Measures

Measures	Semantic Differential	IQ	Achieve- ment	TAS	Midterm Exam Score
Semantic Differential	1.000	.092	.530*	.012	.023
IQ	.092	1.000	.175	-.431*	.410*
Achievement	.530*	.175	1.000	+.192	.161
TAS	.012	-.431*	-.192	1.000	-.135
Midterm Exam Score	.023	.410*	.161	-.135	1.000

*p < .001

APPENDIX S
Means, Standard Deviations, and
Variances of Achievement Scale Scores

Group	N	Mean	Standard Deviation	Variance
Modelling	28	65.32	33.52	1123.04
Study Skills	28	57.43	28.30	800.92
No Treatment	28	56.11	23.70	561.66
Overall	84	59.62	28.73	825.32

APPENDIX T
Means, Standard Deviations, and Variances of
Test Anxiety Scale Scores (TAS)

Group	N	Mean	Standard Deviation	Variance
Modelling	28	14.8	5.2	27.2
Study Skills	28	16.2	6.1	36.6
No Treatment	28	18.3	7.3	53.6
Overall	84	16.4	6.3	40.2

APPENDIX U
Means, Standard Deviations, and Variances of
Midterm Examination Grade Scores

Group	N	Mean	Standard Deviation	Variance
Modelling	28	69.32	10.13	102.67
Study Skills	28	71.29	8.53	72.73
No Treatment	28	70.57	10.30	106.11
Overall	84	70.39	9.60	92.24

APPENDIX V

Revised Means, Standard Deviations, and
Variances of Test Anxiety Scale Scores (TAS)

Group	N	Mean	Standard Deviation	Variance
Modelling	28	9.71	4.56	20.80
Study Skills	28	10.79	5.30	28.10
No Treatment	28	12.25	6.18	38.19
Overall	84	10.92	5.43	29.43

APPENDIX W

Means, Standard Deviations, and Variances of the
Pre- and Post-Tests of the Achievement Scale and
the Test Anxiety Scale (TAS)

Variable	N	Mean	Standard Deviation	Variance
Achievement				
Pre	13	52.385	24.599	605.111
Post		59.000	27.234	741.691
TAS				
Pre	13	15.923	7.826	61.246
Post		16.308	7.920	62.726

APPENDIX X

Means, Standard Deviations, and Variances of
the Special Psychology Achievement Test

Group	N	Mean	Standard Deviation	Variance
Modelling	13	22.462	4.737	22.439
Study Skills	13	22.769	3.919	15.359
Overall	26	22.615	4.262	17.467

PREVIOUSLY COPYRIGHTED MATERIAL

IN APPENDICES "C" to "J"

LEAVES 182 to 209 NOT MICROFILMED

- 182 - 183 - Appendix C. Instructions for Semantic Differential (Based on instructions for use of the scale as developed by Osgood, Susi and Tannenbaum (1957).
- 184 - Appendix D. Semantic Differential Scale. Rating of the word MYSELF
- 185 - 190 - Appendix E. Life History Questionnaire. "Constructed by the author, based upon a similar questionnaire form employed by Lehman (1979)." (see p.62)
- 191 - 194 - Appendix F. Mehrabian-Bank Achievement Scale (1978).
- 195 - 198 - Appendix G. Test Anxiety Scale (TAS) published in a manual by Sarason in 1972.
- 199 - 202 - Appendix H. Modelling Evaluation Form. The form was "constructed by the author, based upon a similar questionnaire devised by Neath-Gelvin and Kiesler (1975)." (pp.67-68)
- 203 - 209 Appendix J. Special Psychology Achievement Test. This was "constructed by the writer to coincide with the material being presented in the introductory psychology course during the second trimester.... The test items were taken from the test manuals of Siegel (1978), Hoepfner and Chamblin (1974), and Smith and Dallinger (1976)." (p. 69)