

An Interactional Model of Achievement Motivation and Fear of Success¹

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Over the past 20 years, research on Fear of Success (FOS) has generated many inconsistent and contradictory results. The thesis of this article is that misinterpretations of Horner's (Sex Differences in Achievement Motivation and Performance in Competitive and Non-Competitive Situations, unpublished doctoral dissertation, University of Michigan, 1968) theory are responsible for such findings. Therefore, Horner's theory regarding the motivational dynamics underlying the performance of males and females is reviewed and contrasted with later interpretations. Based on Horner's formulations, a model of FOS and achievement motivation is presented that both accommodates previous research and provides a framework for guiding future research. Empirical findings are presented that support the utility of this model.

In an attempt to understand more clearly achievement-related behaviors in women, Horner (1968) proposed the concept "fear of success" (FOS) as an important motivational dynamic. Briefly stated, this concept refers to an internal conflict some women may experience in certain achievement situations; their desire to succeed is undermined by an anticipation of negative consequences associated with success. As a result, these women compromise their performance in order to maintain affiliative links with others. In the years following Horner's initial work, FOS gained much attention from both researchers and lay people. It is an appealing construct in that it provides a compelling explanation of the gender differences often noted in the achieve-

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ment literature. However, after a period of initial enthusiasm, this construct has been subject to criticism because many of Horner's hypotheses and findings seemed to fail the test of replication. The construct, initially proposed as an explanation for the inconsistencies found in earlier achievement motivation research, has generated a large body of inconclusive and often contradictory findings. The purpose of this article is to highlight Horner's original explication of FOS and contrast it with later interpretations. Such comparisons will focus on issues of what FOS is and its relationship to performance in males and females. A model of FOS and achievement motivation that more clearly captures the dynamics outlined by Horner is proposed in an effort to explain past inconsistencies in the literature and guide future empirical studies.

Motive to Avoid Success

FOS refers to an expectancy held by some women that success in certain achievement-related situations will be followed by negative consequences (Horner, 1968, 1970, 1972). The fear that impedes performance is an unconscious belief that success is equated with a loss of femininity that will result in social rejection.³ This unconscious fear is a "stable characteristic of the personality acquired early in life in conjunction with sex-role standards" (Horner, 1968, p. 22).

Sex role expectancies are acquired very early in life and form the basis of one's gender identity. Cultural norms dictate appropriate behaviors for males and females, and as such exert a strong influence on individuals by cultivating certain qualities and discouraging the development of others. Women, in general, learn early that success in certain areas (e.g., academic-intellectual) represents deviance from the prescribed social norms and results in social criticism (Horner, 1968). Research has shown that both males and females react punitively to individuals who violate sex-appropriate standards (Dor-Shav & Dolgin, 1981).

This leaves some women in an approach-avoidance conflict (Feather & Simon, 1973). On the one hand, there is a motive to achieve and successfully compete against a standard of excellence. On the other hand, there is a motive to inhibit such performance since success is associated with disastrous consequences (e.g., social isolation, loss of femininity). Thus women high in FOS possess a psychological barrier to success. In order to maintain a comfortable feminine identity, they either sabotage their performance or they psychologically distance themselves from their success (e.g., attribute their performance to external or chance factors). As Byrd and Touliatos (1982)

³It should be pointed out that there are many negative consequences of success anticipated by high-achievement-high-FOS women; loss of femininity and social rejection are but two.

pointed out, when these women face a conflict between their feminine image and their achievement-related behaviors, they adjust their behaviors to match their own sex role stereotypes.

Horner is clear in pointing out that not all women have such a motive. FOS is a relevant variable for understanding achievement behaviors only in women who have a high need to achieve. As Horner (1972, p. 161) notes:

...[FOS] is more characteristic of high achievement oriented, high ability women who aspire to and/or are capable of achieving success than low achievement oriented, low ability women who neither aspire to nor can achieve success. After all, if you neither want nor can achieve success, the expectancy of negative consequences because of success would be rather meaningless.

It is important to note that this barrier to success is hypothesized to originate within women, and is not simply a reaction to social expectations or demands.

With this conceptualization in mind, it is clear that FOS is intrinsically related to an individual's achievement motivation network. FOS is a salient predictor of behavior only within a particular subset of women, and then only under circumstances where it is aroused. A ubiquitous misinterpretation of Horner in the literature is the belief that all women possess this motive to avoid success. A selection of excerpts highlights this point:

According to Horner's theory, females come to have an expectation that success . . . will be followed by negative consequences . . . (Stake, 1976, p. 444)

In her [Horner's] research, she advanced the notion that women are motivated to avoid success. (Byrd & Touliatos, 1982, p. 1327)

She [Horner] proposed this construct [FOS] to explain the achievement behavior of women and argued that, unlike men, women inhibited their achievement . . . (Cherry & Deaux, 1978, p. 97)

FOS has been hypothesized to be greater for high ability women . . . (Tresemer, 1976, p. 228)

The empirical implications of these overgeneralizations can result in subtle confounds in research design. For example, the assumption that all women are high on FOS creates a sampling bias through the overinclusion of many false positives (females believed to be high on FOS, but who are not) and treating them as if they were high on FOS. This, in turn, overextends the explanatory power of the theory to a research design that does not allow the FOS construct to adequately discriminate between performance outcomes. This leads to both an increased probability of finding null results and an irrelevant test of the theory.

A study by Stake (1976) provides an example of research falling prey to the above confounds. Although her aim was to test explicitly the relevance of FOS in predicting females' performance, her apparent assumption that all women possess this construct led her to avoid measuring the variable in her subjects! Further, the rationale by which Stake develops her specific hypotheses is filled with misinterpretations of Horner's theory. For example, she contends that FOS is aroused when females "believe they have an

opportunity to be highly successful in their performance" (p. 445). This is not an entirely accurate statement, since it is not the probability of success per se that is intimidating, but rather the anticipation of success in a gender-inappropriate area. This lack of precision in the conceptualization of FOS led to an experimental situation that did not enable Stake to maximally discriminate performance outcomes between high- and low-FOS women. Given such an interpretation of Horner's theory, it is not surprising that she did not disprove the null hypothesis. What is unfortunate, however, is the conclusion she presents: "that the fear of success hypothesis is not a useful concept for the understanding of sex differences in achievement motivation" (p. 447).

Far from being an exception in the literature, the above article is typical in its theoretical errors. Much of the ambiguity surrounding what FOS is, and its relationship to other relevant behaviors, is rooted in such imprecise interpretations of Horner's theory.

Men and the Motive to Avoid Success

Up to this point, the discussion has focused exclusively on FOS in females. However, researchers have also attempted to evaluate the relevance of FOS in explaining male achievement-related performance. Here again, the results have been mixed. This section will examine some of these issues and point to a different way of conceptualizing FOS that may be more relevant to male achievement behaviors.

The notion of FOS is that some women have associated negative consequences with certain achievement-related behaviors. The negative consequences are perceived losses in femininity and/or social rejection, because many of the achievement goals valued by society are defined as being masculine. These women are therefore facing a very personal conflict; success would fulfill basic needs in their personality while simultaneously costing them a very high price—their gender identity. Can we expect males to experience a similar conflict?

Fogel and Paludi (1984) argue that males are not inhibited by a fear of success, but rather a fear of failure. Males experience a similar loss of gender identity when they fail at a given endeavor. FOS, as Horner developed it, is not salient for men, since success is equated with masculinity (it was that social norm that led to the notion of FOS in the first place!). Further, given the logic of Horner's theory, it would be expected that males would be more likely to fear failure rather than success.

Therefore, any fear of success in males would have to be motivationally different from FOS found in females. Orlofsky (1978) contends that FOS in males is not so much FOS but some combination of (a) fear of failure,

(b) the wish to avoid the responsibilities that continued achievement of success brings, and (c) a devaluation of the achievement ethic. Hoffman (1974) presents similar evidence. The most common theme in the male Thematic Apperception Test (TAT) stories involved questioning the value of achievement and/or accomplishment. There is a belief that material success somehow will not provide emotional well-being or spiritual fulfillment. There is also a strong theme, in Hoffman's data, that males with FOS do not receive the social "payoff" that they anticipate. There is success, but little, if any, social recognition for such success. Hoffman (1974, p. 356) provides some examples: "He graduates with honors and hates being a doctor," "He wonders what it was all for," "It's great for his parents, but he doesn't give a shit," "He will go back [to his hometown] but it makes no difference as the people he is trying to please don't even care."

The one distinct quality of these stories is the lack of conflict surrounding gender issues and achievement. If the above represents FOS in males, then FOS is not a fear of succeeding (or even a fear of succeeding in a female-dominated area), but rather a disappointment with success because it failed to provide the anticipated payoff (e.g., personal satisfaction, social recognition). Unlike high-FOS women, high-FOS men do not compromise their performance out of any fear of negative social consequences or loss of masculinity, but rather performance deficits reflect a lack of reinforcement for certain achievement behaviors. Horner (1972, pp. 163-164) makes this same distinction:

Most of the men who responded with the expectation of negative consequences because of success were not concerned about their masculinity but were instead likely to have expressed existential concerns about finding a "non-materialistic happiness and satisfaction in life." These concerns...played little, if any, part in the female stories.

Hoffman (1977) found this pattern of responses in the TATs of males in three different groups. Questioning the value of certain traditional achievement goals appears a constant theme for males who are considered to fear success. Hoffman (1974, 1977) and Tresemer (1976) argue that FOS does represent a motivationally different process for males.

Thus, the types of conflict experienced by high-FOS men and women are quite different. For females, the struggle is with their gender role expectations (i.e., success is equated with a loss of femininity), a struggle that is never resolved in high-FOS women. Although an attempt at resolution is made through compromising their performance and thus bringing their behavior more in line with their feminine sex role stereotypes, the underlying need to achieve and excel remains unsatisfied. As such, there is a continual struggle between their motivation to succeed and their self-perceptions and gender stereotypes. Males, on the other hand, face a more transitory conflict. The struggle in males may concern their notion of success rather than their gender identity. Males, then, should not need to compromise their performance as

do high-FOS females; instead they stop performing in one area because success there is no longer seen as reinforcing. As in the above excerpts, males question the value of what they received as a result of their achievement. Not receiving reinforcement (e.g., social recognition, status) causes the conflict; redirecting their energies to more potentially fulfilling endeavors resolves it.

Although the behavioral equivalents associated with FOS may be the same in the sexes (e.g., less than optimal performance), the motivational roots are clearly different. For females, FOS is evidenced in the compromising of successful performance in a female-inappropriate area, while for males, FOS would be evidenced in the rejection of success in a male-appropriate circumstance.

These differences in the motivational qualities underlying the expression of FOS as well as those behaviors and situations identified with it can be directly related to differences in achievement orientation between the genders (Gaeddert, 1985; Travis, Burnett-Doering, & Reid, 1982; Veroff, 1977). Merely substituting male for female and masculine for feminine in Horner's theory ignores these motivational differences and is therefore inappropriate.

I question whether the term "fear of success" is really appropriate for classifying negative responses to achievement-related TAT cards by men. The images and hypotheses generated by this term do not adequately capture the dynamics at issue. It may be in our best interest to establish a new term more in line with the type of responses evidenced by men in the current literature. Possibly the term "negative success orientation" may be more consistent with this underlying process. As Sutherland and Veroff (chapter in O'Leary, Unger, & Wallston, 1985, p. 109) have indicated, "Males . . . may experience disillusionment with both the idea and reality of success, due to pressures on them to succeed and/or the negative modelling of "successful" male adults in their lives."

The Role of Achievement Motivation

Intimately involved in the dynamics of FOS is a person's level of achievement motivation. As was illustrated earlier, FOS is relevant only with women who are highly achievement motivated. If one has neither the ability nor the inclination to succeed, what relevance does a fear of success hold? Karabernick (1977) presents data suggesting that FOS and achievement are not independent personality dimensions for women. Shaver (1976) argues strongly that the FOS construct needs to be examined within the Atkinson model of achievement motivation; the framework from which it was originally developed and from which it derives its meaning. Finally, Horner, Tresemer, Berens, and Watson (1973) clearly noted that FOS is *one* of several components

that need to be examined in order to determine a person's motivational dispositions. Achievement motivation is one of those variables. It is surprising that very few studies have actually attempted to control for levels of achievement motivation (Tresemer, 1976). The great majority of researchers merely measure FOS and attempt to relate that to performance. A large number of inconsistencies in the research findings can be traced to this issue.

Grozyko and Morgenstern (1974) found that in a competitive situation, as a woman's level of achievement motivation increased, so too did her performance. However, for high achievement-motivated women in the same condition, as levels of FOS increased, performance decreased. This is perfectly consistent with Horner's theory. Cherry and Deaux (1978) have pointed out that high FOS scores may reflect different motivational dynamics, and hence have a differential effect on performance, as levels of achievement motivation vary. As was mentioned earlier, high FOS scores in a low achievement-motivated person may reflect anxiety over gender-inappropriate behavior. This arousal may have a facilitative effect on performance (Piedmont, 1986). Only in high-achievement-high-FOS individuals is the phenomenon Horner describes evidenced. The lack of control over levels of achievement motivation introduces another selection bias into the research, making any interpretation of the motivational dynamics behind these FOS scores tenuous at best.

A second issue relates to the measurement of achievement motivation. As noted above, males and females differ in their achievement orientations. Research has indicated that women have an internal focus (i.e., concerned about living up to internally meaningful standards of success) while males have an external focus (i.e., are concerned with social prestige and recognition—Gaeddert, 1985; Veroff, 1977). It is necessary, therefore, to provide achievement measures that are sensitive to these gender-related qualities.

Piedmont, DiPlacido, and Keller (1989) examined these measurement issues using objective measures, and concluded that the achievement scale of the Adjective Check List (ACL; Gough & Heilbrun, 1980) appeared to capture the internal orientation of females and the achievement scale of the Edwards Personal Preference Schedule (EPPS; Edwards, 1959) was relevant to the external orientation of males. Of interest was that although each measure was a significant predictor of the same performance criteria for their respective genders, the two measures remained orthogonal. Clearly such gender-related differences may have important implications for studying FOS. Both of these measures are included in the study reported here.

FOS-Arousing Situations and Measurement Issues

FOS is frequently aroused in females by placing them either in direct competition with a male or informing them that their performance will be evaluated by a male. I contend that such circumstances may not be the most

appropriate since a subject's behavior may be overdetermined in such a situation.

The majority of subjects used in this line of research are college students. When a male and female subject, who are usually single, are placed together in a situation, many dynamics may be operating in place of or alongside of FOS (e.g., attraction, conformity, flirtation). It is entirely possible that behaviors thought to reflect FOS (e.g., debilitated performance) are the result of some other social psychological dynamic (e.g., social facilitation, social exchange). For example, a male perceived as nonthreatening or supportive may serve to enhance a high-FOS woman's performance, while a male seen as nonaccepting or threatening may serve to further depress such a woman's performance.

It is this writer's contention that one may be more able to arouse FOS just by changing the context in which women perform. Specifically, by having subjects perform a task while the experimenter manipulates the task's context, e.g., tell some women that males perform better than females on this type of task, and others that females perform better. By changing the focus of one's competitiveness from a male to a masculine standard of excellence, one may be able to remove the influence of extraneous interpersonal dynamics, thus allowing subjects to rely more on their own internal cues. This would result in a more precise index of just how debilitating FOS is to the subject.

The second issue centers on the appropriate use of both assessment and criterion measures. A point not well articulated in this area is the behavioral correlates of objective and projective tests. McClelland (1971, 1985) argues that projective measures capture underlying, nonconscious motivational levels, which are associated not so much with particular behaviors as with the direction one's life takes. As such, scores from projective tests should correlate with an operant process, such as a life outcome variable (e.g., age at marriage, number of children, occupational choice). Objective measures, on the other hand, capture more cognitive aspects to motivation or what McClelland would refer to as the value one places on achieving or avoiding success. Such measures produce scores that are correlated with respondent processes (e.g., behaviors elicited in response to a particular stimulus, like a score from a self-report measure). Thus the domains to which projective and objective tests predict are not only different but, according to McClelland, orthogonal.

Although the TAT is the dominant method of assessing FOS, in studies that attempt to link TAT scores to performance outcomes, the criterion is frequently a respondent task (e.g., anagrams, motor task, digit substitution). It could be argued that such measures, particularly the anagrams, are less "respondent" than scores on a self-report, nonetheless they are not true oper-

ants. That such studies usually report a small to nonexistent relationship may attest more to the validity of McClelland's respondent/operant dichotomy than to the invalidity of the FOS construct.

Selecting an appropriate criterion measure was an important concern for this study. Since all objective measures were employed for both achievement motivation and FOS, it was necessary to select a relevant respondent criterion. A cognitive task was deemed appropriate for two reasons. First, information processing, both rehearsal and recall, are cognitive functions clearly in the respondent domain. Second, previous research has shown this type of task to be related to the respondent measures used in this study (Piedmont, 1988).

It can be concluded from the above discussion that past research has not been entirely rigorous in its interpretations and applications of Horner's theory. One of the more basic issues centers on the theoretical underpinnings of the construct. FOS is not a theory, but rather a corollary to the larger expectancy-value theory of achievement motivation, where many components are involved in predicting achievement behaviors (e.g., motive to achieve, motive to avoid failure, incentive values of success and failure, perceived instrumentality, etc.). Therefore it is crucial to evaluate and understand FOS in conjunction with, or controlling for, these other variables. A further distinction needs to be made between the cognitive and organismic components in the model. These relatively orthogonal domains predict to different behavioral outcomes. Greater care is needed in selecting appropriate criterion and predictor variables. Finally, there remains a need to provide an articulation of Horner's construct that is both relevant to empirical inquiry and accommodates these theoretical issues. This model would need to outline the interaction between FOS and achievement motivation, and its impact on individuals' performance under both varying levels of each motive and in different situations. In an attempt to fill this need, this report presents such a model as well as the results of a research study designed to test its utility.

THE MODEL

The following model represents a theoretical formulation aimed at capturing the interplay between Horner's FOS construct and achievement motivation. Although there are many ways to approach these effects, this model is but one such conceptualization and as such is only speculative. There are some predictions that have a foundation in current research findings and others that have less empirical support. The model is presented in an attempt to organize the many inconsistent findings in the literature, and to generate new hypotheses concerning the process and impact of FOS.

Table I. Proposed Interactional Model of Achievement Motivation and FOS and Its Impact on Cognitive Performance

FOS	Achievement motivation		
	Low -1	Middle 0	High +1
Low +1	-1	0	+1
Middle 0	0	0	0
High -1	+1	0	-1

There are two basic assumptions to the proposed model. The first is that increasing levels of achievement motivation facilitate performance, and the second is that increasing levels of FOS debilitate performance. These relationships are numerically portrayed in Table I (the use of the values -1, 0, and +1 reflect the ordinal relationships among the cells). The model postulates a multiplicative relationship between FOS and achievement motivation. Although the model is simple in structure, it does posit some complex relationships.

One assumption that cannot be made is that FOS always has a debilitating effect on performance as levels of achievement motivation vary. The high-achievement-motivation-high FOS cell represents the FOS phenomenon as originally proposed by Horner. Feather and Simon (1973) have pointed out that these are women involved in an approach-avoidance conflict. The desire to succeed and perform is countered by the fear that such success will entail negative consequences; thus performance is highly debilitated (value of -1). However, individuals in the low-achievement-high-FOS cell do not have such a conflict. As Cherry and Deaux (1978) have pointed out, such women may have concern over gender-inappropriate behavior, and may be sensitive to issues surrounding performance and success. Such interests may enable these individuals to become involved in competitive tasks. However, these women may reason that their lack of both achievement motivation and a history of success in competitive endeavors provides a reasonable degree of certainty that they will not obtain success. Thus they may freely engage themselves in a competitive task confident that they will not excel. This is in contrast to those in the low-FOS-low-achievement cell who do not have any concerns over success and are not motivated to seek it out. As such, they perceive competitive activities as irrelevant and do not bother to involve themselves.

Enhanced performance in the high-achievement-low-FOS condition is predicted because such individuals are highly motivated to excel. Unencumbered by any negative beliefs surrounding the outcome of their performance, these motivated individuals are free to strive for high performance and do so.

Thus each cell represents different motivational dynamics. This is most clearly evidenced in the midperformance ranges (values of 0). Although performance is hypothesized to be the same in each of these cells, the dynamics moderating performance vary, reflecting the differing interplay between the two motives. For example, note the midlevel FOS row. In the first cell FOS more closely resembles some form of arousal is beneficial to those low on achievement motivation. Looking down the low achievement motivation column, performance continues to increase as a function of this stimulation. In the middle-achievement-middle-FOS cell both motives are in balance, neither facilitating nor debilitating performance. In the last cell of this row performance is adversely affected by FOS. Working down the high achievement motivation column is the phenomenon outlined by Horner: women high in achievement motivation failing to actualize their true potential as their levels of FOS increase. A plausible explanation for the inconsistencies found in the previous research literature is the lack of control over both motives. For example, studies including high-FOS females who are only low to middling on achievement motivation will not evidence the expected performance decrements.

The relationships portrayed above are hypothesized to be salient for both genders only in situations that arouse FOS. For females this would be when they compete against a male or succeed in an area that is deemed socially inappropriate (Horner, 1972). High-FOS males would experience FOS when they are expected to succeed in a male-appropriate area. Since they may have rejected the value of such success, they will not see success as relevant and therefore will not perform as well. In those situations that do not arouse FOS, FOS should not be a relevant predictor.

In this study, three instructional groups were included: one that said males should perform better than females, the second that females should outperform males, and the third that gave no gender-related expectations. The first instructional group is hypothesized to arouse FOS for both males and females.

One final note regarding the model. There are two theoretical ways to approach the pattern of results presented here. One possible explanation for the predicted performance decrements of the high-achievement-high-FOS subjects is the Yerkes-Dodson law (1908). Specifically, this hypothesis asserts that there exists a curvilinear relationship between motivational arousal and performance, with optimal activity a function of task difficulty. Within the context of this model, therefore, it would be argued that the simultaneous arousal of both motives would overstimulate such individuals and thus depress their performance (Broadhurst, 1959; Mandler, chapter in Goldberger & Breznitz, 1982). A second interpretation, which is more consistent with the expectancy-value theory underlying FOS, views the performance decrements as a conflict between an individual's desires to succeed and to avoid

criticism. Here all performance, both debilitated and enhanced, is seen as the product of the dynamic interplay between different motives.

It is clear that these two theoretical perspectives lead to very different interpretations of the various performance outcomes. Although this study is not directly designed to test these alternative explanations, the data may be able to provide some suggestive insights. Specifically, if the drive hypothesis is correct, then individuals high in both achievement motivation and FOS should evidence performance decrements relative to those high only in achievement motivation, regardless of instructional group. Further, if it can be assumed that subjects' performance attributions of effort provide a reflection of their actual level of motivational arousal, then those high on both variables should have a higher mean rating of effort than those high on only one motive. On the other hand, if the motive hypothesis is correct, performance decrements will be limited to circumstances that are relevant to such arousal (i.e., in the masculine instructional group). In the other instructional groups such arousal will not depress scores. Further, performance attributions of effort should be lower for high-achievement-high-FOS individuals in the masculine group, since this represents their attempt at reconciling conflicting motives by psychologically distancing themselves from their performance. Again, this assumes that these effort ratings do in fact reflect the intensity of one's motivation to do well.

Finally, given the dynamics of the above model, it would be of interest to examine the patterns of causal attributions that high-FOS individuals would ascribe to their performance. Feather and Simon (1973) noted that females with the FOS motive attributed their success as being less the product of external influences (e.g., luck and task difficulty) than the result of greater internal influences (e.g., ability and effort). Emphasizing external factors while minimizing internal contributions is seen by Feather and Simon as a general attempt by high-FOS women to minimize any performance-related conflicts. However, the situational specificity of this model would argue that such an attributional pattern would occur only in circumstances that arouse FOS.

Hypotheses

Based on the above discussion the following hypotheses are made:

1. For females, achievement motivation (measured by the Adjective Check List) should be the sole predictor of performance in the non-FOS-arousing conditions. In the condition where women compete against the male standard of success, only the interaction between FOS and achievement motivation will be significant. The pattern of this interaction will conform to that presented in Table I.

2. The relationship between FOS and achievement motivation for males is less clear, since FOS may represent a loss of interest in male-defined success, rather than a motivational conflict. In any case, it is expected that (a) any FOS effect will be manifested in a FOS by achievement motivation interaction, (b) the pattern of this interaction will conform to the model in Table I; and (c) this effect will only be present in the experimental condition where males are expected to outperform females.
3. In the FOS-arousing condition, high-FOS-high-achievement motivation subjects will have significantly lower ability and effort attribution ratings than low-FOS-high-achievement subjects. No such differences are anticipated in the non-FOS-arousing conditions.

METHOD

Subjects

Subjects consisted of 146 introductory psychology students (58 males and 88 females), all of whom volunteered and received course credit for their participation.

Measures

Adjective Check List (ACL). Developed by Gough and Heilbrun (1980), this measure provides a self-report approach to assessing Murray's needs. It consists of 300 adjectives, of which subjects select those that they feel are most self-descriptive. Research has supported the construct validity of the achievement scale (Fowler, 1973; Gough & Hall, 1975; Heilbrun, 1959). Piedmont et al. (1989) have shown that the achievement scale is a relevant predictor of performance for women.

Edwards Personal Preference Schedule (EPPS). Developed by Edwards (1959), the EPPS represents a forced-choice approach to assessing Murray's needs. The construct validity of the achievement scale has been adequately established (Izard, 1962; Krug, 1959; Worell, 1960). Research by MacDonald and Hyde (1980) and Piedmont et al. (1989) has shown the achievement scale to be a consistent predictor of performance for males. Subjects only received the items for this scale.

Fear of Success Scale (FOSS). Developed by Zuckerman and Allison (1976), this 27-item scale contains items concerning costs and benefits of success as well as attitudes toward success. Subjects indicate their responses on a 7-point agree-disagree scale. The scale was constructed on the basis of Horner's theory, and its construct validity has been documented (Chabassol & Ishiyami, 1983; Griffiore, 1977; MacDonald & Hyde, 1980; Orlofsky, 1981).

Attribution Scale. This is a short questionnaire that asked subjects to make attributions concerning their performance on a 7-point Likert scale. The questions asked the degree to which ability, effort, luck, and the difficulty of the task influenced their performance. Subjects were also asked to rate how well they felt they performed on the task (success attribution). These attributions were used both as a manipulation check on the expectancy of success instructions and as an indicator of how high-FOS individuals perceived the task in each of these instructional groups.

Cognitive Task. The performance measure for this study consisted of 40 adjectives (words that were not descriptive of human traits, e.g., *crowded, dusty, humid, squalid*) that were presented via a slide projector, with one word appearing on each slide. Subjects viewed each word for 2 seconds. All subjects then received a 200-word recognition task that included the 40 words. Subjects were asked to check off all the words they remembered seeing from the list.

Procedure

Subjects completed the ACL, EPPS, and FOSS scales prior to receiving the experimental directions. Subjects were randomly assigned to one of three conditions. Each of the three experimental groups received a different set of instructions concerning the task.

Upon completion of the personality measures subjects received, from the experimenter, instructions relevant to their group. Subjects were run in mixed-sex groups of between 10 and 15 individuals. The male-oriented instructions were as follows (words in parentheses were given to the groups receiving the female-oriented instruction; those receiving the neutral instructions were read only the first three sentences):

In a moment you will be shown a series of words presented via a slide projector. On each slide one word will appear. I want you to pay very close attention to each of the words and try to remember as many of them as you can. Due to the rote memorization (verbal ability) involved in this task, it is our expectation that males (females) will do better on this type of task. Nevertheless, it is asked that everyone do the best they can.

Although here termed "male-oriented" and "female-oriented" instructions, their intent was to produce differences in performance between males and females based on their expectations of success as opposed to receiving actual tasks that differentially captured gender-related abilities. All subjects received the same task. All experimental sessions were conducted by female research assistants.

Following the completion of the recognition task, subjects completed the attribution rating scale. These attributions were used as a check on the

expectancy of success instructions, to ensure that these instructions, although factually bogus, did influence subjects' perceptions of the task as being more relevant to one gender than another. Specifically individuals who received expectations of success consistent with their gender (i.e., males receiving male-oriented instructions and females receiving female-oriented instructions) should have significantly higher ratings on the ability, effort, and success attributions than subjects who received expectations of success inconsistent with their gender (i.e., males receiving female-oriented instructions and females receiving male-oriented instructions). After completing the attribution ratings all subjects were debriefed. The dependent variable was the number of correct responses given divided by the total number of words selected by the subject on the recognition task.

RESULTS

Examining each gender separately, *t* tests were used to examine the attribution ratings between subjects in the gender-consistent and inconsistent groups. Females receiving the gender-consistent instructions made significantly higher ratings on the ability ($t = 2.0$, $df = 61$, $p < .05$, two tailed), effort ($t = 2.2$, $df = 61$, $p < .05$, two tailed), and success ($t = 2.7$, $df = 61$, $p < .001$, two tailed) attributions than females receiving the gender-inconsistent performance expectations. For males, those receiving the gender-consistent expectations made significantly higher ratings on the ability ($t = 1.77$, $df = 38$, $p < .08$, two tailed) and success ($t = 2.04$, $df = 38$, $p < .05$, two tailed) attributions than males receiving the gender-inconsistent instructions. These results support the efficacy of the instructions in producing differential expectations of success based on gender. Both males and females, when told by the experimenter that they should outperform members of the opposite gender on the task, attributed more of their performance to their own ability, and believed they did better on the task than those who did not receive such instructions. The gender-consistent instructions appear to have made the task appear more relevant to individuals and thus they involved themselves in the task more fully. The lower ratings in the gender-inconsistent condition suggest that the instructional manipulation was successful in arousing performance-related conflicts in both males and females.

In examining the performance data for females, stepwise multiple regression analyses were used with percentage of correct responses as the dependent variable, and scores from the ACL achievement scale, FOSS scores, and their interaction as the predictors (and were entered in that order). Analyses were conducted separately by experimental condition and the results are presented in Table II.

Table II. Regression Analysis of Person Variables in Each Instructional Group for Females

Instructional group	Predictor	R^2	R^2 change	F	df	$p <$
Masculine	Achievement	.068	.068	2.05	1,26	ns
	FOS	.073	.005	.15	1,26	ns
	Achievement by FOS	.367	.294	12.05	1,26	.001
Feminine	Achievement	.200	.200	7.78	1,29	.01
	FOS	.203	.003	2.18	1,29	ns
	Achievement by FOS	.208	.005	.15	1,29	ns
Neutral	Achievement	.162	.162	4.48	1,21	.05
	FOS	.163	.001	.006	1,21	ns
	Achievement by FOS	.203	.04	1.04	1,21	ns

Table III. Predicted Regression Results (and Actual Mean Performance Values) for Females in the Masculine Instructional Group

FOS	Achievement motivation		
	Low -1	Middle 0	High +1
Low +1	.76 (.79)	.81 (.82)	.85 (.88)
Middle 0	.88 (.89)	.85 (.93)	.81 (.84)
High -1	1.0 (.96)	.89 (.92)	.76 (.72)

As can be seen, achievement scores were a significant predictor of performance in the feminine and neutral conditions [feminine: $R = .45$, $F(1,29) = 7.78$, $p < .01$; neutral: $R = .45$, $F(1, 21) = 4.48$, $p < .05$]. All other variables were nonsignificant. In the masculine condition only the interaction between FOS and achievement motivation was significant [$R = .61$, $F(1, 26) = 12.05$, $p < .001$]. The pattern of this interaction is portrayed in Table III.

The regression equation was used to determine the values for each cell.⁴ As can be seen, the pattern of results closely parallels those of the presented model. A rank-order correlation between the values predicted by the regression equation and the proposed model of $+ .73$ ($df = 9$, $p < .05$) was obtained.

The same analyses were performed for males with the exception that scores from the EPPS achievement scale were substituted for the ACL scores. The only significant effect found was in the masculine group, where achievement scores predicted performance [$R = .56$, $F(1,17) = 8.59$, $p < .01$]. High achievement motivation was positively associated with performance.

These analyses were repeated for males, this time substituting ACL scores. A different pattern of results emerged. In the neutral condition no significant effects were found. In the feminine group there was a trend toward significance for the ACL achievement scores to predict performance [$R = .48$, $F(1,14) = 4.86$, $p < .10$]. Specifically, high achievement scores were associated with low performance scores. In the masculine group, only the

⁴Due to the relatively small number of subjects per cell (3-4), a regression approach was used since it would provide a more robust test of the hypotheses than would a direct contrast approach (e.g., analysis of variance). As such, precedence is given to the predicted regression values, although actual mean performance values are also reported. The regression equation was used to determine performance scores in each cell. For example the .76 in the low-achievement-low-FOS condition was found by entering an achievement motivation score 1 *SD* below the mean, the FOS score 1 *SD* below the mean and their product into the equation. This same procedure was followed in determining the data in each cell for both males and females.

Table IV. Predicted Regression Results (and Actual Mean Performance Values) for Males' Performance in the Masculine Instructional Group

FOS	Achievement motivation		
	Low -1	Middle 0	High +1
Low +1	.76 (.63)	.78 (.78)	.80 (.88)
Middle 0	.80 (.87)	.74 (.78)	.67 (.91)
High -1	.84 (.95)	.70 (.61)	.55 (.74)

interaction between FOS and achievement motivation approached significance [$R = .47$, $F(1,17) = 4.04$, $p < .10$]. The pattern of this interaction is presented in Table IV.

Again, the regression equation was used to determine the values in each cell. As can be seen, the pattern closely approximates the values in the model. A rank-order correlation between the proposed model and the regression values of $+ .71$ ($df = 9$, $p < .05$) was obtained.

The attribution ratings of high-achievement-high-FOS subjects (collapsed over gender) were compared to those made by high-achievement-low-FOS subjects in each instructional condition. The results are presented in Table V.

High-FOS-high-achievement motivation subjects attributed less of their performance to internal qualities (i.e., ability, effort) in the masculine group

Table V. Means and Standard Deviations for Attribution Ratings in the Three Groups for High Achievement-High vs. Low-FOS Individuals

Instruction group	Level of FOS	n	Attributions			
			Ability	Effort	Difficulty	Luck
Masculine	High	4	4.5 (1.92)	3.25 (1.71)	4.25 (1.23)	3.75 (1.5)
	Low	9	5.56 ^a (0.53)	5.0 ^b (1.0)	4.11 (1.69)	4.22 (2.11)
Feminine	High	6	5.0 (1.27)	5.83 (0.75)	5.17 (0.75)	4.17 (0.75)
	Low	7	5.29 (0.77)	5.71 (0.77)	4.86 (0.9)	4.29 (1.25)
Neutral	High	3	6.0 (1.0)	5.67 (0.58)	5.33 (1.16)	5.33 (1.53)
	Low	10	5.5 (1.18)	4.5 ^b (0.85)	4.9 (1.6)	4.3 (1.7)

^a $p < .10$.

^b $p < .05$.

then did low-FOS-high-achievement individuals ($t_s = -1.6, -2.36, df = 11, ps < .07$ and $.01$, one tailed, respectively). The only other difference found was in the neutral condition, where high-FOS-high-achievement subjects attributed more effort to their performance than their low-FOS counterparts ($t = 2.2, df = 11, p < .05$, two tailed). In comparing across experimental conditions, high-FOS-high-achievement subjects attributed more effort to their performance in the feminine ($t = 3.32, df = 8, p < .01$, two tailed) and neutral ($t = 2.31, df = 5, p < .07$, two tailed) conditions than they did in the masculine condition.

DISCUSSION

The results of this study offer strong support for the interactional model presented here, particularly for women. Clearly, simultaneously controlling for both FOS and achievement motivation is crucial for producing the predicted performance decrements. The inconsistent results found in the literature may reflect a failure on the part of investigators to do this. The majority of studies simply do not measure achievement motivation. In the few studies that attempt to do so, very loose assessment criteria are relied upon (e.g., GPA greater than 3.0, enrollment in a particular competitive college or university). The result is an underrepresentation of individuals high in achievement motivation. As this model predicts, despite a high level of FOS, such individuals may not manifest any performance decrements; in fact, performance may be enhanced!

This model provides several areas of interest that may serve as starting points for further research. First, it should be apparent that FOS plays a complex role in mediating performance outcomes. In the case of high-achievement-high-FOS individuals, this role is debilitating, while with low achievement motivation-high FOS women its effect appears facilitative. Further research is needed to clarify the relationship FOS holds to other variables, such as anxiety, in each of these cells. These results establish FOS as a more complex construct than initially hypothesized by Horner (cf. Sadd, Lenauer, Shaver, & Dunivant, 1978).

A second avenue of investigation centers on the motivational dynamics relevant to FOS. It was found that only the ACL achievement scale interacted with FOS for both males and females. As Piedmont et al. (1989) have noted, high scorers on this scale are concerned with living up to high and personally meaningful criteria of success. That the more external, socially oriented EPPS achievement scale did not interact with FOS suggests that FOS may better be understood in terms of different motivational networks or achievement orientations (e.g., Gaeddert, 1985) rather than in more general male-female distinctions. FOS may only be relevant to a certain type of high achiever.

This hypothesis appears relevant to the performance of males. It was proposed that in males FOS presents a different motivational process than found with females. Of particular salience was the manner in which the two achievement scales related to performance and to FOS. Using the EPPS achievement scale, the only significant effect found was with the male-oriented instructional group: high achievement predicted high performance. This finding is consistent with the hypothesis that the EPPS scale assesses an achievement orientation that stresses social prestige and accomplishment. Under conditions that explicitly defined the task as male relevant, these males excelled. However, when the task was defined as feminine or left undefined, these individuals may not have seen the task as meaningful and therefore did not try. Success here may not have provided the type of recognition or value they desired.

When ACL achievement scores were used, a different pattern emerged. Since the ACL and EPPS scales were orthogonal, high scorers on the ACL represent a motivationally different group of men. It is of interest to note that in the female-oriented condition these individuals strive not to succeed. Rather than this being considered a reflection of a kind of motivational inhibition (especially since FOS was not a relevant predictor), it may be indicative of the task not having sufficient relevance to engage these males. In the male-oriented condition, an FOS effect is again noted. In this situation the involvement of FOS may represent an active questioning and/or rejection of male-defined success. As such, it is those males with high achievement motivation-high FOS who exhibit the greatest performance decrements. That this effect was manifested in the male-oriented group argues against an interpretation of FOS as a fear of gender-inappropriate behavior (Monahan, Kuhn, & Shaver, 1974; Shapiro, 1979). Again, given that the ACL was involved in finding these effects suggests that FOS may be associated with a particular type of achievement orientation.

That FOS is a rejection of specific achievement goals rather than a generalized motive in males is further supported by the data. While the predicted regression values conform to the model, the scores are fairly consistent in all cells except two. Only within the high-achievement-middle- and high-FOS cells are performance decrements noted, while there are no particular performance peaks. This small variability in scores over different motivational categories further suggests that FOS in males represents less of an internal conflict than a situationally determined reaction. Clearly, future research needs to more fully formulate the relevant theoretical, psychometric, and empirical issues relevant to males.

A third area of interest concerns the attribution data, which provides another important perspective on the motivational dynamics underlying high-FOS individuals. In the masculine instructional group, high-achievement-high-FOS males and females perceived themselves as having less

ability to do this task and as putting less effort into their performance in comparison to high-achievement-low-FOS individuals. The significantly higher effort ratings in the female-oriented and neutral conditions suggests these high-achievement-high-FOS individuals perceived a greater sense of controllability over their performance outcomes under these circumstances. That high-achievement-high-FOS subjects had a significantly higher effort attribution than high-achievement-low-FOS subjects in the neutral condition indicates that such individuals may thrive in a gender-nondescript context since they are free to place their own meaning on the situation. As such, they readily strive to measure up to their own internal criteria of success.

The pattern of attribution results also speaks meaningfully to the Feather and Simon (1973) study. The results confirm their findings, in that the high-achievement-high-FOS subjects attributed their performance less to internal factors than their low-FOS counterparts. However, instead of being characteristic of their performance in all competitive situations, this pattern was evidenced only when FOS was aroused. Thus it cannot be expected that high-achievement-high-FOS individuals will have difficulty performing in all competitive situations. As the above data indicated, as success becomes less gender defined these individuals appear to involve themselves more deeply in the task, reflecting a belief that their achievement strivings will not result in negative consequences.

Finally, the overall pattern of results speaks meaningfully to the type of motivational model underlying the performance outcomes predicted by this framework. That performance decrements were evidenced under only the experimental condition argues for the motive hypothesis, particularly since there were no performance decrements in the other two groups where there were also high achievement-high-FOS subjects. This suggests that the debilitated performance is not a function of some generalized arousal process but the result of a conflict of motivations that arises in relation to specific achievement goals. This conclusion is further buttressed by the effort attributions, if it can be assumed that they directly reflect arousal strength. As noted above, in the masculine instructional group high-achievement-high FOS individuals attributed significantly less effort to their performance than low-FOS subjects, suggesting that those high in arousal are disengaging themselves from the task. Thus the performance decrements cannot be attributed to these subjects expending "too much effort," with such involvement getting in the way of their ability to perform the task. The lack of any differences in effort ratings between the two groups in the feminine instructional group is also contrary to the drive hypothesis. However, the significantly higher effort rating for the high-FOS subjects in the neutral condition is consistent with drive theory. Thus although the bulk of information does tend to support the motive hypothesis, this study cannot be seen as providing any definitive determinations. It is this author's contention that the motive ap-

proach provides greater explanatory power to understanding the performance dynamics outlined in this model. Nonetheless, further research is needed to more carefully examine the ability of each approach to accommodate these results.

Summary and Conclusions

The research presented here only scratches the surface concerning the many issues that need to be addressed in this area. Much more critical attention needs to be directed at the TAT, in terms of both its psychometric qualities and the validity of the many scoring procedures that are in use. Also, examining how FOS operates on both the respondent and operant levels offers an important next step in the research. The issues are numerous and past studies highlight the many complexities. The many inconsistencies in the research underscore the many theoretical and methodological shortcomings that exist. The heuristic value of the model presented in this report is evidenced in its ability to explain some of the inconsistencies in the past literature as well as in providing motivational insights into the functioning of FOS. These insights offer a source of new hypotheses concerning how FOS, in conjunction with other motivational forces, influences performance. It is hoped that this model will add greater precision and explanatory power to any future test of the FOS hypothesis.

For our present intentions, there are three key points made by this article: First, the phenomenon outlined by Horner occurs only with a subsample of women, those with high levels of *both* FOS and achievement motivation, and then only when situationally aroused. FOS is not a salient variable for all, or even most, women, contrary to many latter interpretations of Horner's theory.

Second, the model presented here provides a framework for understanding the interaction between FOS and achievement motivation and its impact on cognitive performance. This model underscores the need for researchers to control for levels of achievement motivation, since the debilitating effect of FOS is clearly dependent upon them. It also offers hypotheses about how FOS should influence performance under other motivational conditions (e.g., with high-FOS-low-achievement motivation females).

Finally, Horner's conceptualization of FOS is based on the premise that males and females are socially expected to achieve in different domains. Horner's theory outlines the motivational forces that come into play when certain women attempt to violate these norms. As such, the theory cannot be readily extended to males. Although some males high on achievement motivation show performance deficits similar to high-FOS women, the underlying motivational dynamics are different. The term "negative success

orientation" appears to more accurately describe this male analogue to FOS in women.

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