A STUDY OF THE CONSTRUCT OF FEAR OF SUCCESS: THE VALIDATION OF ITS MEASURES AND AN EXTENSION OF ITS NOMOLOGICAL NETWORK

Dissertation for the Degree of Ph. D.

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Robert James Griffore

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Robert R. Bell
Major professor

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ABSTRACT

A STUDY OF THE CONSTRUCT OF FEAR OF SUCCESS: THE VALIDATION OF ITS MEASURES AND AN EXTENSION OF ITS NOMOLOGICAL NETWORK

By

Robert James Griffore

The Problem

This study incorporates the use of several methods to critically scrutinize the construct validity of three frequently used measures of fear of success. In addition, the construct of fear of success is, itself, evaluated in terms of its relevance to performance on an actual classroom test.

Achievement motivation is one of several personality attributes which are considered to be instrumental in determining academic behavior, but it is basically a construct which was not theoretically conceived as highly predictive of academic performance. Nor is it a tangible, directly observable property of the individual; it must be inferred from performance or measured as fantasy responses to ambiguous cues. The problem with such constructs is that they are bound into a nomological network of behaviors and other personal attributes and are related in often quite uncertain ways to behaviors outside the boundaries of the extant nomological network. The relationship of achievement motivation to academic achievement is one of these nebulous links to space on the fringe of the nomological network defining achievement motivation.

Fear of success is a similar construct which has recently been

derived from theories of achievement motivation, and some have claimed that it is a particularly powerful trait relative to its hindrance of women's success in competitive situations. What has been inadequately determined is the place of the construct of fear of success in educational tasks. This study seeks to determine some educationally related boundaries of the nomological network surrounding fear of success and to establish the construct validity of three relatively recent techniques of measuring fear of success, including one fantasy-based projective scoring system and two objective questionnaires.

Literature Review

The literature review is extensive, broad and concerned with the theories of achievement motivation from which fear of success theory was derived. The developmental antecedents of achievement motivation and related sex differences are described. The construct of fear of failure is also described in relation to achievement motivation. With this background, fear of success theory and empirical research are extensively reviewed.

Methodology

Several methods of determining the validities of instruments which purport to measure a construct are utilized in this study. One of these is to determine whether an instrument measures the construct in ways consistent with the theory behind the construct. Several predictions which are theoretically consistent are made and tested. Analyses are conducted on the influence of fear of success on exam performance, to determine whether sex differences exist on the trait, and to determine the degree to which all selected fear of success instruments

are intercorrelated and negatively correlated with fear of failure. The upper and lower bounds of construct saturation are also established for each of the fear of success instruments, as an important indicator of construct validity.

Combining all analyses, judgments are made about the quality of each instrument and the relevance of the construct in education.

Results

The major findings can be summarized as follows.

1. Some interactions between fear of success and exam performance are consistent for the FOS and FOSS fear of success instruments, but the Horner instrument fails to interact with item difficulty, particularly on low difficulty items.

2. No sex differences were found on fear of success.

3. While two fear of success instruments were positively correlated, a third instrument correlated with neither of these. The existence of a single construct may be questionable.

4. A greater proportion of variance on fear of success scores was accounted for by fear of failure than by behavior theoretically related to fear of success.

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By

Robert James Griffore

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CHAPTER I

PROBLEM STATEMENT AND REVIEW OF LITERATURE

Achievement Motivation and Academic Achievement

One of the most persistent and interesting problems in education is that of identifying the factors which hamper or prevent some students from succeeding in the competitive arena of academic achievement, even though some degree of success would be predicted on the basis of their ability levels. It has frequently been suggested that students' low achievement motivation could account for this phenomenon. Those who have heralded the explanatory power of achievement motivation have wisely chosen a cautiously optimistic position, however. Their caution stems from the realization that school grades are affected by a very large number of unidentified factors (McClelland, et al., 1953). Birney (1968) observes that the relationship between students' achievement motivation and academic performance is not a consistent one. Wide variations in the strength of this relationship have been reported. Yet it is also true that aptitude and achievement measures account for as little as 30 percent of the variance in grades. It is quite tempting to believe that achievement motivation contributes a large proportion of the unaccounted-for variance.

Indeed, some studies suggest that a significant positive correlation does exist between Thematic Apperception Test nAch and average grades. Ricciuti and Sadacca (1955) selected two groups of male high

school students, administered the TAT measure of nAch and found correlations of +.18 and +.23 in the two groups between nAch and grade averages, based on averages calculated over three terms. Rosen (1955) selected a sample of 120 high school sophomores, stratified on social class according to Hollingshead's Index of Social Position. In a series of within-class analyses, he found that achievement motivation was highly related to grade point average.

College students' academic standing is also reliably related to nAch. High academic standing is associated with a high need for achievement (Morgan, 1951). Parish and Rethlingershafer (1954) conducted research similar to Morgan's and found no differences between low and high achievers in nAch. In terms of the usefulness of achievement motivation in accounting for low achievement, this presents a serious challenge, for low-achieving students would not be expected to have a high nAch score.

This bit of disconfirming evidence is not uncharacteristic of other studies either. Birney (1968) observes, in fact, that while nAch and academic achievement are highly related in high school samples, selected college samples do not reveal this consistent relationship. In a study of Naval officer candidates and college freshmen, Ricciuti (1954) found zero-order correlations between nAch and academic achievement. Bendig (1959) and Cole, Jacobs and Zubok (1962) found zero order and negative correlations, respectively.

One is prompted to ask about the factors which provide such inconsistency between achievement motivation and academic achievement. First of all, as McClelland (1953) pointed out, achievement motivation is but one of the variables which determines achievement. Second, as

Broverman, Jordan and Phillips (1960) argue, levels of TAT nAch scores might be highest in individuals who are "unable to express their achievement needs" in real life. A third reason lies in the basic difference between the expression of a transient need state on fantasy measures and the expression of sustained academic achievement in school. And a fourth reason is that the motive to achieve has been erroneously understood as a unitary variable. This ignores the fact that its expression depends upon affiliative tendencies, self-esteem needs and the self-concept. Related to this, McClelland (1961, 1962) has observed that scientific productivity is determined by several personality characteristics, only one of which is indicated by measured nAch.

Achievement Motivation-Related Constructs and Instruction

It would seem that, on balance, achievement motivation should not be strongly suggested as a general predictor of academic achievement. It might be more defensible to study the role of this construct as it interacts with the characteristics of instruction. McKeachie (1961) conducted one of the early studies in this tradition and found that nAch was most strongly related to academic achievement in "low achievement cue" classrooms. The role and characteristics of the teacher had much to do with the impact of achievement motivation. This study should be considered as suggestive for other research. It is based on the notion that academic achievement is different from nAch. But to identify the ways in which the situational events in the classroom actually interact with the workings of the construct of achievement motivation remains, at this time, as clearly a task of critical importance. How the construct fits into educational practice and school learning and helps to explain and predict student behavior is a

question which remains to be answered.

In a more general sense, the time has come to reassess the role of the personality constructs which have been so widely accepted as they relate to education. Ebel (1972) observes that it is not entirely clear whether these personality traits are causes of behavior or merely names for the behavior. Attempts at measuring personality traits are probably only justified if they are known to determine behavior related to academic achievement. Otherwise, the effort devoted to such measurement might be more wisely spent. On the matter of achievement motivation, it might not be appropriate to attribute causative power to this personality construct, but to recognize it as simply a description of an observed result. Even in terms of scores on TAT nAch, this position would suggest that the behavior cued by the projective stimulus is the basis on which the personality construct is merely attributed to the individual. Indeed, the basically inconsistent relationship between achievement motivation and academic achievement might be caused, at least in part, by the failure of measurement techniques to attribute achievement motivation reliably; the problem might be attributional.

In this context, the present study may be correctly interpreted as an investigation into the practical educational efficacy of a class of constructs, falling generally under the heading of achievement motivation-related. This study is an immediate challenge to the construct of fear of success or motive to avoid success, which was derived from a theory of achievement motivation, and its basic purpose as it pertains to education has recently been to account for different levels of educational achievement in a similar way as has motivation to achieve. That is, when students do not achieve in a way which would be predicted

on the basis of their scores on achievement or aptitude measures, it has been suggested that they might have a high motive to avoid success. The psychodynamics behind this hypothesis are somewhat complicated, and their structure and development are best understood given a foundation of the theories of achievement motivation which preceeded the theory of motive to avoid success. After a review of achievement motivation theories, the rationale and character of fear of success will be reviewed.

McClelland's Theory of Achievement Motivation

As Brown (1965) observes, the construct of achievement motivation was in danger of extinction due to lack of interest in the early 1950s. It was probably sustained by the work of McClelland and his colleagues in such works as The Achievement Motive (1953). McClelland's basic conceptual structure is relatively simple. Achievement motivation is considered to be a function of two factors: 1) the immediate situation, and 2) the relatively constant need for achievement in the individual. It is the latter of these which is McClelland's focal point. Alschuler (1973) points out that McClelland is chiefly interested in the operant need for achievement, which tends to occur even when situational cues for it are weak. He is not concerned with what might be referred to as the respondent achievement motive, which would be sensitive to current contextual cues. Basically his theory of the achievement motive is consistent with his general theory of motivation. He asserts that motives determine why people behave as they do. They are the origins of action and the central constructs of behavior. McClelland, Atkinson, Clark and Lowell (1953) formally define a motive as "the redintegration by a cue of a change in an affective situation."

The appearance of meaningful cues which have been associated with strong affective states in the past again arouses those affective states which, in turn, elicit instrumental approach and avoidance behavior. Emotions are not motives, but they are the states from which motives develop. Motives themselves appear when there are discrepancies between the present affective state and an expected one. The change of the affective state in the direction which is expected is the function of a motive. In other words, McClelland subscribes to an equilibrium or balance model, in which identity between present and expected affective states is the goal. With respect to achievement motivation, an individual associates pleasant feelings of satisfaction with high levels of achievement. When he fails to achieve, such feelings do not occur, thus resulting in an affective discrepancy and, in turn, a motive to produce a pleasant affective state through achievement. Fundamentally, then, achievement motivation is expressed as competition with a standard of excellence (McClelland, et al., 1953).

McClelland and his colleagues were also interested in placing the achievement motive in an ecological framework incorporating religious, familial, psychological and economic variables. In an early formulation, coinciding with The Achieving Society (1961), high achievement motivation was associated with a cluster of entrepreneurial character traits in the individual who is drawn to entrepreneurial occupations. But this was only one link in McClelland's hypothesized sequence of events. He suggested that a society which was high on the dimensions of religious Protestantism characteristically subscribes to patterns of early independence training for its children. Consequently, the entrepreneurial character quite commonly develops in these societies, and

individuals with this character type are recruited into positions where the role of the entrepreneur is a necessary attribute. If the selection of entrepreneurial characters into these roles is sufficient, the society will enjoy a period of economic growth. This, then, describes the place of the need for achievement in society.

Research on McClelland's Theory

Within this network of one-directional influences, there are several points at which the causal sequence might be interrupted. And questions have been formally posed regarding the strength of the associations in this causal sequence. But it would seem that McClelland's notions are not without some supporting evidence. McClelland's careful study of the relationship of achievement-oriented folktales and independence training in societies to national rates of economic growth has revealed that the association between these factors is significant. Achievement motivation appears to have a causal effect on rate of national economic growth. The degree of achievement motivation present in a society in one generation seems to have a bearing on the actual rate of economic growth enjoyed by the next generation (Clark, 1957). McClelland also computed the economic productivity of all Catholic and Protestant countries in the temperate zone in 1950 and found that there was a decided difference in favor of the Protestant countries. On the other hand, Protestantism was certainly not a part of pre-Incan Peru or ancient Greece, which also had high levels of achievement motivation and economic growth (Alschuler, 1973). And Veroff, Atkinson, Feld and Gurin (1960) have offered Thematic Apperception data showing that when Protestants are compared with Catholics across the United States, Catholics are not different from Protestants on nAch. Also, Jews had

significantly higher achievement motivation scores than either Catholics or Protestants. Brown (1965) suggests that Protestantism per se is not necessarily related to achievement motivation, nor has early independence training been clearly considered in many extant studies. The strongest link in the causal chain seems to be between high achievement motivation and economic growth.

McClelland's theory is also concerned with the role of achievement motivation in accounting for the behavior and thought of the individual. Taken at this level, achievement motivation is associated with planning or striving for excellence, progress, uniqueness and competition (Alschuler, 1973). People with high need for achievement will not work harder when monetary rewards are offered (Atkinson and Reitman, 1956). They prefer to strive for excellence itself. They also prefer to take personal control over events in their lives (Heckhausen, 1967). They like to set their goals carefully, after weighing the probabilities of various alternatives (Alschuler, 1973). Also, they are more concerned with the long-range future. Green and Knapp (1959) point out that high achievers perceive time to be passing by rapidly.

Atkinson's Expectancy-Value Theory of Achievement-Oriented Activity

On both the individual level and the macro-ecological level, McClelland's model emphasizes the stable individual trait of achievement motivation. But Atkinson has constructed a theory which does not assign a central position to this constant trait. Indeed, his approach attempts to account for achievement-oriented activity in the individual rather than the constant motivational trait. Atkinson considers his theory to represent the interaction between personality and environment. It is assumed that the tendency to achieve success (Ts) which is

expressed as interest and performance, is equal to Ms (the motive to achieve success) X Ps (the subjective probability that performance will be followed by success) X Is (the incentive value of success). The Is is considered to be 1-Ps (Atkinson, 1974).

The tendency to avoid failure is considered to result in a similar way from motive, probability and incentive value. Specifically, T-f = Maf X Pf X If. That is, the tendency to avoid failure equals motive to avoid failure X the probability that the act will lead to failure X the incentive value of failure for the activity.

A third tendency in Atkinson's theory is T ext. This is a positive extrinsic tendency to perform an activity. This factor usually incorporates a number of tendencies not directly associated with the motive to succeed. Among these tendencies might be the individual's wish to please others and gain their approval, to conform, or to comply with implied or expressed expectations. These factors are considered to be context-specific. Actually, Atkinson only recently has strongly recognized the influence of these context-specific tendencies (Maehr and Sjogren, 1971).

This theory is considered to explain the achievement behavior of individuals in "achievement situations." In these situations, one is aware that an outcome is at least somewhat uncertain, and that one's achievement is to be compared with a standard of performance. As represented above, the theory clearly suggests that in these situations, the motive to approach success and the motive to avoid failure will be in conflict. The relative strength of these two motives in the individual will determine whether he tends to approach success or whether he tends to avoid failure. The balance of the two basic motives, Ms and Maf is

thought to be a relatively constant personal trait within the individual.

One of the major predictions Atkinson makes is that in achievement situations, individuals whose Ms is stronger than their Maf will demonstrate low achievement-oriented activity when Ps = 0.00 or 1.00. They are predicted to exhibit high levels of achievement-oriented activity when Ps = .50. For individuals who have a predominance of Maf over Ms, however, the level of achievement-oriented activity will be lowest when Ps = .50 (Maehr and Sjogren, 1971). It should be noted that since Ps + Pf = 1.00, simultaneously intermediate values of each probability cause high T-f and Ts. Whether Ts and T-f are equal is another matter, and this is determined by Ms and Maf at a given time. Generally speaking, it can be assumed that one of these is higher than the other, thus resulting in either excitation with the former or inhibition with the latter. Because either Ms or Maf will be stronger, the two tendencies to which they contribute will be unequal, given equal probabilities. The difference between Ts and Taf is known as the resultant achievement-oriented tendency. Whether the resultant tendency is expressed as an approach or as an avoidance response depends on the relative dominance of Ms and Maf and the subjective probabilities Ps and Pf. Either Ts or T-f may dominate (Atkinson, 1974).

Atkinson's theory suggests that subsequent to success or failure there is a change in the strength of the tendency to engage in the same activity. Success produces a change in the subjective probability of success on the task, so that level of aspiration is raised. A task which originally had a Ps of only .30 might, after success, have a Ps of .50. After failure, the same task might decline in Ps to .20.

Shifts in expectancies such as those above are typical ones, originally observed to occur in college students. But certain atypical shifts can also be accounted for by the theory. Atkinson (1974) cites the example of the anxiety-prone individual who fails at an easy task. The effect is to lower Ps so that it approaches .50. After a repeat of this failure, the task becomes one of intermediate risk, and this is to be avoided. So the individual shifts from a low to a higher level of aspiration, choosing a task with a very low Ps at the other end of the continuum, where the probability is low. Thus the theory can account for both typical and atypical shifts in expectancy.

Atkinson's theory would appear to contradict the Law of Effect, which has generally held a central position in psychology since Thorndike's statement of it. There have been several attempts to discredit it, such as McKeachie's (1974) critique. The effect of success is not always to strengthen the probability of a response. Success produces a change in incentive value of success. Sometimes this change results in a stronger tendency to act, and sometimes in a weaker tendency. This depends upon whether the motive to achieve or the motive to avoid failure is dominant in the person and upon the initial strength of Ps of the task. Clearly, the situation is more complicated than the Law of Effect would suggest.

Research on Atkinson's Theory Relative to Academic Achievement

The implications of Atkinson's theory for education depend on whether its general predictions are supported in research, as well as whether the theory can be characterized as pertinent to academic motivation. Many studies which have attempted to test the main predictions of the theory have indicated that it does indeed have explanatory and

predictive power. Achievement-oriented individuals, who have a predominance of Ts over T-f, demonstrate a greater tendency to select tasks of intermediate difficulty rather than very easy or very difficult tasks (McClelland, 1958; Atkinson, Bastian, Earl and Litwin, 1960; Litwin, 1958, 1966; Atkinson and Litwin, 1960). This tendency is observed in competitive game-like tasks and in curricular (Isaacson, 1964) and job (Mahone, 1960) choices, as well. Some research has called into question the supposition that achievement-oriented individuals prefer tasks which have a difficulty level of exactly .50, however (Heckhausen, 1968). Preferences of slightly less than .50 are quite common. Furthermore, failure-threatened individuals, who have a predominance of T-f over Ts, have not always demonstrated the predicted U-shaped function varying around the Ps = .50. It has yet to be demonstrated that failure-threatened individuals actually avoid tasks of moderate difficulty. They seem only to have a preference for tasks with either higher or lower levels of difficulty (Maehr and Sjogren, 1971).

The relationship between individuals' preferred level of task difficulty and their performance on these preferred tasks is not especially consistent. Achievement-oriented individuals do indeed prefer moderate difficulty tasks, but they do not necessarily show their best performance on these tasks (Smith, 1964; O'Connor, Atkinson and Horner, 1966). Even more challenging to the theory is the finding that failure-threatened individuals rarely show decrements in performance when task difficulty becomes .50 (Karabenick and Youssef, 1968). In short, Atkinson's theory does not have an impressive ability to predict performance on the basis of levels of task difficulty. Of course, this is one reason why it is appropriate to question the place of Atkinson's theory

as a framework for understanding and predicting academic motivation.

It is even quite appropriate to question whether it is possible to construct a single theory of academic achievement motivation. Atkinson does not clearly indicate whether he is characterizing individuals who achieve through competition with others, those who like to strive according to internal standards or perhaps both. Of course, a general theory of academic achievement motivation would need to incorporate both of these types. McClelland et al. (1953) anticipated the possible existence of different types of achievement motivation along the lines of these types, and Veroff (1969) considered the possibility that the nature of the child's achievement motivation might develop in a sequence of qualitatively different types. Whereas social competition might be characteristic of the child in the middle years, it is quite conceivable that the very young child's achievement motivation is based on competence motivation (White, 1959). Since most of the research has been concerned with competitive performance on normatively defined standards, it would seem, therefore, that as a theory of academic achievement motivation, it would be restricted in power to instructional-achievement situations in which competition is encouraged, perhaps especially among older children.

Another reason to suspect that Atkinson's theory is a rather inadequate attempt at accounting for academic achievement motivation is that it is probably not able to predict the degree of sustained effort students will demonstrate under natural conditions and with actual school learning tasks. In such situations, the student must be continuously concerned with revising his estimates of Ps. While Atkinson's theory suggests predictability of change as a function of shifting Ps,

the empirical data supporting this theoretical assumption is limited. Maehr and Sjogren (1971) question whether achievement-oriented students would really sustain a continued effort on tasks whose Ps remains at .50. In addition, one would question whether students who are threatened by failure will diligently persist at tasks whose Ps value is either 0.00 or 1.00.

Because most of the studies concerning the validity of Atkinson's theory utilized a sample of white middle-class children, and because the average classroom is not entirely populated with similar children, one is prompted to further question whether the theory could represent an account of academic achievement motivation. Katz (1967) observes that it is uncertain whether nAch measures are sensitive to the areas in which disadvantaged children have an interest in achieving. Rosen (1959) and Littig (1968) have found that lower-class black subjects and upper- and upper-middle-class black subjects do not report achievement imagery similar to whites' on projective nAch tests. Mingione (1968), on the other hand, has found no basic difference between the responses of black and white subjects on these measures. Even if there were no basic difference across classes with respect to the application of Atkinson's theory on distinct achievement situations, one might even more vigorously question the assumption that lower-class, failure-threatened children would in fact persist on tasks with P = 0.00.

If all these problems are not sufficient to call into question Atkinson's theory as an account of general academic motivation, there are two final points that add further damaging evidence. In the first place, with the notion of T ext, Atkinson recognizes that there will

always be an unidentified number of unknown factors standing ready to qualify the efficacy of the Ts and T-f in explaining academic achievement motivation. Second, when the implications of the theory are considered, one is faced with the conclusion that to operationalize the theory, one would need to measure all students' relative strengths of Ms, M-f, subjective Ps and Pf values, Is and If values and their subjective ingredients in the variable T ext. Even if this could be realized, the task of designing instruction on the principle of Achievement Motivation X Treatment Interaction stands as the ultimate challenge.

If an instructor is to attend to childrens' levels of achievement motivation in planning instruction, there is a sense in which he might benefit from being aware of all the salient variables which have been strongly associated with the general development of the achievement motive. Many of the variables which have been attended to in the developmental literature are not necessarily related to Atkinson's theory; many of the early studies, in particular, used TAT cues to measure nAch in the context of McClelland's theory. But not only were these studies not directly concerned with Atkinson's theory; they were not always clearly related to academic achievement motivation either. The independent variables which have been strongly related to achievement motivation are typically mediated by family members and other agents outside the school.

It would be difficult to apply the findings of most of these studies to education.

Antecedents and Determinants of Achievement Motivation

One of the classic studies was conducted by Winterbottom (1958). She showed that 8 to 10 year old boys with high achievement motivation

had mothers who expected early independent and exploratory behavior. Siss and Wittenborn (1962) have reported that third grade boys with mothers who had expected early independent behavior tend to have higher intelligence and achievement test scores. Rosen and D'Andrade (1959) made observations of parents whose 9 to 11 year old sons were given tower-building tasks. They found that the fathers of sons with high achievement motivation allowed their sons more independence in those tasks, while mothers tended to permit less independence. Adding to this inconsistent picture, Crandall, Preston and Rabson (1960) found that early independence training was quite unrelated to children's achievement. Crandall (1967) observes, however, that part of this discrepancy may be inherent in the differences between retrospective responses in some studies and current observations of independence training techniques in other studies.

There appears to be a sex difference in the influence of parents on children's achievement motivation. Crandall, Katkovsky and Preston (1960) found that children's mechanical skill achievements are related to influences of parents on children of the same sex, but that achievement of physical skills seems to be related to whether parents of both sexes had participated in sports and had given encouragement. Rosen and D'Andrade (1959) found another difference in treatment based on the sex of the parent. In the tower-building task, mothers, but not fathers, tended to reward sons with approval and to punish with disapproval and rejection for failure. It seems, based on data from Feld (1960) that there is interaction effect between independence training and age of the child. Contrary to Winterbottom's (1958) findings, achievement motivation is increased by a <u>lack</u> of independence training

in 14 to 16 year old boys. In addition, Rosen (1959) found that Winterbottom's findings were generalizable only to a middle-class population.

Moss and Kagan (1961) determined that "maternal acceleration," brought to bear on children's achievement motivation during the first 3 years, relates to increased achievement behavior in children aged 6-10 and to achievement in adulthood. Heckhausen (1967) proposes that the conclusion one might draw from all such research is that achievement is not necessarily related to independence training, but that it is related to children's lower concern for conformity. Indeed, too harsh independence training and pressure to achieve may be effectively equivalent to cold rejection, which Rosen (1959) found negatively related to achievement motivation.

Morrow and Wilson (1961) who were interested in over- and under-achievement in school, found that the parents of high achievers were more approving, trusting and affectionate with their children. McClelland (1961) found that sons with highest nAch are likely to have mothers with moderate levels of nAch.

One of the most interesting findings is that the parental behaviors related to children's high achievement motivation have often been described as deleterious in a more general sense. For example, Crandall, Dewey, Katkovsky and Preston (1964) found that mothers of high-achieving girls were less affectionate and less nurturant. Hoffman, Rosen and Lippitt (1958) found that mothers of high-achieving boys were more coercive, and Barwick and Arbuckle (1962) found them to be less accepting.

A general modeling effect appears to operate for both boys and

girls. Norman (1966) found that fathers of high-achieving boys and mothers of high-achieving girls were higher in independence and lower in conformity than the parents of low-achieving children.

But there are other determinants of achievement motivation over which those who govern in the educational setting would seem to have unknown degrees of control. Among these variables are the child's internalization of standards of excellence, predisposing levels of cognitive development, the influences of various subcultures and the influence of the child's sex on achievement motivation. Crandall, Katkovsky and Preston (1960) have asserted that the function of achievement behavior is to attain approval or to reduce disapproval originating in oneself or in others in situations where there are clear standards of excellence. This is consistent with McClelland's position, of course, and it recognizes that the individual must associate pleasant feelings with achievement, and he must anticipate that higher levels of skill will lead to feelings of pleasure. Further, performance standards are in continuous need of revision, according to the demands of social norms. A degree of persistence is required to attain progressively more acceptable levels of achievement, and Crandall, Preston and Rabson (1960) have shown that individual differences exist among 3, 4, and 5 year olds in persistence of exercise of skill and effort. Differences in achievement depend upon these differences in persistence. Early individual differences in adoption of standards have also been demonstrated by Crandall (1961). But apparently no study exists relating emergence of achievement behavior to a specific age or to specific conditions.

It would seem, however, that a certain level of cognitive

development might be required before adoption of standards of performance and their pursuance are possible. It is also conceivable that attainment of this cognitive state leads, as a matter of course, to development of such standards. Heckhausen (1967) maintains that achievement motivation first becomes possible when the child "structures the situation within an achievement-related and person-related frame of reference," and that this takes place no earlier than ages 3 to 3 1/2, when success or failure of activity is associated with pleasure or disappointment. There is a step in cognitive development which permits this structuring of the person-environment frame of reference. The lower threshold of three years for this cognitive step has also been observed in adult retardates. At a mental age of about 3 years, success and failure feelings are quite apparent in these individuals (Heckhausen, 1967). In addition, by age 4 or 4 1/2, normal children appear to select either a success orientation or a failure orientation, and individual differences in achievement motivation are apparent, such as those reported by McClelland (1958) in preferences for level of difficulty in a ring-toss game. Further, their preferred levels of difficulty correlate with achievement motivation to the same degree as found in adults. In summary, then, it seems likely that the first manifestation of achievement motivation depends on cognitive development.

Several determinants of achievement motivation are associated with the social organizations of which individuals are part, in the form of cultures and subcultures. Child, Storm and Veroff (1958) found that in 52 preliterate cultures, achievement-related content of folktales was associated with high levels of achievement in children and with the dominant child rearing practices. Hayashi and Yamaushi (1964)

found that in Japan, insistence on self-reliance did not relate to children's achievement motivation. This is, of course, contrary to Winterbottom's conclusions. And Rosen (1962) has found that levels of achievement motivation vary culturally. Brazilian children, for example, tend to be lower in achievement motivation than North American children. Cole (1972) has also observed the existence of subcultural differences on the dimension of learning to learn. It is possible that some subcultures rely on learning and memory on a concrete basis, while others learn to learn in the abstract and with the aid of rich conceptual structure. In summary, then, within each cultural context, unique contributions are made on children's learning and achievement. Indeed, Greenfield and Bruner (1969) have evidence that sociocultural experience, particularly in school, may influence the child's progress through Piagetian cognitive stages.

One general implication of these studies on variables generally removed from the control of educators might be that educators must simply take what they are given; it may well be out of their hands. Another possible implication might be that researchers have been concerned with the wrong variables. They have failed to direct attention to educational ecological variables which are at the disposal of educators, and all that remains to be done is to identify these variables and learn how to successfully manipulate them. Or all this might mean that, in fact, researchers have been on the right track all along, recognizing that theories of achievement motivation are not likely to prove extremely useful to education.

One final interpretation of this group of studies is that we have perhaps made the task of managing achievement motivation too

difficult, too involved and inclusive of too many determining variables. McClelland (1969) has demonstrated another and generally less complicated method of enhancing achievement motivation. The variables manipulated in McClelland's approach are quite simple. Individuals are taught to think, talk and act like persons with high nAch, and they are even trained to give TAT responses similar to those with high nAch. But since the relationship of nAch with academic achievement is not high, one might question whether direct training for achievement motivation holds real promise for education. As it turns out, achievement motivation training conducted by McClelland and his colleagues has not produced generally significant effects on school performance. The only differences in performance were observed in boys' performance, but not in girls'. Moreover, even the boys' performance increment was short-lived, being sustained for only one year (McClelland, 1972; Alschuler, 1971).

Ryals (1969) has reported rather marked success, however, of a similar achievement motivation development project at Washington University, under the direction of Richard deCharms. The difference between the two projects was basically that in the deCharms program, students were given the achievement motive-related treatment by their teachers, whereas in the McClelland approach, regular classroom teachers did not play this important role.

It seems, upon closer analysis, however, that these training techniques really might have little to do with enhancing students' achievement motivation. Yet, deCharms' technique did bring about increments in performance. The most obvious point is that the construct of achievement motivation has offered little in accounting for this

change in performance. And it is possible that the construct offers little more in any academic situation. McClelland (1972) suggests that the efficiency of the training program is largely due to its effects of teaching students to manage their lives more effectively and of teaching teachers to better manage their classrooms. But he tends to explain this finding by claiming that it is merely a matter of semantics. While nAch, the formal construct discussed by psychologists, is not enhanced, he observes, achievement thinking, achievement planning and achievement consciousness are all stimulated. But if the formal construct is not altered in ways predicted by theory as a consequence of prescribed education treatments, then it is questionable whether the construct has validity in the classroom. Rather than rely on the construct in any sense, it would be better to speak in terms of thinking, planning and, if need be, consciousness.

Sex Differences in Achievement Motivation

A final limitation of achievement motivation, with respect to its educational implications, lies in the apparent dearth of evidence that the construct applies to females in the ways it has typically applied to males. Indeed, females appear to differ from males on several aspects of achievement-oriented activity, as well. Females' interest in achievement is related specifically to the subject matter in school, for example. The value girls place on English, verbal skills, social skills, and artistic accomplishment is often higher than on natural sciences, athletic and mechanical skills (Battle, 1965, 1966; Stein, 1971). Sixth grade girls have also been known to have higher attainment values for tasks labeled "feminine" and "neutral" than on

"masculine" tasks (Stein, Pohly and Mueller, 1971).

It appears that whereas males' achievement motivation is aroused by a challenge to intelligence or leadership, females' achievement motivation is aroused by stress on social acceptability. Field (1953) found that when college females were informed of either social acceptability or unacceptability, their achievement motivation scores were higher than when they received neutral information about their social acceptability. French and Lesser (1964) found that in colleges where most students valued traditional women's roles, social skills arousal produced greater achievement motivation. Generally speaking, women may be more ready and willing to express achievement motivation when the behavioral context is defined in terms of traditional women's roles. On the other hand, Frankel (1974) has found that non-traditional attitudes toward femininity may be positively related to achievement-oriented behavior, while a traditional orientation to femininity may be associated with non-goal oriented behavior. Equally suggestive of contradictory trends is the finding by Heilbrun, Kleemeier and Piccola (1974) that females with strong male gender identification and who perceive strong similarities between themselves and their fathers tend to have stronger achievement patterns.

One of the traditionally recognized and quite well accepted differences in the needs of males and females has been a predominance of affiliation need in females and achievement need in males. Crandall (1963) suggested that initially both boys' and girls' achievement-oriented behavior is aimed at obtaining social approval and rewards, but that boys learn standards of excellence and come to reward their own achievement, while girls fail to do so. Indeed, females are more

likely to be concerned with social desirability than males, but this concern is not consistently related to actual achievement efforts (Crandall, 1966). Although one would predict that females would express relatively high effort when praise is given, such praise is not necessarily more efficacious than the absence of social reward in experimental situations (Cotler and Palmer, 1971). In short, the effect of social approval on females' achievement and achievement-oriented behavior is not a consistent one. Stein and Bailey (1973) have summarized the literature on females' affiliation need, desire for social approval and achievement by suggesting that it is quite doubtful that females have a higher need for social approval or affiliation than males. While social skills might be a central area of achievement concern for females, their actual achievement efforts are not always determined by the need for affiliation or social approval. Crandall, et al. (1964) proposed that females may not really be more sensitive to social approval; they may simply receive more social approval for social patterns of achievement.

Females' sex role definitions may be quite uniform, yet some females tend toward the opinion that achievement is not necessarily masculine but is perhaps a quite feminine behavior. Lesser, Krawitz and Packard (1963) observed that high school females who were high achievers considered achievement to be more sex-appropriate than did female underachievers. Similarly, Lipman-Blumen (1972) found that women with nontraditional sex role concepts were more likely to consider their achievements to be important.

The meaning of these studies concerning women's achievement is that there are numerous variables which are not influential in males,

but which are powerful in determining women's achievement-oriented behavior and in influencing women's achievement motivation. With such basic differences in optimal arousal conditions, sex-role orientations and patterns of reinforcements, it should not be surprising that, as O'Leary (1974) has noted, investigations of women's achievement has produced puzzling results. Not only are extant theories of achievement motivation derived from research on male samples, the projective instruments typically used to measure achievement motivation in males are not highly correlated with actual achievement behaviors in females (Entwisle, 1972). This may be because females do respond differently from males when exposed to the cue of the competitive, competent and achieving male.

Developmental Trends in Females' Achievement Motivation

Not only are there differences between males and females, but there also are clear developmental trends in females' achievement. Stein and Bailey (1973) point out that adolescence is the time of greatest change in achievement motivation. While many girls have average or high levels of achievement motivation in junior high, at the senior high level, many apparently conclude that achievement is antithetical to their efforts at achieving sex role conformity. Douvan and Adelson (1966) suggest that females are left with a rather uncertain perspective on adult career goals as a result of this basic conflict. Horner (1972) has observed that college women are confronted with a similar conflict. Those who have studied traditionally masculine subjects often move into fields which are more traditionally feminine. Even into adulthood, there are patterns of declining achievement

motivation, associated particularly with the years devoted to child rearing. Although declines are common during these years, increasing patterns of achievement motivation typically follow for well-educated women (Baruch, 1967).

Expectancy of success in females shows other marked differences from males. Crandall (1969) found that females have lower expectancies of success than males even when their performance was superior. But this difference could not be accounted for by different reinforcement histories, parental differences in expectations or any other variable. It is possible that one determinant of this lower expectancy is the generalized sex role stereotype that females are simply less competent than males. Of most importance is the strength of the relationship between females' expectancies and their achievement patterns. Since these expectancies are a major component in the theory of achievement motivation, one would inquire about whether the same theoretical relationship between expectancies and achievement motivation exists for females as for males. While similar relationships have been observed for adolescents and college females and males, data on female samples can best be described as showing a low to moderate relationship (Crandall, 1969). In another study, however, Crandall et al. (1962) found that elementary school females' expectancies were not positively related to achievement behavior. This uncertain and apparently age-functional relationship calls into question the general applicability of an expectancy-value formulation of achievement motivation.

There are other male-female differences which also place additional demands on the explanatory power of expectancy-value motivational theory. Females have been occasionally seen as more anxious in academic

settings (Hill and Sarason, 1966). They also may tend toward setting very low levels of aspirations (Stein and Bailey, 1973).

Socialization of Females' Achievement Orientation

There are several studies which describe existing differences in male and female achievement patterns, but the socialization of these different patterns is another and equally important matter. Two of the most powerful factors in parental behavior are the warmth-hostility and the permissiveness-restrictiveness dimensions (Becker, 1964). There are some studies of mother-daughter interaction involving these factors which are suggestive of socialization antecedents of females' achievement motivation, but most of these studies are focused on adolescents. A general conclusion pertaining to the socialization of achievement for young girls is that maternal nurturance is positively related to femininity and negatively related to the emotional independence, assertiveness and competitiveness underlying achievement-oriented behavior (Mischel, 1970). Stein and Bailey (1973) caution, however, that the development of these traits requires sufficient affection and support so that a girl's confidence and security are not jeopardized.

Adolescent females who express low achievement motivation indeed tend to have mothers who were very affectionate during the early years (Kagan and Freeman, 1963). Concurrent maternal nurturance is also detrimental to achievement-oriented behavior (Bronfenbrenner, 1961).

Parental permissiveness is generally positively related to females' achievement motivation. Baumrind (1971) found that paternal permissiveness was also positively related to the achievement-oriented

behavior of preschool girls. But Douvan and Adelson (1966) found that general parental restrictiveness is associated with adolescent females' achievement aspirations.

Independence training is another parental factor which has often been associated with childrens' achievement motivation, but its relationship to achievement-oriented behavior is quite uncertain. This could be because it can take the form of either encouragement or rejection. Hatfield, Ferguson and Alpert (1967) found that the achievement standards of preschool girls were negatively related to either restrictions on independence or to pressure to be independent.

Another typical finding is that early maternal attempts at induction are associated with moderate to high levels of aspiration in middle-class preschool age girls (Collard, 1968). Mothers' and fathers' encouragement and instigation to achievement are related to high achievement activity in elementary school girls (Crandall, 1963). Stein and Bailey (1973) point out that early maternal acceleration, direct reinforcement of achievement, parental restrictiveness and encouraging dependence also lead to female achievement behavior. Douvan and Adelson (1966) observe that some adolescent females with high achievement motivation name individuals outside the family as their most important models. Lansky et al. (1961) found that some adolescent females with high achievement motivation were highly critical of their mothers.

While some socialization antecedents of achievement are shared by males and females, there are basic differences. Stein and Bailey (1973) observe that the child rearing practices most conducive to feminine sex typing are not those which usually lead to achievement. The female is most likely to develop achievement-oriented behavior when

her parents are moderately permissive and warm. If her parents encourage independence, she is likely to be independent, but this is not necessarily related to high achievement motivation.

There does appear to be a contrast between the optimal child rearing behavior of males and females, with respect to achievement motivation. A high degree of warmth tends to be associated with males' achievement, but not with females' (Crandall, 1963). Also, males seem to benefit most from slightly less permissiveness than is optimal for females (Baumrind, 1971).

Fear of Failure in Females

Because there appear to be some sex differences in the actual goodness of fit of Atkinson's theory of achievement motivation, developmental trends in achievement motivation and socialization antecedents of achievement motivation, some theorists have turned their attention to accentuating concepts which can adequately account for the nature and development of achievement motivation in women. One attempt at this task has been to heavily emphasize the fear of failure, or motive to avoid failure, which comes from Atkinson's theory. O'Leary (1974) suggested, for example, that fear of failure might be a factor in women's reluctance to aspire to higher level positions. It is proposed that the male must learn how to cope with failure as a part of his socialization experience. But females might not do this due to the absence of social expectations that they will compete in the world of work. Kagan and Moss (1962) found a significant relationship in females between childhood and adulthood fear of failure, but the relationship was not found in males.

Females' high fear of failure may be related to their unrealistically high or cautiously low career goals (Mahone, 1960). It may also be related to females' often lower level of aspiration (Burnstein, 1963) and greater tendency to avoid the uncertainties and effort associated with a prestigious career (Heckhausen, 1967).

The Theory of Motive to Avoid Success

Other researchers remain unconvinced that an emphasis on fear of failure can account for sex differences in achievement motivation. Matina Horner introduced the notion of motive to avoid success in order to account for otherwise inexplicable sex differences. The theory of motive to avoid success is directly derived from Atkinson's expectancy-value theory of achievement motivation. The motive is conceptualized as a stable, latent personality disposition which is acquired early in life along with standards of sex role identity. According to this formulation of motivation, the two powerful categories of influence on one's behavior are the expectations one has about the nature and the likelihood of the consequences of one's behavior and the value of these consequences to the individual. When one expects that the consequences of one's actions will be negative, then anxiety is elicited. This anxiety consequently inhibits the behavior which one predicts will bring about the negative consequences. The course one's behavior will not take can thus be predicted by expectancy-value theory (Atkinson and Feather, 1966).

Horner (1968) argued that fear of success is an individual's disposition to become anxious about achieving success because of his expectation of negative consequences as a result of succeeding. This

is not to say that he has a "will to fail" or a motive to approach failure. A motive to avoid success will not be aroused unless the individual expects negative consequences. Such an expectation will occur most often in competitive situations where an individual must attend either to a standard of excellence or where his performance must be compared with the performance of others.

Horner identified the need for this construct after reviewing some shortcomings of the achievement motivation literature, which have been identified above. Specifically, she observed that Veroff, Wilcox and Atkinson (1953) early identified scarcities on research pertinent to females. In The Achieving Society (1961), Atkinson makes no mention of achievement motivation in females, even though he discusses other minorities.

Several studies especially encouraged Horner that this new construct was needed. McClelland et al. (1949), for example, found that women showed no increase in nAch imagery, as did men, when their intelligence and leadership ability were challenged. This result is still common today. Lesser et al. (1963) compared groups of high-achieving and under-achieving high school girls. There was no significant difference between groups in nAch scores. But nAch scores of the high achievers did increase when they were asked to produce stories to pictures of females rather than of males. In addition, the nAch scores of under-achieving girls declined when they were exposed to the female cues. But these results raise additional questions concerning the dynamics of such scores. Horner contended that extant theory was inadequate to the task of explaining these phenomena. Horner asserts that when these results are interpreted in terms of fear of success

theory, the dynamics can be identified. One would postulate that success would lead to expectation of negative consequences, and it is important to identify what these negative consequences might be. Horner proposed that there might be two: 1) loss of one's sense of femininity and one's self-esteem, and 2) social rejection. Without success, however, involvement in competitive situations would not imply unfeminine behavior. In short, in achievement-oriented situations where the emphasis is on intellectual and leadership skills, females' achievement motivation might be inhibited by the arousal of fear of success. And the Atkinson theory of achievement-oriented behavior, since it does not consider this construct, will not be able to differentially predict the behavior of males and females.

Horner (1974) enumerates several of the notions surrounding the construct of M-s:

1. The stable trait of motive to avoid success is a disposition to feel uncomfortable when successful in competition, since this is inconsistent with femininity, and females expect negative consequences, including social rejection, to result.
2. The M-s is more common in females than males. This is predicted because competition is more consistent with masculinity than with femininity.
3. Fear of success is probably stronger in women whose achievement motivation is high or whose ability is high. Other women probably do not consider success to be an important goal, so they have no reason to feel anxious about the possibility that they might succeed.

4. Fear of success will be aroused more strongly in competitive situations, either with internal standards of excellence or with competition against others.
5. The tendency to avoid success functions to inhibit the positive tendency to achieve success [T_A = (Ts - T-f) - T-s + T ext].
6. The strength of the tendency to avoid success is a multiplicative function of motive strength, the incentive and the probability of success (T-s = M-s X Ps X Ias).
7. The negative incentive value of success (-Ias) will be higher in competitive than in non-competitive achievement situations, when women are competing against males rather than females.
8. The relationship between (Ias) and (Ps) is an uncertain one. Several factors in addition to Ps might be operative.

Research on Motive to Avoid Success

Recognition of the construct of motive to avoid success came following Horner's doctoral dissertation (1968). In this study, male and female college students at the University of Michigan first responded to several verbal cues of the Thematic Apperception Test and performed several tasks in mixed sex groups. Motive to avoid success was inferred from responses to the single cue: "After the first-term finals Anne (John) finds herself (himself) at the top of her (his) medical school class." Female subjects responded only to the Anne cue and male subjects responded only to the John cue. Fear of success was judged to be present if subjects' responses evidenced negative

consequences due to success, avoidance of future success, expressions of conflict over success, denial of the responsibility for succeeding or bizarre responses. Fear of success was scored as either present or absent. The results of this part of the experiment were that 65.5% of females, but only 9.1% of males, evidenced fear of success responses. Social rejection, concern for normality and femininity and denial or bizarre responses were most common in females' responses.

The second part of the study required random assignment of subjects to non-competitive or competitive conditions. All conditions required the subjects to perform the same tasks. Females whose projective stories showed fear of success performed better in a non-competitive situation than in the competitive situation. Low fear of success females performed better in a competitive situation. It is on the basis of these results that Horner concluded that females have a higher level of fear of success than males, and that this motive interferes with competitive task performance.

Zuckerman and Wheeler (1975) have identified several weaknesses in Horner's study. Since the Anne cue refers to success in a profession currently dominated by males, it is possible that females' responses are specific indicators of anxiety about competition with men, rather than a general competition anxiety. Horner's instructions to subjects were somewhat questionable as well. Indeed, it is not certain whether they really implied a competitive task, since subjects in competitive groups were not told their performance would be compared with the performance of others. Further, the non-competitive instructions were quite similar to the competitive instructions. On these grounds alone, Zuckerman and Wheeler (1975) may be correct in questioning

whether Horner's conclusions were warranted.

Other studies have also scrutinized the fear of success construct, with the general result of disconfirming most of Horner's conclusions and effectively challenging the theory of fear of success. These studies, addressed to several factors relevant to the construct, are of particular interest. One of the predictions which might derive from fear of success theory is that the trait increases with age. Horner and Rhoem (1968) found that 47% of 7th grade girls reported fear of success imagery, but 88% of undergraduate students evidenced such imagery. Baruch (1973) found that 10th grade girls constructed stories with much more fear of success imagery than 5th grade girls. But there are some contradictory results reported in other studies. Monahan, Kuhn and Shaver (1974) observed that in a sample of 10 to 16 year old girls, fear of success declined with age, while in a sample of 10 to 16 year old boys, fear of success was unrelated to age. In a study of 18 to 50 year old males and females, Moore (1974) found a negative relationship between fear of success and age. In short, Horner's prediction that fear of success is positively associated with age is not supported. Since fear of success is not positively associated with age, one could legitimately question whether it is a learned disposition.

Another critical conclusion of Horner's, that fear of success is more common to females than to males, has also been disconfirmed (Feather and Simon, 1973; Robbins and Robbins, 1973; Morgan and Mausner, 1973; Hoffman, 1974; Jackaway, 1974). Zuckerman and Wheeler (1975) observe that the two explanations of such discrepancies are that Horner's high fear of success results in women might have been due to the highly

competitive climate at the University of Michigan or that the women's movement might have recently attenuated fear of success. But on balance, fear of success does not appear to be related to trends in sociocultural movements (Tresemer, 1974).

Another prediction deriving from fear of success theory is that it would be more common in women who subscribe to more traditional beliefs about women's roles. Indeed, Schwenn (1970) found that women with high fear of success tend to study the humanities, which are usually considered to be more feminine. And Makosky (1972) reported that females with high fear of success believe that home and family life are more important than their career success. They also considered themselves to be more feminine than was typical of low fear of success females.

But several studies show that such relationships are not widely generalizable (Peplau, 1973; Zanna, 1973; Moore, 1974). In fact, Heilbrun, Kleemeier and Piccola (1974) found that high levels of fear of success were related to a masculine orientation in female graduates.

One would also predict a negative relationship between women's activism, related to the promotion of non-traditional roles for women. Yet Unger and Krooth (1974) found no difference in fear of success among women classified as activists and those classified as non-activists. Similarly, Moore (1972) found no difference on fear of success between women who belonged to non-traditional academic groups and others who belonged to more traditional groups. Tangri (1974) has even reported a positive relationship between fear of success and women's selection of non-sex-typical occupations. In summary, there seems to be little consistent evidence in support of the prediction that

women's fear of success is related to a traditional feminine role-orientation.

The theory of fear of success suggests that the construct is an intrapsychic phenomenon, cutting across specific situations and representing a conflict resulting in anxiety. But others have pointed out that it is quite plausible that fear of success is merely a reflection of learning a predominant cultural stereotype that women do not in fact succeed as highly as men. The "cultural hypothesis" would predict that both males and females would have high fear of success imagery concerning the Horner Anne cue. This is something which Horner did not investigate, probably due to her assumption that the phenomenon derives solely from the expectancy-value theory of motivation.

Several studies do, in fact, report that both males and females construct stories high in fear of success imagery to the Anne cue, and the cultural hypothesis is given some degree of support (Monahan, Kuhn and Shaver, 1974). Feather and Raphelson (1974) conducted research on American and Australian males and females. Half of the males and half of the females were exposed to male cues, while the other subjects were shown female cues. Both male and female Australian subjects and American males wrote a much higher proportion of fear of success stories to the female cue than to the male cue. American females, however, wrote a much lower proportion of fear of success stories to the female cue than did the Australian females. Moreover, the proportion of fear of success stories to the female cue was much lower for both American and Australian subjects than was noted in Horner's (1968) study. Feather and Raphelson (1974) attribute at least a portion of this decline in fear of success to the changing definition of women's roles associated

with the women's movement in our society.

Another facet of the cultural hypothesis suggests that making Anne's success in the female cue less culturally atypical would reduce the frequency of negative responses to it. Katz (1971) tested this hypothesis by adding to Horner's Anne cue either one of the following sentences: "All Anne's classmates in medical school are men" or "Half of Anne's classmates in medical school are women." The findings were that males evidenced more fear of success imagery to the deviant cue than to the nondeviant cue, but there was no difference in females' incidence of fear of success imagery related to the degree of deviance. Grainger, Kostick and Staley (1970) modified the Anne cue to read, "After first-term finals, Anne finds herself at the top of her nursing school." This is another way of ostensibly making the cue less culturally deviant. The subjects responded with less fear of success to this cue. On the other hand, some research suggests the nature of the cue has little to do with the amount of fear of success it elicits (Hoffman, 1974).

Another prediction consistent with fear of success theory would be that males' fear of success stories would differ from females' in content. Several studies have found this to be the case (Hoffman, 1974; Morgan and Mausner, 1973; Zuckerman and Allison, 1973; Krusell, 1973). Males who question the value of achieving tend to construct stories with high fear of success imagery, and these men are likely to build their stories around bizarre and/or hostile themes. This is quite different from the predominance in females' fear of success stories of the loss of femininity or the threat of social rejection.

Among the other predictions one would make on the basis of fear

of success theory is that achievement motivation and fear of success are positively related. Horner's (1968) research revealed such a positive relationship between fear of success and achievement motivation. Yet, Horner (1972) has elsewhere suggested that womens' achievement-oriented activities are inhibited by their inconsistency with appropriate sex-role standards, which causes anxiety. Zuckerman and Wheeler (1972) point out that on the basis of these views, it is not easy to predict whether women might be successful and anxious because of this success or passive and non-achieving because anxiety is sufficiently strong to inhibit achievement. In other words, it is not theoretically clear whether fear of success constitutes a reaction to success or a factor which inhibits it.

From a rather large number of studies on the relationship between fear of success and achievement-oriented behavior, no clear pattern seems to be apparent. Horner (1968) reported a high level of fear of success among the honors students in her original sample, and Hoffman (1974) supported this finding. Sorrentino and Short (1974) found strong relationships between IQ, grade point average and fear of success. While these three studies seem to suggest a consistent relationship, other studies have not been able to lend support to the findings (Zanna, 1973; Baruch, 1973; Zuckerman and Allison, 1973).

While the use of correlations between fear of success and achievement-oriented behavior is an indirect way of identifying how fear of success is related to achievement motivation, another way of investigating this is through direct correlations with achievement motivation. But the general conclusions of such studies are inconclusive as well. Horner (1968) found a non-significant difference between high

and low fear of success subjects on resultant achievement motivation, while in other studies, zero-order correlations have been found (Tangri, 1974; Sorrentino and Short, 1974). If this inconclusiveness is not enough, it should be noted that using Mehrabian's (1968) measure of resultant achievement motivation, Zuckerman and Allison (1973) found a significant negative correlation with fear of success for females, but not for males.

It is this extremely inconclusive group of studies which appears to call into question much of the foundation of the construct of motive to avoid success. After all, this construct was introduced initially to explain why achievement motivation is not correlated with other measures of performance in women in the same ways it is in men. The original hypothesis was that women with high achievement motivation would also have a high level of fear of success. But obviously this prediction has not been supported. One is prompted to question whether this disconfirmation of such a central hypothesis does not do substantial damage to the theory. This evidence is particularly weighty when taken in combination with the other conclusions, that high fear of success females do not perform poorly under competitive conditions, that there are no reliable age or sex differences on the construct, and fear of success and sex-role orientation appear to be unrelated, and that it is not clear whether fear of success stems from cultural stereotypes or from intraphysic conflicts. In short, many of the notions which are easily derived from fear of success theory appear to be without substance.

Predictive Validity of Measures of the Motive to Avoid Success

No matter what else may be said about fear of success, the most important evidence in favor of this construct would be that in competitive, success-producing experiences, individuals who have high levels of fear of success, and who expect to succeed would perform poorly. The evidence has been inconclusive on this important prediction for a good reason. The situation in which the motive to avoid success is presumed to be aroused has not been defined in specific terms. Therefore, different investigators have selected quite different dimensions of situations to evaluate, hoping to identify those which are indeed related to motive to avoid success. Some have presented subjects with tasks inconsistent with their sex roles, some have made salient the value of success by reporting success on previous tasks, and some have manipulated both variables. But, taken all together, these studies have produced most inconsistent results.

Three studies have recently been reported concerning the masulinity/femininity of the task and the sex of the competitor. Makosky (1972) found that high fear of success females performed best in competition against another female, while low fear of success females performed best in competition against a male. Also, high fear of success females competed more effectively on the feminine task than on a masculine task, while the conditions were reversed for low fear of success females. But Sorrentino and Short (1974) found, quite to the contrary, that high fear of success females performed best when the task was masculine rather than feminine. Karabenick has similarly reported that with a sample of 88 undergraduate females, following success experiences there was an improvement in the performance of these females who

competed with men rather than those who competed with women.

Some studies have sought a relationship between fear of success and performance in a large group setting. Heilbrun, Kleemeier and Piccola (1974) found that females with high fear of success competed more effectively against males than did those with low fear of success. One restriction in this study, though, is that the performance task may have been judged to be unimportant by the subjects. Feather and Simon (1973) and Zuckerman and Allison (1973) found no relationship between performance and fear of success for either males or females.

There are two particularly interesting designs which have been used to manipulate the salience of success for subjects. Subjects may either be informed about their "success" on previous tasks, or they may be told that tasks are either "easy" or "difficult." These would appear to be functionally equivalent designs. On the former, subjects judge the probability of their succeeding on the task according to their previous record of success. They construct a probability statement regarding future success on the basis of their previous success. On the latter design, when subjects are told the difficulty level of the task, they are essentially told how everyone else has performed and will perform on the task. Here again, they are left with what they need to arrive at a judgment of the probability of their success on the task. A task that has a high level of difficulty would indicate to the student that he has a small probability of succeeding on it. More precisely, the student knows that, on the average, few students will succeed on the task and therefore his chances of being in the group which succeeds are small.

At least two studies have obtained the effect of students' past

success on performance. Karabenick and Marshall (1974) found that low fear of success subjects who had a low fear of failure as well improved their performance more with a competitor present than when the competitor was absent. These subjects also improved more when competing against a male than against a female. Another study which manipulated students' previous success was conducted by Zaro (1972), producing findings which were not entirely consistent with the theory on fear of success.

Two other studies have informed subjects about the difficulty of the task. Patty (1974) showed that high fear of success females performed better following directions that the tasks were easy, while low fear of success females had higher performance when the tasks were described as difficult. Zanna (1973) found, to the contrary, that females working on either easy or difficult tasks opposite either males or females provided no evidence of a relationship between fear of success and performance.

Although the results reported in these two experiments are contradictory, it would appear that the design of these two studies is quite applicable to research in actual educational settings. The variables manipulated, previous success and in particular difficulty of the task, would be worthy of attention in future studies, and the latter of these two variables will be manipulated in the present study.

Reliability of Measures of the Motive to Avoid Success

Zuckerman and Wheeler (1975) point out that the reliability of projective instruments such as Horner's original fantasy-based measure of fear of success are evaluated by three criteria of reliability: 1)

homogeneity reliability, or the variation of scores over different cues, 2) intertester reliability, and 3) test-retest reliability. Horner's original measure cannot be evaluated by the first criterion, since it has only one cue. Several studies concerning the administration of several cues to the same subjects, however, did not report correspondence in the ratings of fear of success across all cues (Weston and Madwick, 1970; Karabenick and Marshall, 1974). Entwisle (1972) suggests that the best estimate we have of homogeneity reliability of fear of success measures is .30-.40.

While intertester reliabilities of .80 or .90 have been reported for Horner's original measure, this may be expected since a present-absent scoring system is used with this measure. On the other hand, the scoring procedures might have been quite variable from study to study, due to the absence of clear-cut scoring rules. So, while reliability might be high within one scoring system, reliability across raters who are accustomed to unique scoring approaches might drop markedly. Indeed, one is prompted to question whether the wide differences in observed fear of success between males and females, from study to study, could be at least partly due to differences in scoring procedures. Percentages of fear of success imagery have ranged from 20% to 88% among females and from 9% to 76% among males (Zuckerman and Wheeler, 1975).

Shortcomings in the Literature and a Statement of the Problem

The construct of motive to avoid success was derived directly from the expectancy-value theory of achievement motivation, and it has been investigated with regard to the ways in which it is influenced by

the variables usually associated with achievement motivation. Therefore, it is limited not only in the degree of understanding and predictability it offers, but it probably is only a marginally useful educational construct. But the current status of the research on fear of success does not permit any stronger assertion about the utility of the construct in education. There are several gaps in the research at those junctures which would associate the fear of success construct with educational variables. For one thing, no study has asked about the effect of students' fear of success as it might bear upon their actual competitive performance in extant, naturally assembled academic classrooms. Nor has any study inquired about the influence of students' fear of success on the meaningful evaluation criteria commonly encountered by all students in their classes. That is, while several studies have used such convenient but artificial competitive tasks as the generation anagrams task, there are no studies which have considered actual examinations as criteria.

In short, this area of weakness in the literature means that there is no way to presently evaluate the validity of fear of success in educational practice. Since it is not sufficient to generalize from controlled studies using systematically matched pairs of subjects working on artificial tasks to real educational situations, there is a need for research to bridge this gap.

Another significant gap in the research has recently been created by the construction of several new instruments which purport to measure fear of success. Because the Horner fantasy-based technique was described as ambiguous and low in reliability, these new techniques were introduced to offer researchers and clinicians ostensibly better

techniques.

One of these new techniques is the empirically-derived fantasy-based scoring system by Horner, Tresemer, Berens and Watson (1973). This technique utilizes three or four unspecified verbal TAT cues rather than the single cue used in Horner's fantasy-based system (see Appendix A). Each story is scored on six categories, which are reported to explain 45% of the variance of performance decrements when subjects proceed from neutral to competitive conditions.

Another new measure of fear of success is Marice Pappo's (1972) objective questionnaire, which measures self-doubt, preoccupation with competition, preoccupation with evaluation, repudiation of competence and self-sabotage behavior (see Appendix B). Pappo (1972) reports that males and females who score high on this instrument significantly lower their performance on a digit symbol test when they are led to believe they have been successful on previous tests. But Curtis, Zanna and Campbell (1973) found that among law school students, Pappo's measure did not correlate with the original Horner measure. Moreover, it may be that the instrument in part measures will to fail.

A third new instrument purporting to measure fear of success is the Zuckerman and Allison (1973) Fear of Success Scale (FOSS) (see Appendix C). Zuckerman and Allison have obtained significant low correlations between FOSS and Horner's original method. Furthermore, Zuckerman (1975) has found female college students to have higher scores on the measure than males. Other research has shown that subjects with higher FOSS scores perform poorly on anagrams tasks under achievement-oriented instructions, when compared with subjects who score low on the measure. These findings would support the predictive validity of the

FOSS.

The gap in the literature on fear of success which was created by these new techniques is information about the reliability and validity of the measures. While some researchers appear ready to speculate about the quality of these measures, there appears to be very little research on the indices of realiability and validity of each of them. Perhaps most urgent of all is the need to determine whether these techniques actually measure the same construct of fear of success. Hoffman (1976) suggests that the new Horner scoring system might measure fear of failure. Unless it can be determined that all these extant measures of fear of success really measure the same variable and that this variable is in fact the construct of fear of success, the only outcome of further research which utilizes these instruments will be the addition of more gaps and inconsistencies in the literature.

In a general sense, then, what seems to be called for is a general examination of the construct of fear of success and its indicants. It has come from the expectancy-value theory of achievement motivation in an abstract manifestation, and it has yet to be applied to actual educational settings and to meaningful, competitive educational tasks. Moreover, the relevance of the construct stands ready to be made even more uncertain if a critical construct validation study is not conducted on its several ostensive measures. This study will provide evidence adequate for determining whether each of these techniques measures the construct of fear of success and whether these scales are valid for accounting for students' performance in academic settings, consistent with the theory on fear of success.

CHAPTER II

METHODOLOGY

Design and Background of the Method

To assert that this study involves construct validation of fear of success scales does not necessarily define the methodology of the study. What it does suggest, however, is that fear of success has no single available criterion or no set of operations which is considered fully valid alone. This is a crucial fact which differentiates between criterion-related validity and construct validity (Bechtold, 1951). Similarly, the Technical Recommendations (1954) expressed the original conception of construct validation as follows:

> . . .The psychologist interested in construct validity for clinical devices is concerned with making an estimate of a hypothetical internal process, factor, system, structure or state and cannot expect to find a clear unitary behavioral criterion. An attempt to identify any one criterion measure or any composite as the criterion aimed at is, however, usually unwarranted (pp. 14, 15).

Anastasi (1950) observed even earlier that tests can only be properly interpreted if we "know the relationship between the tested behavior and other behavior samples, none of these behavior samples necessarily occupying the preeminent position of a criterion" (p. 75). Cronbach and Meehl (1955) emphasize the value of clarifying constructs which are indeed indicated by performance, but are quite distinct from such performance.

Although there is no single acceptable criterion for the validation of a construct, it is often possible to identify several variables which, according to the theory behind the construct, will be positively or negatively associated with a measure of the construct. One of the most effective ways of assessing construct validity is to determine whether an instrument measures the construct in ways predicted by its theory. Selection of two theoretically different groups or manipulation of certain relevant conditions sets the occasion for determining the instrument's ability to measure differences in the construct in ways predicted by the theory.

A second method of assessing the construct validity of an instrument is to study the stability of test scores over time either with or without controlled experimental intervention. One would be interested in knowing the degree to which changes in the individuals or the environment would bring about changes in test results. The meaning of either stability or change of test scores would depend on how they are accounted for by the theory.

A third approach to construct validation is to correlate together several instruments which all purport to measure the construct. If any two tests are presumed to measure the same construct, one would expect them to be positively correlated. If one uses this method of construct validation, one must be careful that high obtained correlations do not result from irrelevant similarities of the tests rather than measurement of the construct. In other words, the dimensionality of the tests must be specified if this is to be the only method of conducting construct validation. Another problem associated with the use of this as a sole method is that assuming low correlations are obtained

between tests 1 and 2, unless other evidence is available, one could never be certain whether this fault was in the construct itself rather than the tests.

A fourth method of conducting a construct validation study is to obtain correlations between single items or separate parts of the test. Assuming the construct is in fact conceptualized as a unitary variable, one would expect that the item-test and interitem correlations would be positive. While this kind of study of the internal structure of the test is quite appropriate, another approach toward studying internal structure can be equally definitive: factor analysis. A classic article by Guilford (1946) explains the ways in which factor analysis provides a description of a test which is pure, stable and economical. While some argue that factors have no psychological reality, this criticism is not entirely true. Indeed, the value of factors is that they are authentically derived from empirically measured individual differences. The intercorrelations of the individual differences determine the factors, and the name attributed to these individual factors depend on the perceived commonalities in these groups of intercorrelated differences. When personality is defined in terms of individual differences, then it would seem that factors do have real psychological existence. These factors are also real in the sense that they probably also correlate with determining variables in the environment or in the biological makeup of the individual. In the realm of construct validation, factors help in understanding why a test can predict some criterion consistent with the theory behind the construct but not predict others. The degree to which the specific ways a test has construct validity can be described by a factor analysis of the scores

on the test. Finally, through the isolation of factors which are important to the construct, the test constructor can discard items which contribute to irrelevant factors and create a univocal test, free of such factors.

The development of a test which is a measure of a construct must begin with a theory of the construct, or what Cronbach and Meehl (1955) describe as a "nomological network." This network specifies the relationship between the construct and other concepts and indicators of behavior. Moreover, the same nomological network, which defines the construct must be accepted widely so that this view of the construct is a predominant and a consensual one.

Of course, in the early stages of development of the construct, the nomological network defining it is likely to be abbreviated and incomplete. The consequences of this relative incompleteness of parameters is that the construct is not able to account for or predict a wide variety of factors. As successively elaborating studies are conducted on the construct in areas just beyond the boundaries of the extant nomological network, the boundaries are expanded, and the entire network becomes more richly elaborated. In time, the construct can be called upon to relate systematically to other constructs and events. Cronbach and Meehl (1955) observe that the hypothesized network characterizes events which are part of an incompletely sampled cluster of concepts; hence it is used to make predictions relative to yet unsampled areas in the space represented by the network.

With any attempt at construct validation, one of two outcomes might result: 1) the test appears to have construct validity, or 2) the test does not appear to provide evidence consistent with the theory on

the construct. In the latter case, the meaning might be that:

1) the test does not measure the construct
2) the theoretical or nomological network representing the construct is incorrect
3) a fault in the experiment prevented accurate testing of construct validity.

But which of these interpretations will a researcher accept? If there are no obvious flaws in the experiment, upon reexamination of the study, then he is faced with a difficult task. The theoretician will be tempted to conclude the fault lies in the instrument, while the psychometrician might be predisposed toward labeling the construct as faulty. Perhaps the strongest assertion which can be made is that the bridge between the test and the construct network is weak. It must be realized that this bridge needs to be strengthened, and that it is unsafe unless both ends are planted on firm soil. The most effective way to anchor the theory of the construct is to test the accuracy with which it can make predictions relative to phenotypically diverse criterion variables. That is, the nomological network must be continuously extended to include variables other than those already incorporated in it. If all predictions made on the basis of a theoretical construct are pertinent only to a restricted range of criteria, then the validity of the utilized measure is also restricted. Validity is strengthened most effectively when the instrument is tested with a new and relatively uncharted segment of the nomological network. In doing so, the phenotypic space is enriched.

One last point concerning construct validity on a general level is that most methods of construct validation will not produce a

coefficient of validity. Perhaps the best one can strive to attain is a more general notion about the construct saturation of a measure. Even on this index, it is practical to simply establish the upper and lower bounds of the reliable test variance which can be attributed to the construct. Assuming, for example, an ostensible measure of selected variable A correlates .50 with a theoretically unrelated measure of variable B, the coefficient of determination of .25 indicates that 25% of the variance of the scores on selected variable A are accounted for by the other variable. This variance is irrelevant to variable A, and it could be considered an upper bound on the saturation of the test on variable A. If the measure of variable A correlates with other and more theoretically defensible and consistent variables at the level of .70, the 49% of the variance on the ostensive measure of variable A is apparently accounted for by the selected construct itself. This is the lower bound of construct saturation on the measure. In short, at least 49% and possibly as much as 75% of the variance on the test is accounted for by the selected variable. The establishment of such bounds of construct saturation would appear to be quite a useful objective.

With measures of fear of success there is a strong need for establishing construct validity. MacFarlane (1942), in a pioneering article on the construct validation of projective techniques, called attention to the especially tenuous validity most of these measures can boast. She particularly criticized the degree to which these techniques are interpreted in subjective ways. The three criteria for validation which she identified are: 1) that the concepts used must be explicitly identified, 2) that generalizations from these concepts should be limited to the samples originally used for validation, and

3) that appropriate validation techniques should be used in establishing the construct validity of these projective techniques.

Fear of success has been theoretically defined to some degree, but its meaning is still uncertain due to the failure to explicitly delimit the meaning of "competitive situation" and due to some remaining confusion on how it is related to tasks which are not conveniently "feminine" or "masculine." On the matter of generalization, fear of success has posed two problems. The nomological network has not been enriched by other interesting loci where fear of success might assume an influential role. Indeed, as this study points out, it has not been effectively validated in the classroom with real classroom tests under authentic competitive conditions. Until now, it has merely been assumed that its applicability extended to such tasks. And that is the other problem concerning generalization: it has been too freely assumed that fear of success is generalizable from restricted, controlled experiments to virtually all other situations which could be loosely construed as similar to those constructed in the extant studies. Spence (1974) has questioned the assumption that fear of success is the general single disposition which would be required if such a degree of generalizability were to be obtained. Indeed, one is led to suspect that Horner's selection of subjects, her selection of content for the single projective cue and others' emulations of these techniques might have identified a more specific phenomenon. Hoffman (1976) and Zuckerman and Wheeler (1975) have called for immediate attention to the quality of the scales which purport to measure fear of success.

With these considerations in mind, one of the ways this study attempts to establish the construct validity of each fear of success

instrument is to identify the degree to which the test can predict students' behavior on a final examination, consistent with the theory on fear of success. This method is recommended by Cronbach and Meehl (1955). This important point here is that the criterion is one which has not been used before. It is not an "artificial" or contrived performance task imposed upon the academic setting. Unlike the performance tasks frequently used in fear of success studies, such as generation anagrams tasks, students are not likely to perceive this task as an unimportant one. Heilbrun, Kleemeier and Piccola's (1974) subjects did not believe that successful performance on a digit-symbol task was important. In general, this aspect of the study establishes the strength of the relationship between fear of success and a segment of the nomological network relating to classroom performance.

The study is also designed to determine whether the three new measures of fear of success yield scores related to other characteristics of the tasks and the subjects as predicted by the theory of fear of success. The other variables selected here are considered to be the central concepts of the nomological network of fear of success: subjects' perceptions of the probability of succeeding on the task and the sex of the subjects. The most straightforward way in which students are able to judge the probability of success on a task is to be informed of its difficulty level. Knowing that a test item is correctly answered by most other students, or in other words, that the item is easy, permits them to judge their own probability of success on the item. Patty (1974) and Zanna (1973) used this method of manipulating students' perceptions of task difficulty but on less realistic performance tasks. Subjects were manipulated into competition with a selected

group of subjects in ways which did not represent actual competitive conditions in classrooms. Also, the instructions suggested to the subjects that tasks were either difficult or easy, with no medium difficulty level to produce uncertainty.

A final examination in any class is probably the single most important evaluation tool, and students are acutely aware of this. They also know that some items are more difficult than others. Another advantage of using the final examination as a performance criterion measure is that it can be conceptualized as several independent and equally important tasks. For each test item, students would probably find a description as either "high," "medium," or "low" difficulty as helpful in predicting their success. Extending the nomological network of fear of success theory, one would hypothesize that overall exam scores would be related to level of fear of success and that this effect might be dependent on the item difficulty levels as well. This would be the basis of an important research question.

The sex of the subject is also of interest here. Some of the literature reviewed in Chapter I reveals that sex was originally the key variable accounting for differences in fear of success, and some studies find persistent patterns of evidence for this assertion. But these findings are far from consistent. The research question would ask whether the sex differences predicted by the theory would be obtained.

In addition to the predictive power of fear of success, as measured by the selected instruments, another test of construct validity is afforded by correlating together all the measures of fear of success. This study is designed to correlate all the selected measures together

in order to investigate the research question of whether each of the instruments measures the same construct. As Alpert and Haber (1960) argue with respect to this method as they applied it to anxiety scales, high intercorrelations among the scales would suggest that there is indeed a single underlying state of fear of success, so that general measures are appropriate. Low correlations would call into question the existence of such a general trait of fear of success and suggest that measures of such a general trait are misguided.

An especially important research question would be whether the scales which purport to measure fear of success actually correlate positively with a measure of fear of failure. If this occurs, the construct of fear of success as a distinct and pure construct is placed in jeopardy. A significant correlation of any of the fear of success measures with the fear of failure measure means that a certain proportion of the variance of fear of success can be accounted for by fear of failure. It is this proportion of variance which establishes the upper bound of the construct saturation on the measure of fear of success.

Just as the correlation between fear of success scores and fear of failure scores establishes the upper bound of an instrument's construct saturation on fear of success, the correlation between fear of success scores and another variable related to fear of success theory can be considered the lower bound of an instrument's construct saturation. Although research findings are mixed, it would seem theoretically logical that lower scores on low difficulty exam items ought to be obtained by subjects with high fear of success than with low fear of success. High fear of success subjects would likely perceive the prospect of success as a cue to avoid doing well. Although it may be premature

to make directional predictions of self-sabotage on the basis of theory and research findings, the research question would be whether there is a negative correlation between fear of success on each of the instruments and students' scores on the group of items labeled as "low" in difficulty.

If the data obtained in establishing the upper and lower bounds of construct saturation are combined, one obtains a range of construct saturation. This is the most precise figure available for the construct saturation of each test, according to this analysis. But if all data from the several methods utilized in this study are intuitively aggregated, it would appear that a fairly accurate index of the general construct validity of each instrument will be obtained. It is this general index, combining outcomes of all analyses performed here, that is most useful for answering another crucial research question asking which end of the "bridge" of construct validity, either the tests or the theory, should be revised or whether either end of the bridge needs strengthening.

The design and instrumentation of this study suggest other research questions. One is whether the scorer reliabilities on the projective technique of fear of success is appropriately high for this study. The other research question asks whether one of the measures of fear of success stands out as superior to the others on the basis of an aggregation of all the evidence, and what this apparent superiority implies for the use of the instrument.

Sample

The subjects included 68 graduate students enrolled in courses in Standardized Testing, and Growth and Behavior as well as 14 from other classes, all in the College of Education at Michigan State University during the summer term, 1976. The total sample size was, therefore, 82. Of these, 57 were females and 25 were males. On the basis of combined self-report indices of mother's and father's occupation and mother's and father's educational attainment, coded as in Appendix F, 2 were classified in the lower-upper class, 10 were in the upper-middle class, 52 were of lower-middle class origins, and 18 were found to have upper-lower class origins. No subjects could be described as members of either the upper-upper or the lower-lower classes. The mean age of the subjects was 28.79. See Figure 1 for a description of the age characteristics of the sample. Racially, the sample consisted of 78 whites and 4 blacks.

Measures

The scales with which the variables of interest were measured included a questionnaire designed to assess the background variables: social class, race, and age. But the questionnaire consisted largely of three purported new measures of fear of success and one measure of fear of failure. The fear of success techniques are Horner's empirically derived fantasy-based instrument, Pappo's Fear of Success Questionnaire (FOS), and Zuckerman and Allison's Fear of Success Scale (FOSS). Appendices A through C display these measures. Appendix E shows the segment of the questionnaire which measures the background variables alluded to above, including instructions to subjects for responding to the questionnaire.

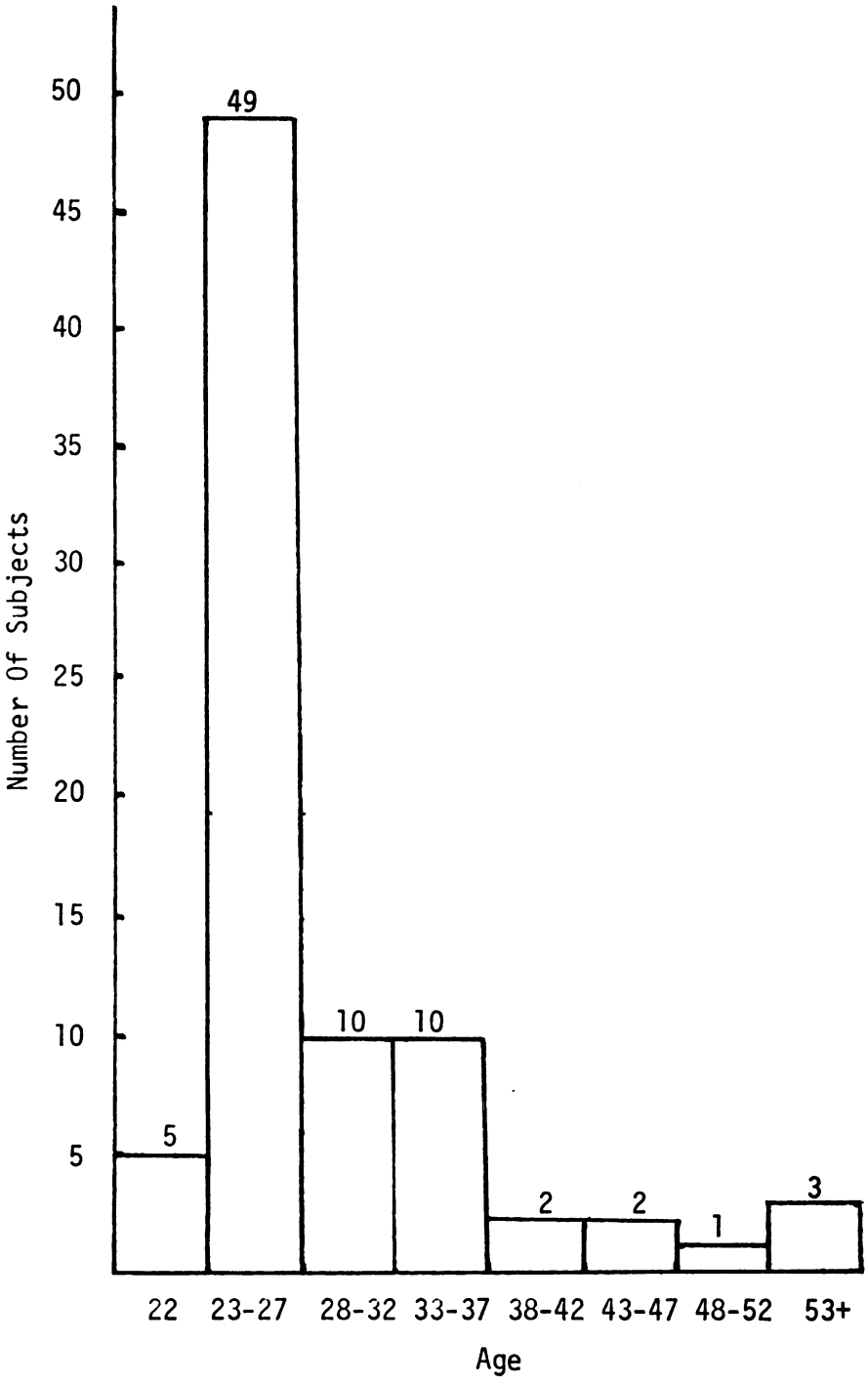

Figure 1.--Age Composition of the Sample by Class Intervals

As indicated in Chapter I, Horner's original fantasy-based measure of fear of success was intended to fill the need for a measure of a dynamic trait which inhibited capable individuals, particularly women, from performing as their ability levels would otherwise permit. A verbal projective cue was selected rather than a picture because Horner believed it permitted the testing of males and females with equal effectiveness. It was alleged to do this because of the relative ease of finding cues with similar values for males and females. Whether this is necessarily true is not certain, as indicated in the literature reviewed in Chapter I, some of which treated the inherent masculinity or femininity of the cues as the primary variable of interest. Horner cited such other successful attempts at using verbal cues as Winterbottom (1953), French (1955), and Atkinson and Litwin (1960). She selected six verbal cues altogether, the first four of which were used to measure achievement motivation, while the other two were intended to explore sex differences in achievement motive. Only the sixth cue was intentionally included to measure motive to avoid success.

The scoring system adopted for the cue was a simple present-absent system. If there was any negative imagery about success, the stories were scored to contain fear of success. Any of the following negative responses was considered to indicate fear of success.

1) Negative consequences because of success.
2) Anticipation of negative consequences because of success.
3) Negative affect because of success.
4) Instrumental activity away from present or future success, including leaving the field for more traditional female work

such as nursing, school teaching or social work.

5. Any direct expression of conflict about success.
6. Denial of the situation described by the cue.
7. Bizarre, inappropriate, unrealistic, or nonadaptive responses to the situation described by the cue.

For the cue, "After first-term finals, John (Anne) finds himself (herself) at the top of his (her) medical school class," Horner obtained 96% rescore reliabilities on 40 protocols and 90% reliability with an independent scorer on 90 protocols (Horner, 1974). But, as observed in Chapter I, while typical scorer reliabilities are .80-.90, the wide range of obtained fear of success imagery across studies raises a question about the possible existence of unique scoring systems across these experiments. And, of course, the validity of this measure is, as Zuckerman and Wheeler (1975) have observed, uncertain.

Possibly due to the weaknesses inherent in the original system, a new empirically derived fantasy-based scoring system was developed by Horner, Tresemer, Berens and Watson (1973). It assigns a fear of success score to individuals according to six categories of responses. For each of three or four undefined, unspecified cues, scoring is conducted as follows.

(a) (+2) is scored when negative consequences are caused by the person.

(b) (+2) is scored when negative consequences are caused by external factors.

(c) (+2) is scored when two or more persons are involved with each other.

(d) (+1) is scored when tension or deprivation is alleviated.

(e) (+1) is scored when there is no activity toward attaining a goal.

(f) (-2) is scored when there are no characters in the story except for the person specified in the cue.

No reliability data have been reported on the new scoring system, but the authors recommend that an intertester reliability of .85 should be obtained before using the measure in research.

One of the new objective measures of fear of success is the Zuckerman and Allison (1973) Fear of Success Scale (FOSS). This is a 27 item questionnaire which asks subjects to either agree or disagree with items considered to be indicative of fear of success. The items describe either the benefits of success, the cost of success or the respondent's attitudes toward success compared to other alternatives. About one-half of the items are scored positively in the direction of high fear of success, so that subjects' agreement is indicative of the construct. For the other items, disagreement is indicative of fear of success. The authors of the test report low (.18) but significant correlation between the scale and Horner's original fantasy-based system for females. With both males and females in the sample, correlations of .19 ($p < .05$) and .25 ($p < .05$) are reported with Horner's original measure.

No reliability coefficients are reported for the measure, and Zuckerman and Wheeler (1975) conclude that it is too early to pass judgment on this or on the other new fear of success scales.

The other new objective fear of success scale is the 83 item yes-no questionnaire developed by Pappo (1972) as part of a doctoral dissertation. The Fear of Success Questionnaire (FOS) is suitable

either for administration in groups or individually. The reported reliability of the questionnaire is .90. The measure is constructed to tap the following five aspects of fear of success: self-doubt, preoccupation with competition, preoccupation with evaluation, repudiation of competence and self-sabotage behavior. Scoring of the Pappo scale is according to the number of questions which are responded to in the direction keyed to theory of fear of success.

The measure of fear of failure used in this study is one which has been used for this purpose quite frequently (Horner, 1974): the Alpert-Haber (1960) Achievement Anxiety Test (AAT). When the test is used to measure fear of failure, common practice is to use only half of the instrument: the Debilitating Anxiety Scale. This is a 10 item questionnaire which is sensitive to the anxiety which interferes with students' performance on academic tasks. All the items are based on the single factor of inhibiting students' performance. Students may possess a large amount of debilitating anxiety but little facilitating anxiety, which is measured by the Facilitating Anxiety Scale. The Debilitating Anxiety Scale has a test-retest reliability of .87 after a 10 week interval and reliability of .76 after an 8 month interval. When given as a whole, the AAT mixes the items from the FAS and the DAS along with some neutral buffer items. In this study, the DAS items will be given alone, without the other items, in the interest of saving respondents' time in completing a rather lengthy questionnaire.

The validation of the Debilitating Anxiety Scale was carried out by Alpert and Haber (1960). They correlated the scale with the Mandler-Sarason Test Anxiety Scale (1952), a widely accepted specific anxiety measure, and obtained a correlation of .64 ($p < .01$). The

Debilitating Anxiety Scale is shown in Appendix D.

The measure of performance under competitive conditions was the regular final examination. The only alteration made on this measure was the addition of individual item difficulties, indicated by the descriptors "High," "Medium," or "Low."

Procedures

One week prior to the final examination, 68 subjects in Standardized Testing and Growth and Behavior were asked to complete a questionnaire outside of class to obtain data on the background variables of socioeconomic status, race and age. In addition, these students' fear of success was measured on each of the three fear of success instruments and fear of failure was measured on the Alpert-Haber Debilitating Anxiety Scale. Fourteen additional subjects responded only to the background questions, fear of success and fear of failure measures.

Race and social class data were gathered only to permit the description of the sample used in this validation of the selected scales. These variables were not built into the design of the study. In addition, subjects' sex was recorded. The total time required to complete the questionnaire was about 50 minutes. Appendix E displays the background variable questions.

The second testing session was the final examination in the classes. In addition to the specifications of item difficulties on the exam, the only other special conditions incorporated into the examination consisted of the instructions to subjects, shown in Appendix G.

Before distributing the final exam, each item was, of course, described according to its difficulty level as "High," "Medium," or "Low" difficulty. These descriptions accurately represent the exam items, based on the proportions of correct responses to the items when they were used on previous final examinations. That is, items in the upper third of item difficulties were described as "High" in difficulty; those in the middle third were labeled "Medium" in difficulty; and those in the lowest third were described as "Low" difficulty items.

After data had been gathered on all measures incorporated into the questionnaire, the answer sheets of all subjects were scored by the experimenter for the background variables and the FOS and FOSS measures. In order to perform a test of scorer reliability on the Horner empirically-derived measure, two raters, the experimenter plus another graduate student familiar with the scoring system, independently scored the stories, obtaining a scorer reliability of .87, computed as a Pearson product-moment correlation.

When the final examination scores were obtained, subjects' scores on each group of exam items, "High," "Medium," and "Low" difficulty, were also recorded on each subject's questionnaire. To summarize, for each subject, data collected included:

(a) Sex

(b) SES

(c) Race

(d) Age

(e) Score on Horner's instrument

(f) FOS score

(g) FOSS score

(h) Alpert-Haber Debilitating Anxiety Scale score

(i) Total score on "High" difficulty exam items

(j) Total score on "Medium" difficulty exam items

(k) Total score on "Low" difficulty exam items

Students in all Standardized Testing classes were given a common final exam, and this test as well as the Growth and Behavior final exam were both specifically planned to consist of 54 items, evenly divided into low, medium and high difficulty items.

Hypotheses

A major part of the construct validation of the three fear of success measures selected here concerns the extent to which the scores on these instruments are related to overall final exam scores and to the scores on subsets of high, medium and low difficulty items. There is probably inadequate research evidence and insufficient theoretical background to predict the directional influence of the interaction of fear of success with item difficulty. And it may be that fear of success does not affect test performance unless it is aroused. In this study, the arousal condition is item difficulty level. Nevertheless, if a directional hypothesis concerning the total test score is appropriate, one would predict that since fear of success is conceptualized as a stable trait of the individual, it might have a general inhibiting effect on test items, regardless of their difficulties. By the same token, one would expect subjects' scores to be determined by item difficulty levels, regardless of the subjects' level of fear of success.

For each fear of success instrument, several specific hypotheses were tested.

Hypothesis I

The overall final exam score will be lower for subjects who score high on the Horner projective instrument than for subjects who score low.

Hypothesis II

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Horner instrument.

Hypothesis III

The scores of high fear of success subjects on the Horner instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

Hypothesis IV

The overall final exam score will be lower for subjects who score high on the Pappo FOS instrument than for subjects who score low.

Hypothesis V

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Pappo FOS instrument.

Hypothesis VI

The scores of high fear of success subjects on the Pappo FOS instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

Hypothesis VII

The overall final exam score will be lower for subjects who score high on the Zuckerman and Allison FOSS than for subjects who score low.

Hypothesis VIII

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Zuckerman and Allison FOSS instrument.

Hypothesis IX

The scores of high fear of success subjects on the Zuckerman and Allison FOSS instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

Hypothesis X

On the Horner fear of success instrument, a significantly higher proportion of females than males will obtain high fear of success scores.

Hypothesis XI

On the Pappo fear of success scale (FOS), a significantly higher proportion of females than males will obtain high fear of success scores.

Hypothesis XII

On the Zuckerman and Allison fear of success scale (FOSS), a significantly higher proportion of females than males will obtain high fear of success scores.

Hypothesis XIII

Obtained intercorrelations among scores on the three fear of success measures will be significantly positive.

Hypothesis XIV

Correlations between scores on each of the fear of success measures and scores on a measure of fear of failure will be significantly negative.

Hypothesis XV

Correlations between scores on each of the fear of success measures and subjects' scores on the low difficulty final exam items will be significantly negative.

The final research question shall remain formally unstated as a hypothesis to be tested statistically. This question is whether an aggregation of the data from all analyses conducted will indicate that the construct validity of each fear of success measure is adequate.

Analysis

Several analytic procedures were utilized to test these hypotheses. Hypothesis I through IX were tested in a series of three 2x3 univariate repeated measures ANOVAS. Scores on each fear of success measure were dichotomized as high or low at the median score, and these dichotomized scores served as one of the main effects. A separate ANOVA was conducted for each measure of fear of success. The main effects of level of fear of success and item difficulty and the interaction effect of item difficulty X fear of success all were tested for significance.

Hypotheses X, XI and XII required a determination of whether,

on each measure of fear of success, significantly more females than males obtained high fear of success scores. Chi-square tests were conducted in which the variables were fear of success measures and sex. Proportional differences between males and females on each of the fear of success scales were tested at the .05 level of significance.

Hypotheses XIII and XIV required that all the fear of success scales and the measure of fear of success be intercorrelated. This required the calculation of Pearson product-moment correlations. The Pappo FOS, Zuckerman and Allison's FOSS, Horner's empirically derived instrument and the Alpert-Haber DAS were all appropriately correlated together using the Pearson Product Moment.

In Hypothesis XV the concern is with correlating scores on each of the fear of success scales with scores on the low difficulty items on the final examination. For this test, which is crucial in establishing the lower bounds of the range of each scale's construct saturation, it is once again appropriate to calculate Pearson product-moment correlations between the low difficulty item scores and the FOSS, FOS, and Horner's fantasy-based measure. The resulting correlation coefficients are necessary for the calculations of r^2, the coefficients of determination, which are used as the lower bounds of the construct saturations.

The last research question asks whether the evidence from all hypothesis tests leads to the conclusion that each measure of fear of success has demonstrable construct validity. This involves the final analytic step of combining data obtained from the item difficulty and sex differences analyses, the intercorrelations of the fear of success measures, the correlations of the fear of success measures with the

fear of failure measure and the degree of construct saturation of each measure. This combination of evidence is used to judge whether there is support for the assertion that each instrument has construct validity. Finally, this aggregation of data from all hypothesis tests permits general conclusions concerning the ability of the nomological network of construct validity to encompass the effect on performance on academic tasks.

Summary

The sample for this study consisted of 82 students enrolled in graduate courses in the College of Education at Michigan State University, including 25 males and 57 females. Data were collected on race, age, SES, three measures of fear of success and one measure of fear of failure. In addition, scores or numbers correct were recorded for final examination items in three groups: "high" difficulty, "medium" difficulty, and "low" difficulty.

The study was done in order to test fifteen research hypotheses which, taken separately provide evidence for several indices of construct validity, and taken together permit making an assertion about the degree of construct validity of each of the measures. In testing these hypotheses, several analytic techniques were used. Repeated measures ANOVA was used to test the extent to which theoretically predicted differences on the basis of item difficulties had been obtained, and chi-square tests were used to determine whether proportional sex differences consistent with fear of success theory had been obtained. To determine the strengths of the correlations among the three fear of success scales, the fear of failure scales and the scores on the "low"

difficulty items, Pearson product-moment correlations were calculated. While the correlations among fear of success scales were analyzed in reaching a conclusion about the construct validity of each scale, the correlations between the fear of success scales and the fear of failure scale were used for this reason and additionally to establish the upper bound of the construct saturation of each of the fear of success measures. This was calculated as the proportion of fear of success variance accounted for by scores on the fear of failure measure. To obtain this proportion, the coefficient of determination, r^2, was calculated. To establish the lower bound of construct saturation, correlations were obtained between the fear of success scores and scores on the "low" difficulty exam items. This performance criterion was selected to establish the lower bound because it would appear to be an ideal variable in the educational setting. Moreover, it might be predictable from fear of success theory that students who obtain high fear of success scores will obtain low scores for those test items on which they have a good chance of succeeding. Pearson product-moment correlations were calculated between these score distributions.

Finally, all evidence from the several analyses were aggregated to provide a basis on which to judge the magnitude of the construct validity of each of the scales. Interpretations and conclusions were derived from these data regarding the construct validity of each of the measures as well as the strength of the construct itself.

CHAPTER III

ANALYSES AND RESULTS

Introduction

In this chapter the results of the several analyses conducted will be presented, together with brief explanations of the rationales and/or justifications for selection of the methods of analysis. All analyses were conducted using the CDC 6500 computer at the Michigan State University Computer Center. It will be both appropriate and efficient to restate each research hypothesis, discuss the outcome of the test of the hypothesis and describe the analysis which permitted the outcome to be obtained. In the course of this description, three different analyses will be discussed. The first is a set of repeated measures analysis of variance tests, each with three repeated measures on two groups. Second is a series of chi-square tests, with one test for each fear of success instrument. The third analysis is an investigation of the correlations between the three measures of fear of success and the measure of fear of failure.

To conduct these analyses, two computer programs were utilized by the CDC 6500 computer. The first was Statistical Package for the Social Sciences (SPSS). This program calculated the Pearson product-moment correlations, and the chi-squares and, in addition, provided complete distributions and a full complement of statistics for all variables. The second program was PROFILE. This program is

specifically written to do split-plot or repeated measures ANOVA with any number of repeated measures and with any number of groups. It is also written to accommodate unequal cell sizes in the groups. In short, it accomplishes precisely the type of analysis required in this study. It furnishes, in addition to the ANOVA table, a calculation of conservative degrees of freedom required for the Greenhouse-Geisser test. This conservative test is necessary in the event that the Box Chi-square test of homogeneity in the variance-covariance matrix is significant (Kirk, 1968). Following are results of all fifteen hypothesis tests.

The Effect of Fear of Success on Examination Performance

Hypothesis I

The overall final exam score will be lower for subjects who score high on the Horner projective instrument than for subjects who score low.

Hypothesis II

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Horner instrument.

Hypothesis III

The scores of high fear of success subjects on the Horner instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

These three hypotheses are grouped together, of course, because the repeated measures ANOVA provides a test of all three simultaneously. These three hypotheses represent the tests of the two main affects of

fear of success and item difficulty and the interaction effect of fear of success by item difficulty. The results of each test are shown in Table 1.

Hypothesis III concerns the critical interaction effect. Significance of this interaction would mean that the subjects' performance on items of different difficulty levels was dependent upon their level of Horner fear of success. It is clear, however, that this interaction is not significant. It appears that there is no significant discrepancy between the scores of high and low scoring subjects on the Horner measure at any level of item difficulty. Those small but nonsignificant differences that were found are shown in Figure 2. It would appear that the obtained differences are not only statistically nonsignificant, but they may also be insignificant in terms of raw score discrepancies.

Of special interest in the understanding of this nonsignificant interaction effect is the nature of the differences which do exist. Subjects who score high on Horner fear of success score somewhat higher on low and on high difficulty items, than do low Horner subjects. This relationship is reversed on medium difficulty items, however, where the scores of low difficulty items becomes relatively higher.

Since the interaction effect is rejected, it is appropriate to proceed to tests of the main effects: Horner fear of success and item difficulty. Hypothesis I addresses the former of these while Hypothesis II is concerned with the latter.

Hypothesis I is rejected, since there is no significant difference between high and low Horner fear of success subjects on the total exam score. The other main effect, item difficulty, is clearly

Table 1.--Results of Analysis of Variance on Examination Items Using Horner's Empirically Derived System as a Measure of Fear of Success

Source	SS	df	MS	F	Significance Level
Horner Fear of Success (Groups)	2.121	1	2.121	.174	NS
Subjects Within Groups	803.305	66	12.171		
Item Difficulty (Repeated Measures)	849.098	2	424.549	108.757	$p<.001$
Item Difficulty X Horner Fear of Success	14.955	2	7.477	1.916	NS
Item Difficulty X Subjects Within Groups	515.280	132	3.903		
Total	2184.759	203			

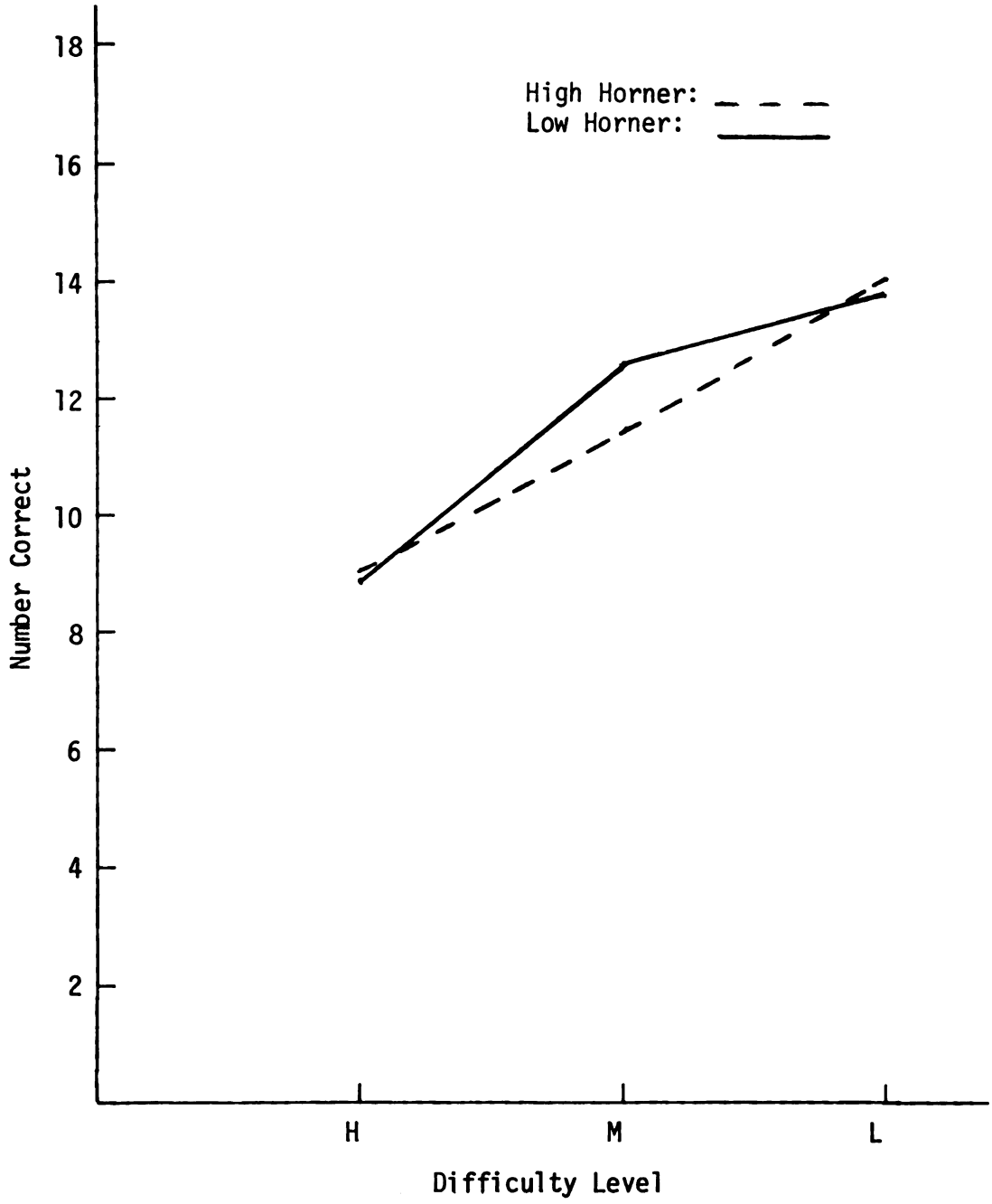

Figure 2.--Number Correct on Low, Medium and High Difficulty Final Exam Items for Subjects Scoring High and Low on the Horner Instrument.

significant ($F = 108.7$, $p < .001$) and Hypothesis II is confirmed. Subjects do obtain higher scores on middle difficulty items and scores that are higher still on low difficulty items. Of course, this finding is highly predictable since the item difficulties selected for the final exams were empirically established on previous administrations. Indeed, failure to confirm Hypothesis II would have been a most unusual outcome.

Hypothesis IV

The overall final exam score will be lower for subjects who score high on the Pappo FOS instrument than for subjects who score low.

Hypothesis V

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Pappo FOS instrument.

Hypothesis VI

The scores of high fear of success subjects on the Pappo FOS instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

Here again, as with Hypothesis I through III, these three hypotheses are grouped for discussion since they are tested simultaneously by the repeated measures ANOVA where Pappo FOS scores are one of the main effects. As in the first three hypothesis tests, the interest here is in two main effect tests and one interaction effect. The results of all tests are shown in Table 2.

Hypothesis VI is the critical interaction hypothesis. Table 2

Table 2.--Results of Analysis of Variance on Examination Items Using Pappo's FOS Questionnaire as the Fear of Success Measure

Source	SS	df	MS	F	Significance Level
FOS Fear of Success (Groups)	7.383	1	7.383	.611	--
Subjects Within Groups	798.042	66	12.091		
Item Difficulty	849.098	2	424.549	112.463	--
Item Difficulty X FOS Fear of Success	31.931	2	15.965	4.229	$p<.05$
Item Difficulty X Subjects Within Groups	498.303	132	3.775		
Total	2184.759	203			

indicates that this effect is significant ($F = 4.229$, $p < .05$). Scores on high, medium and low difficulty items are unequal for subjects who score high and low on FOS fear of success. This relationship suggests that the level of performance on items at different difficulty levels depends on subjects' level of FOS fear of success. The nature of the obtained item score differences for the two levels of fear of success appears in Figure 3. Here again, as was found in the test of Hypothesis III, the actual raw score differences are not substantial. But statistical significance is achieved in these differences.

It is apparent from Figure 3 that the nature of the significance in the obtained interaction lies in the fact that high FOS subjects score consistently lower on low and medium difficulty exam items than low FOS subjects, but relatively higher on high difficulty items.

Obtaining a significant interaction effect, of course, prohibits drawing any conclusions about the main effects which contribute to the interaction. In this case, then, while the repeated measures ANOVA provided tests for FOS fear of success and item difficulty, it will not be possible to do more than simply report the results of these tests.

The F of .611 for FOS fear of success is extremely small and the F of 112.463 for item difficulty is very large. While these ratios are extreme, it is, of course, not theoretically possible to determine their significance, because the two factors which they represent are not independent of each other in their effect on exam scores. In short, it is not appropriate to either accept or reject Hypothesis IV or Hypothesis V.

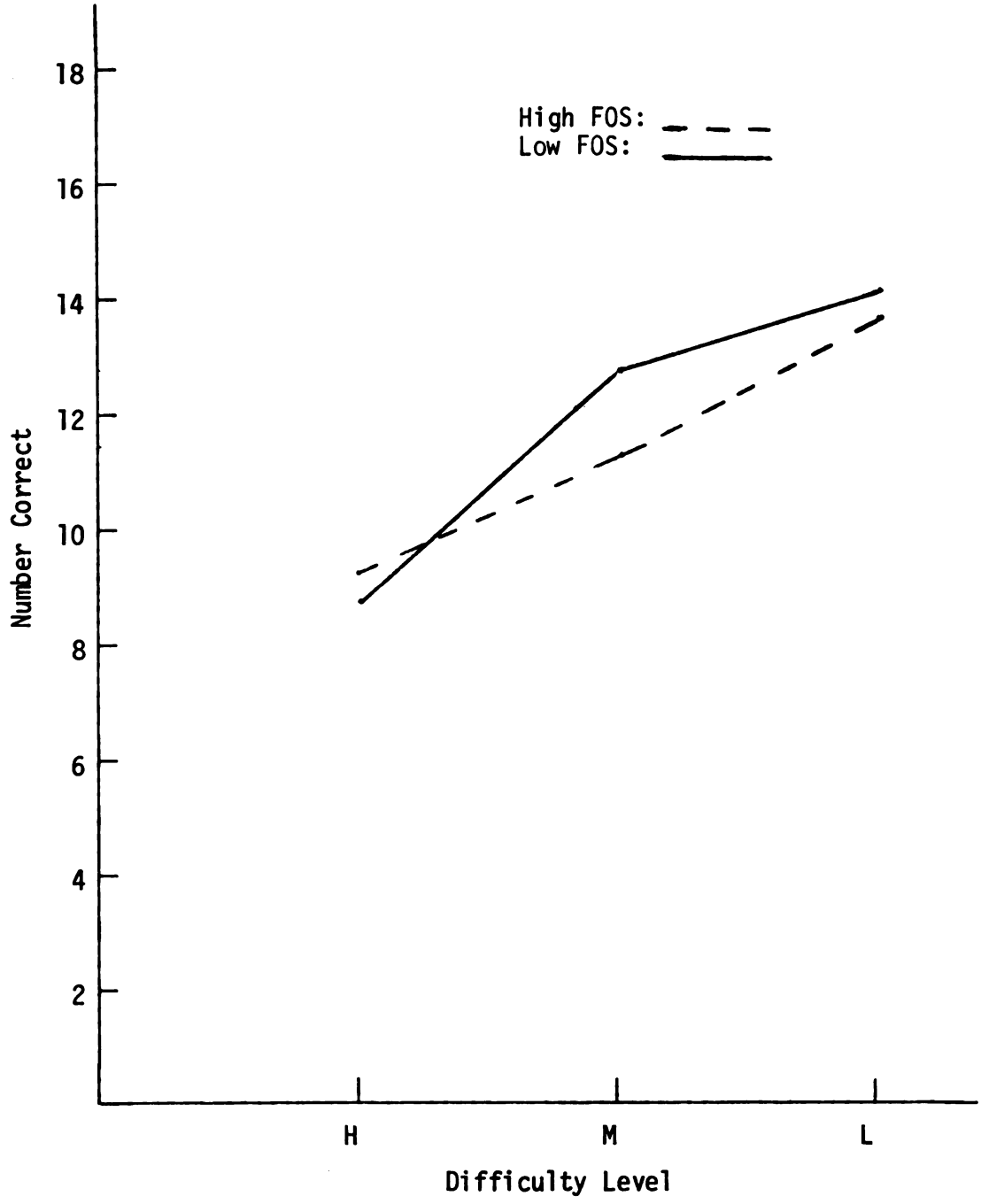

Figure 3.--Number Correct on Low, Medium and High Difficulty Final Exam Items for Subjects Scoring High and Low on the Pappo FOS Questionnaire.

Hypothesis VII

The overall final exam score will be lower for subjects who score high on the Zuckerman and Allison FOSS than for subjects who score low.

Hypothesis VIII

Obtained scores will be higher on items of low difficulty than on items of medium difficulty, and scores on medium difficulty items will be higher than scores on high difficulty items, regardless of subjects' scores on the Zuckerman and Allison FOSS instrument.

Hypothesis IX

The scores of high fear of success subjects on the Zuckerman and Allison FOSS instrument will be unequal to those of low fear of success subjects at the low, medium and high item difficulty levels.

For these three hypotheses the repeated measures ANOVA again provided simultaneous tests, and they will therefore be considered together. The results are shown in Table 3.

In Hypothesis IX, there is again a test of an important interaction effect. Confirmation of this hypothesis would mean that the scores on the three levels of item difficulties depend on subjects' scores on FOSS fear of success. Indeed, Hypothesis IX is confirmed, and it appears that performance on low, medium and high difficulty items is dependent upon one's level of FOSS fear of success. The F of 5.930 is significant ($p<.01$).

Here again, as in the previous tests of interaction effects, it is worthwhile to examine the directions of the differences between high

Table 3.--Results of Analysis of Variance on Examination Items Using Zuckerman and Allison's FOSS as the Fear of Success Measure

Source	SS	df	MS	F	Significance Level
FOSS Fear of Success (Groups)	15.825	1	15.825	1.323	--
Subjects Within Groups	789.601	66	11.963		
Item Difficulty	849.098	2	424.549	115.186	--
Item Difficulty X FOSS Fear of Success	43.713	2	21.856	5.930	$p<.01$
Item Difficulty X Subjects Within Groups	486.521	132	3.685		
Total	2184.759	203			

and low FOSS subjects. Figure 4 illustrates that the loci of the interaction effect are virtually identical to the loci in Figure 3, which represents the interaction effect of scores on Pappo's FOS instrument. High FOSS subjects score consistently lower than low FOSS subjects on both the medium and low difficulty items. On high difficulty items, however, the scores of high FOSS subjects are higher than those of low FOSS subjects.

Another finding which should be recognized is that while the statistical significance of the differences between high and low FOSS subjects is established, it is clear that the actual raw score differences are small. In any event, the interaction effect is supported.

Here again, since a significant interaction was obtained, it is not theoretically correct to perform a test on the main effects involved in the interaction. This means that FOSS fear of success and item difficulty, the main effects, will not be testable here. Although the ANOVA calculated F ratios for these factors, it will not be possible to interpret them.

The F of 1.323 for FOSS fear of success is quite low and the F of 115.186 for item difficulty is very large. But it is still theoretically impossible to arrive at meaningful conclusions about the significance of these ratios. The factors of FOSS fear of success and item difficulty are not independent of each other with respect to their effect on exam scores. Hypotheses VII and VIII cannot, therefore, be accepted or rejected.

One final comment is necessary as a rationale for the use of the univariate repeated measures ANOVA as a test of Hypotheses I through IX. The justification of selecting this test as opposed to a

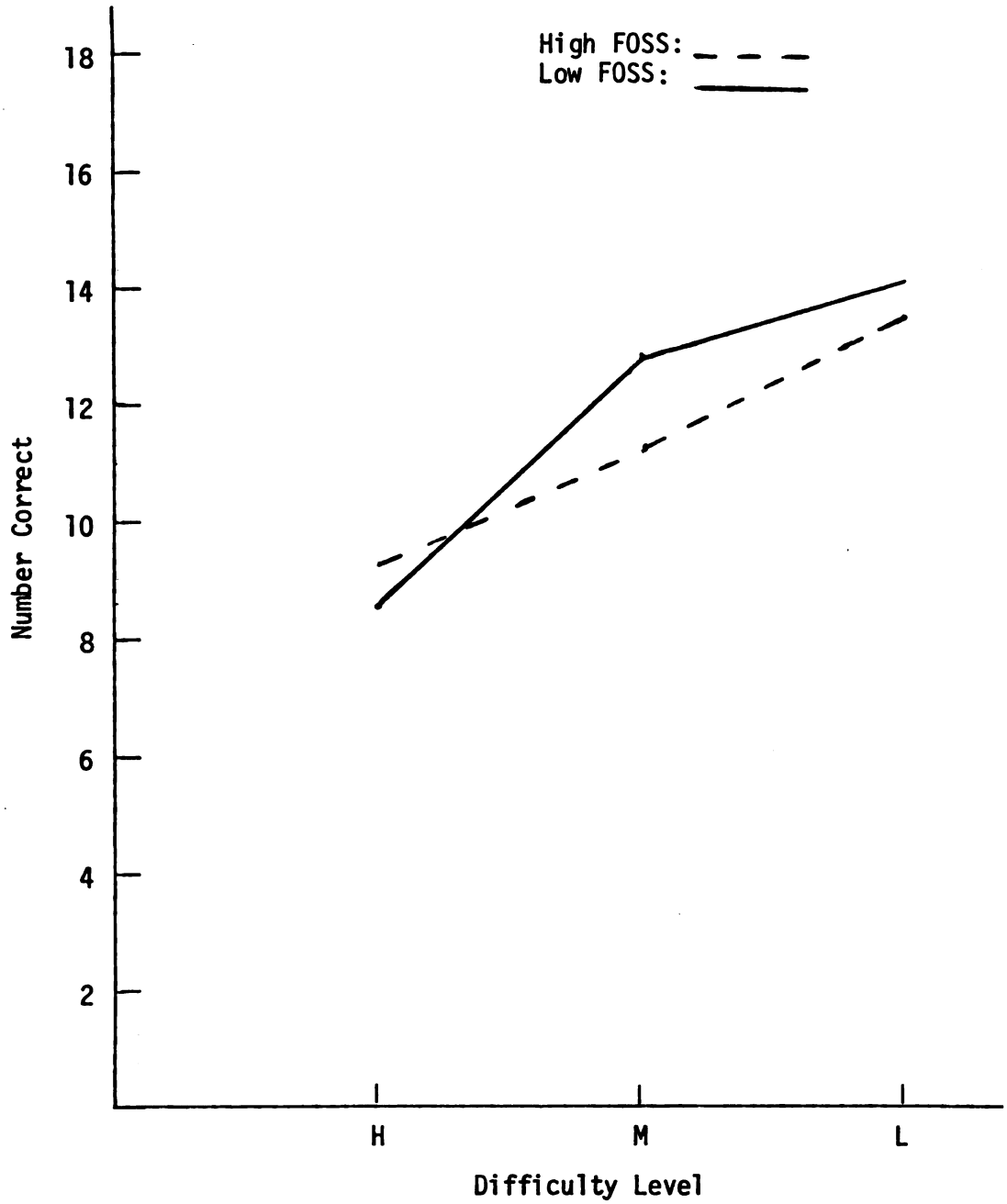

Figure 4.--Number Correct on Low, Medium and High Difficulty Final Exam Items for Subjects Scoring High and Low on the Zuckerman and Allison FOSS.

repeated measures MANOVA lies in the nonsignificant chi-squares calculated in Box's test for homogeneity in the variance-covariance matrix. Separate Box chi-square statistics were calculated for the matrices representing each fear of success instrument. The chi-square statistics did not reach an acceptable level of significance for any of the matrices. For the Horner instrument, the chi-square for the pooled variance-covariance matrix was 4.79 with 4 df ($p<.30$). For the FOS, the chi-square was 3.81 with 4 df ($p<.30$), and for the FOSS, the chi-square was 3.37 with 4 df ($p<.50$). These nonsignificant chi-squares indicate that in every case the use of a univariate ANOVA is appropriate.

Since the variances and covariances are not heterogenous for any of the three fear of success instruments, it was not necessary to use the Greenhouse-Geisser conservative F test either. In short, the data collected met the assumptions required for the selected analysis.

Sex Differences on Fear of Success

Hypothesis X

On the Horner fear of success instrument, a significantly higher proportion of females than males will obtain high fear of success scores.

Of course, to test this hypothesis, a chi-square statistic was calculated in which the variables were Horner fear of success and sex. The results of this test are shown in Table 4. Actual proportions of males and females are 40.0% and 50.9%, respectively, in the Horner high fear of success group. The chi-square statistic is .4459 with df = 1 ($p<.50$). Of course, this is not a statistically significantly

Table 4.--Chi-squares for Sex Differences in Fear of Success on Each of the Fear of Success Measures

Measure	Percent High Fear of Success Males	Percent High Fear of Success Females	χ^2	df	Signif
Horner	40.0	50.9	.4459	1	.50 (NS)
FOS	48.0	52.6	.0214	1	.88 (NS)
FOSS	44.0	52.6	.2301	1	.63 (NS)

finding, and therefore Hypothesis X is rejected. There is no significant difference between males and females in the proportions of high Horner fear of success scores.

Hypothesis XI

On the Pappo fear of success scale (FOS), a significantly higher proportion of females than males will obtain high fear of success scores.

Here again, a chi-square statistic was calculated in which the factors were FOS fear of success and sex. For the actual proportions of 48.0% for males and 52.6% for females, a chi-square of .0214 with df = 1 ($p<.88$) is found. This nonsignificant chi-square means that Hypothesis XI is rejected. There is no proportional difference between males and females on high FOS fear of success.

Hypothesis XII

On the Zuckerman and Allison fear of success scale (FOSS), a significantly higher proportion of females than males will obtain high fear of success scores.

On this hypothesis, as on Hypotheses X and XI, a chi-square

test was calculated in which the factors were sex and FOSS fear success. The actual proportions of females and males who scored on FOSS fear of success are 52.6% and 44.0%, respectively. The chi-square was .2301 with df = 1 ($p<.63$). Here again, this chi-square is not significant, and Hypothesis XII is rejected. There is no significant proportional difference between males and females on FOSS fear of success.

Concurrent Validity of the Fear of Success Instruments

Hypothesis XIII

Obtained intercorrelations among scores on the three fear of success measures will be significantly positive.

To test this hypothesis, Pearson product-moment correlations were calculated between all measures of fear of success. Table 5 shows the magnitude and the significance levels of these correlations. Since there was no clear evidence in the literature that these instruments measure different traits, significant positive correlations were predicted between the three measures. This hypothesis must be partially accepted. All obtained correlations were indeed positive, although significant correlations were not obtained in most cases. Inspection of Table 7 will reveal that among the correlations, only one, $r_{FOS,FOSS}$, is significant at $r = .299$ ($p<.003$). All other correlations between the various fear of success scales were nonsignificant at the adopted .05 level.

Relationships Between Fear of Success and Fear of Failure

Hypothesis XIV

Correlations between scores on each of the fear of success

Table 5.--Matrix of Correlations Between All Fear of Success Instruments and the Fear of Failure Measure (DAS) with Levels of Significance

	Horner	FOS	FOSS	DAS
Horner	1.000 S = .001	.107 S = .179	.0240 S = .415	.179 S = .053
FOS	.107 S = .179	1.00 S = .001	.2994 S = .003	.5411 S = .001
FOSS	.0240 S = .415	.2994 S = .003	1.00 S = .001	.4327 S = .001
DAS	.179 S = .053	.5411 S = .001	.4327 S = .001	1.00 S = .001

measures and scores on a measure of fear of failure will be negative and statistically significant.

Again, Pearson product-moment correlations were calculated to test this hypothesis, and some very interesting correlations were obtained. Significant negative correlations were hypothesized, since measured fear of success should be theoretically unrelated to fear of failure. Indeed, it was originally because fear of failure seemed somewhat inapplicable to females' motivational states that fear of success was proposed.

Table 5 shows, however, that not only did the significant negative correlations not occur, but that correlations between the fear of success measures and Debilitating Anxiety Scale either showed a marginal significance or clearly reached significance. The correlations were $r_{\text{Horner, DAS}} = .179$ ($p = .053$), $r_{\text{FOS, DAS}} = .5411$ ($p =$

.001) and $r_{FOSS, DAS} = .4327$ ($p = .001$).

Obviously, the hypothesis that significant negative correlations would appear between fear of success and fear of failure was rejected.

In addition to determining whether the correlations obtained between fear of failure and fear of success were sufficiently negative to meet the theoretical expectations that the two constructs would be distinguishable, the correlations were calculated here as a means of subsequently obtaining coefficients of determination, r^2. A separate r^2 was obtained for each correlation coefficient, and in each case it is considered to be an indicant of the upper bound of construct saturation. That is, it represents the proportion of the variance of fear of success scores which can be accounted for by another construct: fear of failure. In short, it is the extent to which one is prohibited from making an assertion that all of the variance in the fear of success distribution is related solely to that construct.

Referring to Table 5 and squaring the appropriate correlations, the following coefficients of determination are obtained:

$$r^2_{Horner, DAS} = .032$$
$$r^2_{FOS, DAS} = .292$$
$$r^2_{FOSS, DAS} = .187.$$

The proportions of fear of success score variance which are accounted for by fear of failure are 3.2%, 29.2% and 18.7% for the Horner, FOS, and FOSS instruments, respectively. Of course, these proportions are not particularly large, although the proportion for the FOS approaches a respectable level for purposes of predictability.

Relationship Between Fear of Success and Scores on Low Difficulty Items

Hypothesis XV

Correlations between scores on each of the fear of success measures and subjects' scores on the low difficulty final exam items will be negative and statistically significant.

It might not be possible to make accurate directional predictions on the basis of fear of success theory, but it would seem that subjects who score high on fear of success ought to engage in subtle self-sabotage on tasks for which they perceive a high probability of success. If this behavior is accurately predicted, one would find fear of success scores to be negatively correlated with scores on low difficulty items.

Pearson product-moment correlations between subjects' scores on low difficulty final exam items and each of the three measures of fear of success are displayed in Table 6. These correlations are not entirely consistent for the three fear of success measures. The correlation between the Horner measure and low difficulty items is positive, $r = .1269$, but nonsignificant, while $r_{FOS,\ Low\ Diff.} = -.1228$ ($p = .159$) and $r_{FOSS,\ Low\ Diff.} = -.2870$ ($p = .009$). Obviously, the last of these is the only negative and statistically significant correlation among them, and all correlations are low.

Perhaps equally interesting are two trends which appear in Table 6. First, the correlations between scores on medium difficulty items and scores on fear of success on each measure of the construct are negatively correlated as well. While all these correlations approach the .05 level of significance, none of them in fact reaches

Table 6.--Matrix of Correlations Between Scores on All Fear of Success Measures and Number Correct on Low, Medium, and High Difficulty Exam Items and Total Exam Score

	Low Difficulty	Medium Difficulty	High Difficulty	Total Score
Horner	.1269 S = .151	-.1694 S = .084	.0046 S = .485	.0171 S = .445
FOS	-.1228 S = .159	-.1940 S = .056	.0128 S = .459	-.1278 S = .150
FOSS	-.2870 S = .009	-.1970 S = .054	.1657 S = .088	-.1292 S = .147

this level. In addition, it is interesting to note that correlations between scores on high difficulty items and scores on all fear of success measures are positive, although none of these correlations reaches the .05 level of significance.

Finally, it is apparent that the correlations between total scores on the final exam and scores on each measure of fear of success are not significantly different from r = 0.00. Indeed, it is only on the low difficulty level that a significantly negative correlation appears, and then only for the FOSS, while marginality of significance appears on the middle difficulty items.

Another reason for calculating the correlations between fear of success measures and low difficulty items is that these correlations, when squared are the coefficients of determination which are used here to represent the lower bounds of construct saturation for each fear of success instrument. That is, these coefficients are used to represent

the proportion of variance in the fear of success scores which is accounted for by the subjects' performance on low difficulty final exam scores in a theoretically consistent way. Just as the upper bound of the variance of fear of success is the limit imposed due to subjects' performance in a theoretically inconsistent way, the lower bound is the proportion of the variance which is solidly established and theoretically consistent. To put it simply, at least this specified proportion of the score variance is accounted for by behavior thought to be related to the construct.

Referring to Table 6 and squaring the correlations between the three fear of success measures and the low difficulty items, the following coefficients of determination are obtained:

$$r^2_{\text{Horner, Low Diff.}} = .016$$

$$r^2_{\text{FOS, Low Diff.}} = .015$$

$$r^2_{\text{FOSS, Low Diff.}} = .082$$

The proportions of fear of success variance accounted for by the correlations between this construct and performance on low difficulty items are 1.6%, 1.5% and 8.2% for the Horner, FOS and FOSS instruments, respectively. The proportions are, of course, very small. They are indeed smaller than the proportions of variance accounted for by fear of failure for every instrument.

Summary of the Results

The ultimately most important and certainly most general research question asks whether an aggregation of all hypothesis tests suggests that each of the three scales can boast of adequate construct validity and whether the construct itself possesses a nomological

network capable of incorporating performance on educational tasks. All of the relevant data pertaining to the validity of the measures are considered in Table 7, and this aggregation will serve, in part, as a summary of results obtained in this research.

The first critical test of each measure of fear of success is concerned with the effect of fear of success on the scores subjects attain on low, medium and high difficulty items. It was found that high fear of success scores on the Horner instrument were not related to relatively lower scores on low difficulty items. It should also be noted that an interesting trend was found relative to medium difficulty and high difficulty items. First, on medium difficulty items, high scores on all three fear of success instruments are related to lower scores. Second, high FOS, FOSS and Horner scores are associated with better performance on high difficulty items than are low scores on the three instruments. In other words, high scores on the Horner, the FOSS and the FOSS are related to relatively higher scores on high difficulty exam items and relatively lower scores on medium difficulty exam items. Also, on the FOS and the FOSS, but not on the Horner instrument, high scores are related to relatively lower scores on low difficulty exam items. Further, significant interactions between fear of success and item difficulty are obtained only in the case of the FOS and the FOSS.

The second test of the construct validity of these instruments was addressed to the theoretically predictable sex difference that a higher proportion of females than males would score high on fear of success. None of the three instruments produced this sex difference.

Third, if each of these scales measures the same construct of

Table 7.--Aggregation of Information From All Analyses Pertinent to Construct Validity

Criterion	Horner	FOS	FOSS
Effect of High Fear of Success Relative to Low Fear of Success	Higher on Low and High Difficulty Items; Lower on Medium Difficulty Items	Lower on Low and Medium Difficulty Items; Higher on High Difficulty Items	Lower on Low and Medium Difficulty Items; Higher on High Difficulty Items
Sex Differences Effect	No Sex Differences on High Horner Scores	No Sex Differences on High FOS Scores	No Sex Differences on High FOSS Scores
Fear of Success Scale Intercorrelations	Not Significantly Correlated with Either FOS or FOSS	Significantly Correlated only with FOSS	Significantly Correlated only with FOS
Correlation with Fear of Failure Scores	$r = .179$ $p = .053$ A Trend Toward Significance	$r = .5411$ $p = .001$ Significant	$r = .4327$ $p = .001$ Significant
Construct Saturation	Upper Bound: 3.2% of Variance Lower bound: 1.6% of Variance	Upper Bound: 29.2% of Variance Lower Bound: 1.5% of Variance	Upper Bound: 18.7% of Variance Lower Bound: 8.2% of Variance

fear of success, they should all be intercorrelated significantly. This expectation was partially confirmed here. While the Horner instrument correlated significantly with neither of the other instruments, the FOS and the FOSS did correlate positively at a significant level.

Fourth, if fear of success is a unique construct, empirically distinguishable from other constructs, such as fear of failure, it should not correlate significantly in the positive direction with indicants of these other constructs. Yet here, the FOS and the FOSS correlate positively and significantly with the Debilitating Anxiety Scale, which has been long accepted as an indicant of fear of failure. The Horner instrument correlates positively with the DAS at a level ($p < .053$) which indicates a marginally significant relationship.

Finally, the construct saturation of each of these fear of success instruments can best be described as inconsistent and dubious. In the case of each instrument, more variance in the scores is predicted by fear of failure than by subjects' performance on the task of scoring relatively low on low difficulty exam items, which is thought to be consistent with fear of success theory.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Purpose

In this study, several facets of the existing nomological network of the construct of fear of success were examined and put to numerous emprical tests in an attempt to distinguish fact from unsubstantiated conjecture. In addition, the nomological network was extended to incorporate actual performance on an academic task. This marks the first occasion of this type of extension. Final examination performance, perhaps the most meaningful educational criterion of all, was selected, and its relationship to fear of success was investigated. The effect of item difficulty within this final exam, as it related to fear of success was of particular interest. In addition, sex differences on fear of success and the relationship between this construct and fear of failure were examined. The final objectives were to judge the construct validities of each of the three instruments and to characterize the practical value of fear of success in education.

Literature Review

The literature on several achievement motivation-related constructs, including McClelland's nAch, Atkinson's resultant achievement motivation, motive to approach success, motive to avoid failure and the fear of success was reviewed. Although moderate relationships between

such constructs and academic success have been established, the full nature of these relationships is far from being adequately explicated.

It is difficult to explain the relationships of such achievement motivation-related constructs to actual academic performance in part because the nomological networks of these constructs were not developed to include specific, operational events in the area of school performance. Nevertheless, this lack of specificity has not typically stood in the way of those who would apply these constructs to education. If a student's unexpectedly low achievement cannot be explained by a low achievement motivation, then there are those who would suggest, without more than a glance at empirical evidence, that his problem must surely be caused by his fear of success in school. It is such an assertion whose merit this study has investigated.

The theory of fear of success was reviewed, attending especially to how the construct was derived from Atkinson's theory of achievement motivation and how Horner constructed a nomological network which, taken all at once represents the operationalization of the construct.

Following this theoretical review, a full complement of the existing empirical literature concerning the construct is presented and critically evaluated.

Pursuant to the goals of construct validation, the logic of such an endeavor, according to Cronbach and Meehl (1954) was presented and a plan for the present study was developed.

Design and Analysis

A total of 82 subjects, from several graduate and upper level undergraduate classes at Michigan State University responded to a series

of fear of success instruments and a fear of failure instrument. The fear of success instruments included Horner's empirically derived, fantasy-based measure, Pappo's fear of success questionnaire (FOS), and the Zuckerman and Allison Fear of Success Scale (FOSS). Subjects also were administered the Alpert-Haber Debilitating Anxiety Scale, a widely used index of fear of failure. Finally, background information was collected on all subjects, including age, race and information on four indicants of social class.

In addition to this information gathered on all 82 subjects, 68 of these subjects, who were enrolled in either of two classes in educational psychology, took final examinations in which the items were accurately described in terms of their empirically established difficulties. This condition was intended to inform students relative to their probability of succeeding on these items. Items were described as being "High," "Medium," or "Low" in difficulty.

One of the analyses involved obtaining a description of the relationship between subjects' measured fear of success and their exam performance. Another analysis was performed to identify the proportion of males and females who scored high on the three measures of fear of success. Correlations were calculated which revealed the degree of relationship between the scores on the three measures of fear of success, as well as between the measures of fear of success and fear of failure. Finally, the upper and lower bounds of construct saturation of the scores on each fear of success measure were calculated, and all criteria defining adequacy of construct validity were applied to each measure of fear of success in order that a judgment about the quality of each measure could be made.

All these analyses were designed to test hypotheses centrally related to the theory of fear of success. It is predictable on the basis of theory, for example, that subjects' performance on competitive academic tasks is related to their perceptions of the probabilities of success on these tasks. It is possible that they might, for example, sabotage their performance on items of low difficulty, on which they expected to succeed. In this study, then, subjects' performance on items of different difficulty levels was of interest. In addition, fear of success theory predicts, and it has sometimes been found, that more females score high on fear of success than do males. This was another crucial test.

If there is a single dimension of fear of success, and if all the extant instruments purport to measure this trait, then all these instruments ought to be positively intercorrelated. Moreover, none of these measures should be positively correlated with fear of failure scores. Indeed, one reason for the development of the construct of fear of success was Horner's belief that it was quite different from fear of failure. Correlational analyses were instrumental in reaching a judgment on whether there exists a single trait or whether there are several tangentially related traits, each measured by a different instrument.

Results

The results of each of these analyses contribute to a final judgment about the existence of a construct of fear of success and its assessment by the selected instruments. One of the findings was that fear of success and exam performance are related in rather consistent

ways. Subjects who scored high on the Horner, the FOS and the FOSS instruments performed better on high difficulty exam items than subjects who scored low. And on the FOS and the FOSS, but not on the Horner instrument, subjects who scored high performed relatively lower on low and middle difficulty exam items than subjects who scored low. But no interactions were significant on the Horner instrument.

Another finding was that there are no sex differences on any of the measures of fear of success. It was also found that, while the FOS and FOSS were positively and significantly correlated, the Horner instrument was not correlated with either of these. Positive correlations, either significant or marginally significant were obtained between all fear of success instruments and the instrument measuring fear of failure. These small intercorrelations between fear of success scales and the higher correlations with fear of failure do not suggest the existence of a single and unique construct of fear of success. In addition, only in the case of the FOSS does fear of success correlate negatively and significantly with scores on low difficulty items. In short, more of the variance of fear of success scores can be predicted by fear of failure than by performance on a task logically related to measured fear of success.

These are the main findings of the study. But each of these findings is important in this study only when aggregated with all others. Combining all these findings means the simultaneous consideration of each instrument on its relationship to exam performance, sex differences, correlations with other instruments measuring fear of success and fear of failure, and its correlation with scores on low difficulty items.

Discussion

One of the most important analyses in this study was the attempt to describe the nature of the effect of fear of success on final exam scores. Coupled with this analysis was the breakdown of test items according to low, medium and high difficulty levels so that the effect of level of fear of success could be observed at each level. It was thought that since item difficulty is a cue to students concerning their probability of succeeding, these identified difficulties would serve as a special arousal condition for fear of success. A judgment was made to state the hypothesized interaction effects non-directionally, since neither theory nor research findings appeared to offer clear suggestions about directional hypotheses. That is, in a comparison between high fear of success subjects and low fear of success subjects, it was not clear which group would score higher or lower on items of different difficulty levels (Horner, 1968, 1974; Patty, 1974; Zanna, 1973).

On the basis of intuition and logic, it was thought that if any interaction relationship existed, it might be that high fear of success students would score lower on low difficulty items than would low fear of success subjects. Medium and high difficulty item performance was not possible to predict. At first glance, the results of the tests of Hypotheses I through IX seemed to provide essentially this interaction in a significant way for the FOS and FOSS instruments. Fear of success appeared to act as it should.

There are problems associated with the findings, however. The problems are most easily identified when the correlation matrix in Table 5 is examined. Clearly, all three fear of success measures

correlate positively at a significant level with fear of failure, measured by the Debilitating Anxiety Scale. And it was also found that only the FOS and FOSS instruments are positively correlated, while the Horner measure correlates with neither of these. Indeed, Zuckerman and Wheeler (1975) expressed doubt about whether these three instruments were positively correlated.

One of the most apparent needs arising from these findings is to identify the common content of the three fear of success instruments as well as the content they share with the DAS. In a content analysis, it would be interesting to find some dimensions which appear to exist across all fear of success instruments. And in view of the significant positive correlation of each instrument with fear of failure, it is also of interest to look for common dimensions here. Ideally, it would of course be expected that no common dimensions would exist between M-s and M-f, while all fear of success instruments would share the same dimensionality.

While inspection of test contents is a rather ineffective approach toward factor analysis, some interesting findings do appear. The factors intended to account for the true score variance on the FOS instrument are supposedly self-doubt, preoccupation with competition, preoccupation with evaluation, repudiation of competence and self-sabotage behavior (Pappo, 1972). Indeed, several of the items appear to be direct expressions of these factors. But are these the factors which are presumably built into the other two instruments as well? The answer to this question is clearly negative in the case of the FOSS. Although there is a significant positive correlation between these two instruments, the proportion of variance accounted for on either measure

is only about 9%. It may be safely inferred from this evidence that these two tests are measuring different factors. And this inference is strengthened when the author's own description of dimensionality on the FOSS is taken into account. Zuckerman and Allison (1972) designed the FOSS to include items concerning (a) the benefits of success, (b) the cost of success, and (c) respondents' attitudes toward success when compared to other alternatives. Any overlap between the FOS and the FOSS in what they are intended to measure is apparently minimal. Yet they are positively correlated. Just the opposite relationships exist between the Horner and the FOSS. Although the $r_{FOSS, Horner} = .107$ ($p = .179$), the dimensionalities of these two tests appear to be somewhat similar. The Horner scoring system instructs raters to detect the following material in the stories:

A. Contingent negative consequences

B. Non-contingent negative consequences

C. Interpersonal engagement

D. Relief

E. Absence of instrumental activity

F. Absence of others (Horner, Tresemer, Berens and Watson, 1973).

It would appear that the FOSS dimension of "cost of success" is conceptually similar to Horner's contingent and non-contingent negative consequences of success. Even though this similarity is apparent, there is obviously still much dissimilarity between these two instruments, as witnessed by the insignificant positive correlation.

This approach toward an informal analysis of the purported dimensionality of the three instruments is probably sufficient to

establish the essential differences between the measures. An actual analysis of the items in each test would most likely provide no additional help in distinguishing the different dimensionalities. Rather, since each item can be interpreted in several ways, this analysis might only yield more confusion. Some items might conceivably be interpreted to measure intolerance of ambiguity, attraction to a challenge, motive to avoid failure or fear of success.

In searching for a factor which can account for more of the variance of fear of success than can any other factor, the most obvious choice is fear of failure, as indicated by the magnitude of the correlation cited above. All indications are that fear of success is, in some measured way, equivalent in part, to fear of failure.

If fear of success is in some way similar to fear of failure, then one should be able to find some common dynamic between the constructs as well. Such a common dynamic might well be represented in this study. Debilitating anxiety may occur as a result of arousal by low difficulty items. It is possible that the real fear is subjects' concern with failing on items on which the large majority of other subjects succeed. To fail on these items would most likely pose a serious challenge to subjects' perceptions of their abilities. The same dynamic might operate on the items labeled medium in difficulty. If these are items on which the average student succeeds, then here again, one would suspect that subjects might fear failing on the items. On high difficulty items, however, subjects would probably not be afraid of failing. These items were described as correctly answered by only a minority of subjects, and individuals might not be concerned if they were among that minority. Of course, not all of the interaction effect

with item difficulty can be accounted for by fear of failure. High scoring Horner subjects actually scored relatively high on low difficulty items, as compared to low scoring Horner subjects. Perhaps the Horner instrument does not only measure debilitating anxiety. Possibly it is sensitive to facilitating anxiety as well, as described by Alpert and Haber (1960).

Other speculations are quite possible in attempting to account for the dynamics of these fear of success instruments, although probably none of them is as logical or as empirically defensible as the fear of failure explanation. For example, perhaps one of the dimensions of the fear of success measures is subjects' attraction to challenging tasks. On all three instruments, high scoring subjects performed better than low scoring subjects on high difficulty items. These items were clearly labeled as challenging. It is also possible to speculate that subjects' aversions to ambiguity suppressed performance on medium difficulty, ambiguous items. To the extent that these instruments measured intolerance of ambiguity, high scoring subjects might perform relatively poorly on medium difficulty items, where probabilities of success were uncertain.

These conjectures aside, the most interesting point is that while the three instruments measure something which operates consistent with the construct of fear of success, this something might be fear of failure. It should be recognized also that the anxiety which is debilitating to test performance is not measured by the same instruments which measure general anxiety. On the DAS, all items explicitly concern school-related performance tasks. This is not so with general anxiety scales, such as the Taylor Manifest Anxiety Scale (Taylor, 1953) or the

Freeman Anxiety Scale (Freeman, 1953). Nor is it so with the FOS or the FOSS. Even a casual glance at the items on either of these instruments reveals that only a subset of them are related to school achievement. In terms of face validity, these scales are not convincing as measures of academic fear of success. It may be that the extent to which each of these instruments incorporates items directly related to academic tasks is also the extent to which these tests are measures of the anxiety which is debilitating to test performance.

Tresemer (1974) has also called Horner to task by recognizing that there is, no doubt, a distinction between general fear of success and academic fear of success and by questioning whether the extant measures are sensitive only to the general construct. In the case of the Horner projective device, the cues could be altered so that either general or academic fear of success, or both, could be measured. Whereas the original present-absent scoring system required specific verbal cues portraying academic situations, the new scoring system (Horner, Tresemer, Berens and Watson, 1973) is supposedly designed for use with virtually all verbal cues. The authors of this system assert that this is an asset, but, to say the least, a projective scoring system which is flexible in content to this extent is quite rare, and perhaps it is ultimately too flexible. It would seem that, depending upon the selection of cues, the correlations between the Horner, FOS and FOSS instruments could be altered.

Assuming that fear of success is a stable personality trait, as Horner (1974) explains, the first task of any instrument which purports to measure the construct is to arouse it. Of course, changing the cues on the projective instrument could certainly determine the

degree of arousal. Even assuming that arousal is accomplished at some minimal level, it may be that what is measured is subjects' awareness of the occasion to succeed, while they fail to proceed beyond that awareness to the actual suppression of achievement-oriented activity. In short, cue differences, as well as test differences could conceivably alter what is measured.

Just as it is not difficult to identify problems associated with the use of varying projective cues, Horner's new scoring system can also be called into question for several reasons. First, the categories of responses it directs raters to attend to do not correspond to the factors presumed to comprise the FOS, nor in most cases the FOSS either. This might be acceptable, except for the fact that these tests purport to measure the same construct. Second, although the FOS and the FOSS have been standardized on a sample of males and females, the Horner empirically derived system was standardized only on females. Of course, in the present study, males were rated according to this scoring system as well. The results showed no significant difference between proportions of high scoring male and female subjects. There was some difference, however, between the mean Horner scores of all males and all females. The total range of Horner scores is a possible 30 points, from -6 to +24. In this study, the average male score was 9.667 while the average female score was 8.92. Even though this difference does exist, its practical significance is dubious.

Although in this study there was only a small mean difference between males and females on high Horner fear of success, this finding itself is somewhat surprising since the standardization of the new Horner system on females opens the door for sex bias. The Horner as

well as other instruments can be written so that they measure different traits for different groups, such as males and females (Green, Nyquist, Griffore, 1975). The similarities of male and female scores would lead one to dismiss this possibility, but on the other hand, test bias is a matter of degree. A slight bias may be present in the instrument and may alter the dimensionality of the test for males and females, while the scores may appear to be similar. Standardization of the scoring system on both males and females would guard against these problems.

One of the most important of the original assumptions of fear of success theory was that more females than males would score high on the trait (Horner, 1972). And of course, Horner (1968) found this assumption to be accurate. The present study, however, joins the growing body of other research which finds no such sex difference (Feather and Simon, 1973; Morgan and Mausner, 1973; Robbins and Robbins, 1973). Although the recent outcomes of these studies might be understood by some to virtually preclude additional attention to sex differences, the present research, conducted on a sample different from those selected in other studies, once again necessitated a test for sex differences. Since the characteristics of the sample suggest the need for such a test, these characteristics might also be taken, in part, as the factors producing no sex differences here. It is possible, for example, that subjects' age in this study mitigated against such differences. Women who are beyond the undergraduate and even the early graduate school years will very likely not be highly concerned about the possibility that success will result in damage to their feminine status. Indeed, men of this age will not necessarily believe that

successful females are unattractive. Komarovsky (1973) found that a majority of a sample of college men believed that women ought to have the opportunity to pursue the careers of their choice. Further, they expressed higher esteem for working women than for housewives. Moreover, it is reasonable to assume that females in the sample probably need not worry about the typically high level of esteem significant males hold for them. Many of these females were not only graduate students, but teachers as well. They had presumably not been dissuaded by others about attending classes during the summer session and further developing their teaching expertise. Several studies have shown that such high esteem and support from significant males is a necessary factor in women's career development and occupational aspirations (Hawley, 1971; Lynch, 1973). In short, it would be difficult to construct a convincing case that most of the females in the present study could expect more rewards for failing than for succeeding.

Even for those females who are without the support of significant males, there would presumably be a relatively low degree of threat associated with succeeding in a profession which is not considered highly masculine. While much research indicates that women suffer from sex role conflict if they succeed in male sex role appropriate occupations (Holstrom, 1972; Rapoport and Rapoport, 1972), such role conflict should not emerge with success in occupations typically considered more feminine, such as teaching.

What the present study seems to suggest is that whatever is measured by the fear of success instruments is not a trait which hampers females in succeeding on tasks related to sex-typical occupations. Nor is it a trait which permits one to discriminate between males and

females.

These explanations do not facilitate the task of accounting for the distinct sex differences obtained in Horner's original research, however. Zuckerman and Wheeler (1975) suggest that the differences might be attributed to the extremely competitive climate at the University of Michigan, the site of the research. But Hoffman (1974) conducted an exact replication of Horner's research there and found no sex difference on fear of success. Other researchers have attempted to account for this contradiction in terms of a cohort effect. That is, perhaps the beliefs of this generation of students have changed, and perhaps these changes have been brought about by such phenomena as the women's liberation movement and recent changes in males' traditional values. This explanation remains at the level of conjecture, unsubstantiated by empirical evidence (Levine and Crumrine, 1973). And there is evidence to contradict the hypothesis that social movements are responsible for changes in males' and females' fear of success. Zuckerman and Wheeler (1975) have observed that the proportional differences in males and females do not follow any chronological trend. A social movement hypothesis might suggest that the proportions of females having high fear of success would decrease over the years, while the proportions of males scoring high would increase. A good standard against which to compare changes over time would be Horner's original proportions; 9% of males and 65% of females were high on fear of success. But Hoffman (1974) found that 62% of females still had a high fear of success. Krusell (1973) reported that 51% of females had a high fear of success. And Monahan, Kuhn and Shaver (1974) also reported 51%. Nor has the research shown the proportions of high scoring

males to follow chronological trends. A social movement hypothesis might also have been supported by a systematic change in proportions of high fear of success males. Hoffman (1974) did find 76% of her male subjects to score high, but Krusell found only 42% while Zuckerman and Allison found only 38%. It would not be easy to identify a trend here.

It appears that accounting for the findings of no sex differences in the present study is a much more straightforward task than is accounting for Horner's results, unless one resorts to the obvious factors of sample selection and methodology flaws. Sample selection indeed might have contributed strongly to the sex differences effect obtained by Horner, and sample selection might also have contributed to the failure to obtain similar findings in the present study. One reason why the fear of success construct today remains partly in the arena of conjecture is that the original and limited findings were extended beyond the logical or reasonable boundaries of generalizability (Tresemer, 1974). The findings of the present study could just as easily be overgeneralized. No such attempt will be made here. Although the internal validity of the study appears to be defensible, although the findings can most likely be generalized to other subjects who are members of this population, and although similar results will probably be found through the use of tasks of similar difficulties, the present findings are not universally generalizable.

Tresemer (1974) has offered what may be the most serious criticism of fear of success, and one which relates to the findings of this study. Nondirectional hypotheses were used in this study concerning the relationship between fear of success, and the individual's expectation of succeeding. This stems from the fact that there is no research

or no relevant aspect of fear of success theory which explains the relationship between expectation of succeeding and the value one assigns to avoiding success. Horner's model for fear of success is based on Atkinson's expectancy-value theory of achievement. To predict activity one needs to know the level of motivation, the expectancy of the occurrence, and the value assigned to the occurrence. But since the entire factor of value is omitted from fear of success theory and research, it is legitimate to question whether fear of success is a motive at all, in the same sense as achievement motivation. Tresemer suggests that it may bear a stronger resemblance to Freud's "success neurosis," a general inhibitor of activity. If it is really not a motive, but rather an emotional inhibition, it is perhaps more apparent why whatever is measured by the fear of success instruments acts like debilitating anxiety.

Limitations of the Study

The shortcomings of this study fall into two categories: matters related to external validity and matters related to internal validity. Four limits on external validity are as follows. First, the generalizability of the study is limited to the age group and the educational level selected in the sample. Clearly, few implications are found here for school age children or even older adults, for that matter. Second, other performance tasks could have been selected in lieu of a final examination. Possibly, in other educational contexts, there are substantially more important criteria than single examinations. Third, there could be several other ways to relate fear of success to academic performance and to life in school in more general terms. It

might be equally important to select a personal-social educational objective in order to better understand how it is influenced by students' level of fear of success. Fourth, the selection of high, medium and low levels of item difficulty was somewhat arbitrary. It may be that use of only two levels, high and low,could produce similar results. Indeed, the results of the present study would lead one to predict such an outcome, since on low difficulty items and medium difficulty items, students' level of fear of success or perhaps debilitating anxiety tended to operate in very similar ways. On the other hand, it is possible that when confronted with only two difficulty levels, other students, or even the same students, might produce quite different kinds of results.

Three factors perhaps limiting the internal validity of the study are as follows. First, some subjects might conceivably not have been aroused by the examination instructions or by the identification of item difficulties. This possibility is not strong, however, since several subjects reported that the special instructions caused them anxiety. Second, since arousal conditions differed when students responded to the instruments in different classrooms as well as out of class, there could have been some bias due to uncontrollable factors. Third, there is no way in this study to describe the possibly different ways fear of success relates to test performance for males and females. Of course, no sex differences were found on fear of success.

Implications for Education

At the present time, the educational implications of this study and the construct of fear of success appear to be rather limited. It

was noted above that the actual performance differences between high and low fear of success students are quite minimal. There appears to be some indication that scoring high on fear of success instruments does relate to students' performance on tasks at different levels of difficulty. But it is not yet clear whether the magnitude of this effect is of any practical significance. Whether fear of success as measured is actually debilitating anxiety, in part, or whether it is something else, the results of these analyses would indicate that the construct should not be used as a major predictor of achievement. Indeed, teachers and administrators who are interested in improving a student's achievement have no evidence in this study that attending to fear of success will substantially improve academic performance. If they must search for dynamic or motivational bases for achievement, they would probably be more successful in looking to fear of failure. The Debilitating Anxiety Scale was correlated in this study with total exam score $r = -.2349$ ($p = .027$). This is a respectable and appropriate correlation, and one which can assist in making predictions when combined with other factors.

One of the findings of this research is the predicted negative relationship between debilitating anxiety and test performance. This negative relationship, of course, implies that debilitating anxiety ought to be eliminated in any way possible. And to the extent that fear of success is related to debilitating anxiety (as it appears to be), fear of success should also be eliminated. Of course, this is not easily accomplished or even easily designed. Eradication of general school phobia is difficult enough. To adapt clinical theory and practice to fear of success would be no small task. Nor could it

probably be accomplished by the classroom teacher. The teacher is not a clinician, and even if he/she were, problems would immediately emerge in measuring the trait.

In this regard, one matter which should be discussed is the general evaluation of each of the selected fear of success instruments. It ought to be possible to identify the one which appears to be the most valid measure, but, as it turns out, this is not such a straightforward task. Table 7 shows that according to several different criteria of construct validity, quite different judgments could be made. On the criterion of relationship to performance at different levels of difficulty, either the FOS or the FOSS are more acceptable than the Horner instrument. Sex differences permit no further contribution to the judgment. The FOS and FOSS are correlated significantly, while the Horner is correlated with neither of these. On the other hand, both of these are correlated positively with fear of failure. In terms of construct saturation, none of these instruments appears to have an acceptable lower bound, which would be very important. In short, selection of one of these instruments over the others would depend on the specific criteria of validity selected.

One implication which stands out quite clearly for several reasons is that identifying the difficulty of exam items appears to be contraindicated. In the first place, although item difficulty does interact with scores on two fear of success measures, the actual effect of either high or low fear of success at any level of difficulty probably does not warrant a special effort to identify the difficulty of tasks students encounter. Especially students who are high on debilitating anxiety do not benefit from knowing task difficulty. Nor is it

really clear that students perceive descriptions of the success probabilities as helpful at any level of anxiety, as witnessed by the many complaints of students who feared their test performance might be jeopardized by such labels.

A final implication would be that since males and females do not differ significantly on fear of success, there appears to be one less reason to believe that instruction must be differentially designed for males and females. Nothing emerges from the present study to suggest that females should be given special attention in eradicating their fear of success. Instead, it would seem to be a good practice to reduce the debilitating anxiety, or fear of failure of both males and females. To the extent that fear of success is related to debilitating anxiety, one would then expect that both sexes would benefit from equitable alleviation of fear of failure.

Recommendations for Future Research

Among the studies directly suggested by the present research are factor analyses of each of the three measures of fear of success and the Debilitating Anxiety Scale. The informal content analysis of instruments above suggested that there may be several areas of common dimensionality, but the best means of identifying such an overlap is through factor analysis. This is virtually the only way to explain why two instruments are positively correlated, and it is certainly the only way to arrive at any common agreement with respect to the meaning of the construct of fear of success. After all factors in all three instruments are identified, it will be a technical matter to eliminate error variance and to increase the proportion of common variance

represented by important factors. Items can be deleted from the tests to achieve this goal. It might indeed be possible to create several univocal tests, whose non-error variance in each case is confined to a single and common factor.

Future research should also continue to inquire into the relationships of probability of success to fear of success. But this research should proceed beyond the present study toward differentiating this interaction effect on the dimensions of sex, age, socioeconomic status and other status variables. Pursuant to Tresemer's (1974) allegation that fear of success might not actually be a motive, future studies would be well advised to investigate the relationship of this purported motive to the hitherto forgotten part of the expectancy-value model: value. Unless the negative incentive value of success can be systematically related to fear of success, Tresemer's suspicion will probably become accepted fact.

Although the present study appears to offer some relatively clear findings, these findings cannot be generalized to other educational levels. Research speficically concerned with other levels is called for.

At all levels, it would seem that one of the most revealing and promising approaches would be to develop multiple regression equations incorporating all factors which are thought to influence academic achievement, including fear of success. Among these factors would probably be race, SES, college admission test scores or multiple aptitude battery scores, traits of the instructor, nAch, fear of failure, and others. The objective would be, of course, to identify the proportion of the variance accounted for by each factor or by combinations

of factors. It would seem that in this way, the construct of fear of success would be placed appropriately with other relevant factors rather than examined separately.

Finally, future research must continue to extend the nomological network of fear of success in other educational as well as noneducational directions. Unless this is done, fear of success promises to become a topic of largely esoteric appeal, and one whose utility in a practical sense will be curtailed severely.

One example of an interesting and uncharted area of nomological space is the region containing the self-concept and other personal-social factors. These areas are, of course, relevant to education, and they also are of interest independently. Fear of success appears to be related to debilitating anxiety, and it is reasonable to assume that the effects of this anxiety will be felt on students' attitudes about school and in their self-concepts. The essence of the suggestion here is to broaden the criterion variable in future research. It will be both interesting and hopefully helpful to students to understand the effect of fear of success on personal and social development as well as on academic achievement.

APPENDICES

APPENDIX A

STORY CONSTRUCTION TASK

APPENDIX A

STORY CONSTRUCTION TASK

Instructions: For each situation below, write a story about one-half page in length. Tell what led up to the situation, what is happening at the moment, what the student is feeling and thinking and what the outcome will be.

1. Student #1 is an undergraduate who holds a part-time job as well. Often while at work, his/her mind is preoccupied. Today, he/she is staring into space, deep in thought.

2. During a final exam, Student #2 pauses to reflect on the meaning of the class and the exam. He/she is looking at the others in the class who appear to be concentrating on the exam.

3. At the end of his/her freshman year, Student #3 has a higher grade point average than anyone else he/she knows personally.

APPENDIX B

PAPPO'S FEAR OF SUCCESS QUESTIONNAIRE (FOS)

APPENDIX B

PAPPO'S FEAR OF SUCCESS QUESTIONNAIRE (FOS) *

Instructions: Make sure to place your answers on the answer sheet, not on the questionnaire. Please answer each item carefully by marking a 1 on the answer sheet for "yes" and a 2 for "no."

A few items are "double" statements, for example, "Although I often get excited by challenging work assignments, they also make me feel uneasy." For such cases, if both parts of the question are more often true than not true for you, then mark 1. If only one part of the item is more often true than not true for you, then mark 2.

1. It is easy for me to concentrate on my studies.
2. I find it difficult to tell my friends that I do something especially well.
3. Frequently, at crucial points in an intellectual discussion, my mind goes blank.
4. Oftentimes, I become self-conscious when someone who "counts" compliments me.
5. Generally, when I complete an important project I am satisfied with the results.
6. As a game (card game, word game, chess, competitive sport, etc.) reaches the winning point, I start thinking about other things.
7. The things that I achieve frequently fall short of my fondest hopes.
8. When playing competitive games, I make more mistakes near the end than at the beginning.

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9. When I write a paper for school, I often feel unsure of my ideas until I check them out with teachers or friends.

10. I used to fantasize about doing something that no one else had ever done before.

11. I like it if a teacher I respect tells me my work is good although it makes me somewhat uncomfortable.

12. In areas in which I have talent, my products are usually not excellent.

13. When I play competitive games, I'm often so concerned with how well I am doing, I don't enjoy the game as much as I could.

14. Instead of celebrating, I often feel let down after completing an important task or project.

15. I feel I need someone to push me to do the things I want to do.

16. When I am playing a game and people are watching, I am extremely aware of their presence.

17. In my family (cousins included), I tended to be near the top academically.

18. I tend to misplace things and then when I need them, they are difficult to find.

19. It is important to seek the friendship of people with positions of higher status than yours.

20. When I feel confused about material I am learning, I work at it myself until it is resolved.

21. If something is easy for me to learn or to do, I have difficulty imagining someone else having trouble with it.

22. I frequently find it difficult to measure up to the standards I set for myself.

23. When a teacher praises my work, I wonder if I can do as well the next time.

24. Oftentimes, I feel as if I do very little studying even though I generally get my work done.

25. I tend to get tired while studying.

26. It is more important to try to win a game than to merely play it.

27. If often get very excited when I start a project, but I get bored with it quickly.

28. At times, I believe I have gotten by in school because of luck and the carelessness of the teachers.

29. Sometimes I find myself daydreaming about accomplishing fantastic feats.

30. While developing a new idea, I find that my thinking "freezes" at a certain point.

31. If I win a competitive game, I feel a little bad for the other player.

32. When I study, I am very aware of the passing of time.

33. There are school subjects in which I really excel.

34. I sometimes have difficulty bringing important tasks to a successful conclusion.

35. I like working out tricky puzzles and problems even if I'm not sure I can figure them out.

36. Frequently, I wish I was just a little bit smarter.

37. Persuasive people can influence my ideas.

38. When I get a low grade, I know I could have done better if I had worked harder.

39. It makes me feel good to tell people about the things some of my friends have accomplished.

40. As a competitive game nears the end, I tend to become tired and make more errors.

41. I have had difficulty deciding what work deeply interests me.

42. If someone calls attention to me when I'm doing well, I often feel awkward.

43. When specific work assignments seem to be going extremely well, I get scared that I'll do something to ruin it.

44. I try the hardest when my work is being evaluated.

45. My family saw me as the academically successful one.

46. If I get a low grade on a work assignment, I feel cheated.

47. Once I have completed a task, it seems less valuable.

48. I frequently explore academic areas that I know nothing about.

49. I think I often have good ideas, but I frequently forget them.

50. Even though I feel that I have a lot of potential, I sometimes feel like a phoney or a fraud.

51. Occasionally, when I am winning a game, I get so excited I miss a point.

52. One way to insure failure is to want something too much.

53. There are times when I don't think I have what it takes to be a success in the area I am interested in.

54. It's very difficult to do anything important really well.

55. Others judge you by the people you associate with.

56. When I hear about the accomplishments of my friends, I tend to think about what I myself have or have not accomplished.

57. I often don't do as well as I am able because I put off my work until the last minute.

58. Often when I study, I keep thinking of other things that I need to do.

59. My parents inaccurately assessed my intelligence.

60. I feel that it is important for people of higher status to like me.

61. While I'm learning something completely new, I find praise necessary.

62. If school tasks are easy to finish, I feel as though they were meaningless.

63. If I get a high grade on a work assignment, I tend to feel that I fooled the teacher.

64. I become more excited while playing a game if people are watching.

65. When friends whose opinions I value compliment my work, I feel good but uneasy.

66. At times, my work piles up so much that I have difficulty completing all of it.

67. Often when I win a competitive game, I get the idea that it was because of the other player's carelessness.

68. At times, my grades amaze me because it seems like I rarely prepare adequately.

69. At times, I brag about the accomplishments of my friends.

70. It pays to discuss your ideas with a teacher or friend before handing in a finished paper.

71. If I don't think I can learn to do well at something, I prefer not to try.

72. As I near completing a task, compliments may make me uneasy.

73. After studying hard for an exam, I often find the test itself tedious.

74. At times, I have accidentally spilled something on the final copy of a school project.

75. My work is characterized by enthusiastic beginnings and indifferent endings.

76. It is easy to become distracted while taking a test.

77. I am doing exactly the work I want to do.

78. There are areas in which I am talented.

79. If it weren't for some remarkably good luck, I would probably not have gotten as far as I have.

80. It is important not to get excited about the things one desires.

81. Without someone encouraging me, I might not have done some of the important things I've accomplished.

82. I like the idea of having friends who are in positions of power and influence.

83. Although I have much difficulty doing so, I generally finish essential undertakings.

APPENDIX C

THE ZUCKERMAN AND ALLISON FEAR OF SUCCESS SCALE (FOSS)

APPENDIX C

THE ZUCKERMAN AND ALLISON FEAR OF SUCCESS SCALE (FOSS) *

Instructions: In this questionnaire, you will find a number of statements. On the answer sheet, a scale from 1 to 7 is provided for each item, with 1 representing strong disagreement and 7 representing strong agreement. In each case, mark a number from 1 to 7 to indicate whether or not you agree with the statement. There are no right or wrong answers. Please answer all items.

1. I expect other people to fully appreciate my potential.

1 2 3 4 5 6 7

2. Often the cost of success is greater than the reward.

1 2 3 4 5 6 7

3. For every winner there are several rejected and unhappy losers.

1 2 3 4 5 6 7

4. The only way I can prove my worth is by winning a game or doing well on a task.

1 2 3 4 5 6 7

5. I enjoy telling my friends that I have done something especially well.

1 2 3 4 5 6 7

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6. It is more important to play the game than to win it.

1 2 3 4 5 6 7

7. In my attempt to do better than others, I realize I may lose many of my friends.

1 2 3 4 5 6 7

8. In competition, I try to win no matter what.

1 2 3 4 5 6 7

9. A person who is at the top faces nothing but a constant struggle to stay there.

1 2 3 4 5 6 7

10. I am happy only when I am doing better than others.

1 2 3 4 5 6 7

11. I think "success" has been emphasized too much in our culture.

1 2 3 4 5 6 7

12. In order to achieve, one must give up the fun things in life.

1 2 3 4 5 6 7

13. The cost of success is overwhelming responsibility.

1 2 3 4 5 6 7

14. Achievement commands respect.

1 2 3 4 5 6 7

15. I become embarrassed when others compliment me on my work.

1 2 3 4 5 6 7

16. A successful person is often considered by others to be both aloof and snobbish.

1 2 3 4 5 6 7

17. When you're on top, everyone looks up to you.

1 2 3 4 5 6 7

18. People's behavior changes for the worst after they become successful.

1 2 3 4 5 6 7

19. When competing against another person, I sometimes feel better if I lose than if I win.

1 2 3 4 5 6 7

20. Once you're on top, everyone is your buddy and no one is your friend.

1 2 3 4 5 6 7

21. When you're the best, all doors are open.

1 2 3 4 5 6 7

22. Even when I do well on a task, I sometimes feel like a phoney or a fraud.

1 2 3 4 5 6 7

23. I believe that successful people are often sad and lonely.

1 2 3 4 5 6 7

24. The rewards of a successful competition are greater than those received from cooperation.

1 2 3 4 5 6 7

25. When I am on top, the responsibility makes me feel uneasy.

1 2 3 4 5 6 7

26. It is extremely important for me to do well in all things that I undertake.

1 2 3 4 5 6 7

27. I believe I will be more successful than most of the people I know.

1 2 3 4 5 6 7

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APPENDIX D

THE ALPERT-HABER DEBILITATING ANXIETY SCALE (DAS)

APPENDIX D

THE ALPERT-HABER DEBILITATING

ANXIETY SCALE (DAS) *

Instructions: Read each statement and set of alternatives carefully. Then select the answer which best describes your own actual feelings or behavior and circle the letter that corresponds to the alternative you have selected for that particular item.

Please answer ALL items, giving only ONE answer for each.

1. Nervousness while taking an exam or test hinders me from doing well.

   a. always
   b. often
   c. sometimes
   d. rarely
   e. never

2. In a course where I have been doing poorly, my fear of a bad grade cuts down my efficiency.

   a. never
   b. hardly ever
   c. sometimes
   d. usually
   e. always

3. When I am poorly prepared for an exam or test, I get upset and do less well than even my restricted knowledge should allow.

   a. This never happens to me.
   b. This hardly ever happens to me.
   c. This sometimes happens to me.
   d. This often happens to me.
   e. This practically always happens to me.

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4. The more important the examination, the less well I seem to do.

   a. always
   b. usually
   c. sometimes
   d. hardly ever
   e. never

5. During exams or tests, I block on questions to which I know the answers, even though I might remember them as soon as the exam is over.

   a. This always happens to me.
   b. This often happens to me.
   c. This sometimes happens to me.
   d. This hardly ever happens to me.
   e. I never block on questions to which I know the answers.

6. I find that my mind goes blank at the beginning of an exam, and it takes me a few minutes before I can function.

   a. I almost always blank out at first.
   b. I usually blank out at first.
   c. I sometimes blank out at first.
   d. I hardly ever blank out at first.
   e. I never blank out at first.

7. I am so tired from worrying about an exam that I find I almost don't care how well I do by the time I start the test.

   a. I never feel this way.
   b. I hardly ever feel this way.
   c. I sometimes feel this way.
   d. I often feel this way.
   e. I almost always feel this way.

8. Time pressure on an exam causes me to do worse than the rest of the group under similar conditions.

   a. Time pressure always seems to make me do worse on an exam than others.
   b. Time pressure often seems to make me do worse on an exam than others.
   c. Time pressure sometimes seems to make me do worse on an exam than others.
   d. Time pressure hardly ever seems to make me do worse on an exam than others.
   e. Time pressure never seems to make me do worse on an exam than others.

9. I find myself reading exam questions without understanding them and I must go back over them so that they will make sense.

a. never
b. rarely
c. sometimes
d. often
e. almost always

10. When I don't do well on difficult items at the beginning of an exam, it tends to upset me so that I block on even easy questions later on.

a. This never happens to me.
b. This very rarely happens to me.
c. This sometimes happens to me.
d. This frequently happens to me.
e. This almost always happens to me.

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APPENDIX E

BACKGROUND INFORMATION

APPENDIX E

BACKGROUND INFORMATION

Name_____

Sex_____

Race: a) White b) Black c) Other

Age_____

What is (or, if retired, was) your father's occupation?

_____

What is (or, if retired, was) your mother's occupation?

_____

What is your father's level of educational attainment (e.g., grade school, high school, bachelors degree, masters degree, doctoral degree)?_____

What is your mother's level of educational attainment (e.g., grade school, high school, bachelors degree, masters degree, doctoral degree)?_____

APPENDIX F

CODING SYSTEM FOR SOCIAL CLASS

APPENDIX F

CODING SYSTEM FOR SOCIAL CLASS

Both Mother's and Father's Occupational Status are Coded as:

a. Unskilled labor

b. Semiskilled labor

c. Lower-level administrative, clerical or self-employed

d. Middle-level executive or middle-level professional

e. Highest-level executive or highest-level professional

Both Mother's and Father's Educational Attainment are Coded as:

a. Did not complete high school

b. Completed high school

c. Completed an undergraduate degree

d. Completed a masters degree

e. Completed a doctoral degree

Then, for each subject, the indicants for the father and the mother are combined, and the subject will be classified into upper-upper, lower-upper, upper-middle, lower-middle, upper-lower and lower-lower class levels.

APPENDIX G

FINAL EXAMINATION INSTRUCTIONS

APPENDIX G

FINAL EXAMINATION INSTRUCTIONS

This test consists of 54 multiple choice items. Read the items carefully and select the best answer. Fill in the space on the answer sheet provided. Do not mark on this test booklet.

Please be sure to put your name on your answer sheet.

Also be sure to notice that all items are described in terms of degree of difficulty. "High" difficulty means that, compared to other items, this item is correctly answered by relatively few students. You will have a low probability of success on the items marked "high." "Medium" difficulty means that your probability of succeeding is neither high nor low. "Low" difficulty means that many students answer the item correctly, and you have a good chance of succeeding on the item.

Your score will be the number of your correct answers, so it will be to your advantage to answer every question.

Good luck!

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