

FEAR OF SUCCESS AND COOPERATIVE BEHAVIOR IN
A PRISONER'S DILEMMA GAME

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ABSTRACT

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This study explored the motive to avoid success and its behavioral consequences in terms of cooperative behavior in a Prisoner's Dilemma Game (PDG). In an initial assessment period, the "Concern Over Negative Consequences of Success" scale (CONCOS) was administered to 1036 male and female undergraduates. Of the 169 females who volunteered for further participation, 80 were divided into high and low CONCOS scores and assigned to one of three treatment conditions: relaxed, achievement-aroused and fear of success-aroused. Subjects were made to believe that they were playing the PDG either against a male or a female partner. In fact, all subjects were playing against the experimenter, who played a randomized 80% cooperative strategy. Cooperative behavior was measured in five blocks of ten trials each, and the effect of the arousal of the motive to avoid success (FOS) was assessed using Horner's (1977) projective technique. The design was a 3x2x2(x5) repeated measures factorial design. As hypothesized, females high in CONCOS

played more cooperatively than females low in CONCOS. Arousal had a marginally significant effect on cooperative behavior. Contrary to prediction there were no significant interaction effects between arousal condition and CONCOS score, and between sex of partner and CONCOS score on cooperative choices in the PDG. Horner's FOS measure was not related to CONCOS in the predicted way, and did not prove sensitive to the arousal conditions. It was suggested that females high in the measure to avoid success may not fear success per se but may be unable to accommodate competitive achievement situations.

This thesis is dedicated to my
parents
with all my love and gratitude
for their constant support and
encouragement.

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INTRODUCTION

In an attempt to explain the puzzling sex differences in achievement motivation, Horner (1968) hypothesized that women are more likely than men to avoid achievement or to perform below their potential in competitive achievement situations, for fear of subsequent social rejection. Despite the many studies conducted to date dealing with Horner's fear of success (FOS) hypothesis, the question remains as to the nature of FOS, who exhibits it and when, and how to manipulate and measure the motive. This study is an attempt to differentially arouse the motive to avoid success in women, and to measure its behavioral consequences in terms of cooperative responses in a Prisoner's Dilemma game.

The Achievement Motive:

Atkinson and Feather (1966), Atkinson and Raynor (1974), McClelland, Atkinson, Clark and Lowell (1976), define the achievement motive as a latent disposition learned early in life as the result of socialization patterns. Limited opportunities given to a child or provided opportunities, which are beyond a child's capacity, cause negative affect and a possible consequent avoidance of achievement situations, while a strong motivation to achieve should develop in situations where independence is stressed and

opportunities for mastery are provided. The strength of the achievement motive is determined by the amount of positive and negative affect repeatedly experienced as the result of discrepancies between a person's expectations about an outcome of a particular task and the actual outcome of that task. No, or little discrepancy between expectations and actual results, produces positive affect resulting in expectancy or hope of success, while repeated large discrepancies between a person's expectations and the actual results cause negative affect and a subsequent tendency to fear failure (McClelland et al., 1976).

All individuals have tendencies to approach, as well as tendencies to avoid achievement situations. If the tendency to avoid failure predominates over the tendency to achieve success, a person will inhibit all achievement strivings unless powerful extrinsic rewards help overcome the person's resistance.

According to Atkinson and Raynor (1974) a person's tendency to achieve success (T_s) depends on three variables:

1. The motive to achieve success (M_s), a stable disposition of personality acquired early in life.
2. The strength of expectancy or probability (P_s) that performance of the task will lead to success.
3. The incentive value of success (I_s), or how attractive success is for a person in a par-

ticular activity.

$$T_s = M_s \times P_s \times I_s \text{ (Atkinson \& Raynor, 1974).}$$

The motive can be manipulated by arousing the strength of expectancy probability within a person, or by manipulating the incentive value of success. The incentive value of success increases with task difficulty ($I_s = r - P_s$; no one highly values reward or praise for success at a task regarded as easy).

The tendency to achieve (T_s) is more strongly aroused when the task is of intermediate probability ($P_s = .50$), implying the greatest uncertainty about task outcome (Atkinson & Feather, 1966; Atkinson & Raynor, 1974). In other words, when the probability of success is very high ($P_s = .90$), the incentive value associated with success is low, and the strength of the motive to achieve decreases. When the probability of success is very low ($P_s = .10$), a person's hope of success is also low, again decreasing the strength of the achievement motive.

The tendency to achieve success (T_s), is also determined by the strength of the tendency to avoid failure (T_{-f}). The motive to avoid failure (M_{af}) is seen as the capacity to react to guilt and shame in the event of failure (Atkinson & Raynor, 1974). M_{af} is determined by the expectancy or probability that some act will lead to failure (P_f), and by the strength of the negative incentive value (I_f).

$$T_{-f} = M_{af} \times P_f \times I_f$$

Like the tendency to achieve success "the tendency to avoid failure, which produces inhibition and decrement in performance, is most strongly aroused when the probability of success (and so, therefore also of failure) is intermediate" (Atkinson & Raynor, p. 17). A person higher in T_{-f} than is T_s , will choose either easy tasks or very difficult ones (as a defensive reaction), rather than intermediate tasks (Atkinson & Feather, 1966; Atkinson & Raynor, 1974).

A person's tendency to achieve is assessed by means of stories written to picture leads derived from the Thematic Apperception Test, or stories written to one sentence written leads such as "David (Carol) is looking into his/her microscope". The Thematic Apperception Test (TAT) was first used by Murray (1943) who found that motives could be measured in fantasy based on story telling. Murray, however, did not manipulate or arouse motives, but merely looked for given characteristics in a person's lengthy stories which were then taken as indicators of the presence of a given motive. The TAT usually consists of a picture, featuring a theme somewhat related to the motive in question. Subjects are asked to write stories to these picture leads which are then scored for motive related imagery. The tendency to avoid failure is usually assessed by a test anxiety questionnaire such as the Mandler-Sarason Measure of Test Anxiety.

The tendency to achieve, minus the tendency to avoid failure equals a person's resultant achievement motivation. "In general, people with a high achievement imagery

index score, complete more tasks under achievement orientation, solve more simple arithmetic problems in a timed test, improve faster in their ability to do anagrams, tend to get better grades, use more future tenses and abstract nouns in talking about themselves, and set a higher level of aspiration ..." (Mc Clelland et al., 1976, p. 327).*

McClelland Atkinson, Clark and Lowell (1953, 1976) found that need achievement scores could be manipulated by achievement related instructions (ranging from relaxed to aroused) stressing to various degrees the importance of leadership ability, intelligence and task difficulty. It was found that achievement related responses as measured by stories written to a Thematic Apperception Test or to written story leads increased as a function of the strength of instructions given. The more achievement oriented the instructions, the more achievement imagery. "As achievement motivation is experimentally increased, the imaginative stories that subjects write become increasingly more concerned with achievement, the need for achievement, anticipations of success and failure, acts instrumental to success and the avoidance of failure, affective states associated with succeeding and failing, blocks in the way of achieving, and help from other persons in the direction of achievement" (Mc Clelland et al., 1976, p. 146). Surprisingly, it was found that for women, the motive to achieve could not be differentially aroused as a function of achievement oriented instructions. Need achievement scores for women

tended to be as high in the relaxed condition as in the aroused condition (Mc Clelland et al., 1976; Mednick, Tangari & Hoffman, 1975). Four possible explanations were given a) the instructions do not arouse achievement motivation in females; b) the TAT is not a valid scoring method when applied to females; c) achievement motivation for women is already so high under relaxed conditions that there is no room for further increase in the aroused condition (Mc Clelland et al., 1976, p. 173); and lastly d) women's achievement needs are satisfied through the process of child bearing and child rearing (Veroff & Feld, 1975). Since the Thematic Apperception Test was found not to be a valid measure for achievement motivation in women, and since it was believed that women satisfied their achievement needs by having a family "most systematic studies of the effect of individual differences in strength of inferred achievement motive on performance, ... have employed male subjects" (Atkinson, 1964, p. 227).

Horner's Theory of Fear of Success

It was not until the mid 60's (no doubt enhanced by the women's movement) that Matina Horner (1968) proposed the fear of success (FOS) hypothesis in an attempt to extend the existing achievement motivation theory and explain achievement motivation in women.

Horner's theory is an extension of McClelland and Atkinson's expectancy - value theory of achievement motivation, which states that a person's achievement motivation is the result of his/her expectations or anticipations about the probability of success and the incentive value of success, or the degree to which success is attractive or repulsive to the person. Horner hypothesized that achievement strivings will be inhibited if negative consequences are anticipated as a result of one's success. Based on the assumption that one internalizes society's values about the appropriateness of feminine and masculine behavior, Horner hypothesized that since achievement is a male attribute, females fear the negative consequences if they exhibit such qualities. The fear of social rejection (such as being labeled homosexual, unattractive, frustrated, unhappy, weird) and feelings of unfemininity cause anxiety in women and a subsequent fear of success. This fear is aroused in competitive achievement situations, especially if the competitor is a male.

Fear of success is not believed to be a biological sex-linked trait. According to Horner, anybody's achievement strivings will be inhibited if negative consequences are anticipated as a result of success. However, Horner hypothesized that because of socialization patterns, FOS would be most prevalent in females, since women have been taught from early childhood on to repress aggressiveness and assertiveness, which are inherent in competitive achievement

situations. For most men "this is not a problem; active striving for success is not accompanied by the anticipation that their masculinity will be questioned or threatened if success should be attained" (Horner, 1973, p. 5).

Horner hypothesized that the motive to avoid success (M - s) is aroused by the aggressive overtones in a competitive situation. If the aggressive overtones of a competition are minimized, M - s will not be strongly aroused. A competitive achievement situation was defined as one "in which performance reflecting intellectual and leadership ability is to be evaluated against a standard of excellence and also against a competitor's performance" (Horner, 1972; p. 161). According to Horner, "the tendency to avoid success (T - s) will function as either a) a negative inhibitory tendency acting against the expression of the positive tendency to achieve success which is also aroused in achievement oriented situations, or b) as a motivator of defensive responses to relieve anxiety" (Horner, 1968, p. 23).

Horner expressed her theory in the following equation:

$$T - s = M - s \times I - s \times P_s$$

The tendency to avoid success equals the motive to avoid success (which is supposed to be zero for most men) times the negative incentive value (which is believed to be greater in competitive situations, especially involving males and a masculine task), times the probability of success. The negative incentive value (I - s) is strongest when the task is difficult, since it is more unfeminine (hence an-

xiety producing) to do well in competitive achievement situations on a difficult task than on an easy one. As long as the motive to succeed (M_s) is greater than the motive to avoid success ($M - s$), the strength of the tendency to perform should be greatest when $P_s = .5$. If $M - s$ is greater than M_s , the tendency to perform should be weakest when the probability of success equals .5.

Horner assumed that if there was no fear of negative consequences, fear of success would not be aroused. She further hypothesized that FOS would be greater in high achievement oriented, highly able women, since for these women success might actually be within grasp. Horner believed that low ability women, or females with low need to achieve would exhibit fewer FOS symptoms, since success would be seen as a remote possibility and would thus not be feared.

Horner's Findings

In an initial assessment period, Horner (1968) tested 178 subjects together in one large auditorium. As subjects entered, females were directed to one side of the auditorium and males to the other. Subjects were asked not to open the folder in front of them until the session started. The folder contained verbal leads to test need-achievement and FOS, an anxiety questionnaire and three timed problem-solving tests, which were introduced to the subjects as ability measures. All subjects received neutral instruction,

identical to instructions used by (Mc Clelland et al., 1953, p. 101).

The story lead used to measure FOS differed from the story leads used to assess achievement motivation and read: "After first-term finals John (Anne) finds himself (herself) at the top of his (her) med school class" (Horner, 1968, p. 39). Males responded to the John-cue, and females to the Anne-cue. A simple present-absent coding procedure was adopted to score the stories for fear of success imagery. FOS was scored as present if the content of the stories dealt with "negative consequences because of success, activities away from future success, direct expression of conflict about success, denial of effort or responsibility for attaining success, and bizarre and inappropriate responses" (Zuckerman & Wheeler, 1975, p. 933).

In a second testing period, subjects were randomly assigned to one of three conditions:

1. non-competitive, (NC)
2. mixed-sex competitive
3. and same sex competitive

Subjects in all three groups were administered a level of aspiration or risk preference task, three performance measures and a personal questionnaire.

Sixty-five percent (65%) of all female stories were scored as exhibiting FOS, as compared to eight percent (8%) of the male stories. Women fearing success characterized "Anne" as physically impaired, unattractive, unreliable, and

unhappy. The hypothesis that women correctly solve fewer arithmetic problems and anagrams in the competitive conditions as compared to the non-competitive condition was not supported. Furthermore contrary to the hypothesis, FOS did not seem to be related to need-achievement.

However, when comparing the performance on a problem-solving task of subjects in the non-competitive condition to subjects' own performance in the initial pretest (large competitive setting), Horner did find significant differences between females high in FOS, and females low in FOS. Seventy-seven percent (77%) of women scoring high in FOS performed better in the non-competitive condition, while ninety-three percent (93%) of women low in the motive to avoid success, performed better in the initial competitive assessment period, as did males. Horner (1972) concluded that "unusual excellence in women was clearly associated for them with the loss of femininity, social rejection, personal or societal destruction, or some combination of the above" (p. 162). Women fearing success characterized "Anne" as physically impaired, unattractive, unreliable, and unhappy.

Horner's study evoked wide-spread interest, since it seemed to constitute the missing link in Atkinson's model of achievement motivation, by providing the explanation for the puzzling sex differences in prior data on achievement motivation. However, despite Horner's results, most studies that followed were not able to replicate these large differences in FOS between men and women.

Up to date a great number of studies in the area of fear of success have been carried out. Many reported sex differences on the verbal TAT, with women scoring higher than men. However, the percentage of reported FOS for males was higher than Horner's findings (Hoffman, 1977; Wolf, 1975) and in some cases even exceeded FOS reported for women (Hoffman, 1974; Peplau, 1976).

Tresemmer (1977) compared 56 studies on FOS and rejected the hypothesis of gender differences, since females told only slightly more FOS-stories than males. Zuckerman and Wheeler (1975) found that in 16 studies, nine reported higher female scores in the measure to avoid success, while in the remaining seven experiments males scored higher than females. Fear of success imagery ranged from 20% to 88% for females, and from 9% to 76% for males (Zuckerman & Wheeler, 1975).

Fifteen years of research since the publication of Horner's work have not been able to clarify and explain the exact nature of the motive to avoid success and its behavioral consequences, and Horner's original theory remains the most widely cited empirical investigation of the FOS hypothesis.

Critique of Horner's study

Horner's study has been criticized on several grounds (for critique and review see Tresemmer, 1977; Ward,

1978; Zuckerman & Wheeler, 1975):

1. The small size of her sample:
(only 30 S_s either high or low in FOS in the non-competitive condition were compared with subject's own score in the assessment period).
2. The possible bias of the coding personnel
(see below).
3. The nature of the cue (see below).
4. The subjectivity of the device used to measure FOS (see below).
5. The motive to avoid success was not manipulated (see below).
6. The motive does not distinguish between competitive and non-competitive achievement situations (see below).

To 2. Bias in Coding

Through the Anne or John-cue, coders knew whether a subject was female or male, which might have influenced their judgement. Possibly coders were more likely to rate female responses as revealing FOS than male responses (Alper, 1974; Hoffman, 1977; Peplau, 1976a; Zuckerman & Wheeler, 1975). To see whether the reported increase in FOS for men could have been due to differences in coding, Hoffman (1974) recoded the original stories of Horner's subjects. While in 1968 only eight male stories out of 71 were coded

for expressing FOS, Hoffman recoded an additional 31 of the original male stories as inferring FOS. Out of the 53 female stories coded for reflecting FOS, 51 plus an additional 11 stories were recoded as inferring FOS. This brought the percentage of FOS much closer to the results of studies done after 1968, and therefore differences in data could possibly be attributed to more liberal coding procedures; rather than an actual increase in FOS for men.

To 3. FOS and Sex Differences: The Nature of the Cue

Overall, no reliable sex differences have been reported for the motive to avoid success (Tresemer, 1977; Zuckerman & Wheeler, 1975). However, FOS might not necessarily mean the same for males and females. To the original "Anne (John) cue", stories written by females high in the measure to avoid success differed in content from stories written by males high in FOS (Alper, 1974; Hoffman, 1974; Peplau, 1976a). While FOS-female dealt with themes expressing fear of rejection, FOS-males wrote stories questioning the value of success itself rather than fearing its negative outcome, indicating that females high in FOS might repress performance in a competitive achievement situation, while this might not necessarily be true for males who score high on the FOS measure. Romer (1975) did find that males in the eighth, ninth, and tenth grade who were high in FOS performed better in a competitive situation, while peers low

in FOS performed better in a non-competitive situation. The opposite pattern was true for females. Male scores on Horner's FOS measure seem to reflect something different from female scores, making it difficult to interpret male scores.

Juran (1979); Shapiro (1979); Shaver (1976); Tresemer (1976, 1977); Zuckerman and Wheeler (1975), concluded that the cue Horner used was too situation specific, and would naturally elicit FOS in females since medical school is a culturally defined male setting, featuring a type of success which is "out of place" for women. Males on the contrary respond to a cue in their own field and should therefore exhibit lower FOS scores or a different type of FOS (e.g. devaluating it, rather than fearing it).

A review of the literature by Tresemer (1977), and Zuckerman and Wheeler (1975) revealed that males, when given the Anne-cue to respond to, wrote similar negative stories compared to females, indicating that female success is seen as being out of place in such a setting by both sexes.

Paludi (1979) changed the Anne (John)-cue in such a way that Anne (John) either ranked at the upper 5%, 15%, 25% or 50% males or 50% females, or that Anne was the only woman in her class. More negative stories dealing with the feeling of others were written when Anne was pictured in the deviant position.

According to Shapiro (1979) women do not fear success per se but fear success in traditional male activities. Shapiro used a cue featuring Anne or John as professional

dancers, a profession which subjects had rated as having female characteristics but being equal in terms of success components to that of a medical doctor. Males wrote less FOS-stories to the traditional medical cue than females, but more FOS-stories concerning negative social consequences such as lack of masculinity, normalcy, etc. to the ballet cue than did women.

Alper (1974) found that females wrote 86% success stories to Anne in nursing school. When using cues featuring success in a typical masculine field (engineering), a somewhat neutral field (child psychology), and a feminine field (nursing), males exhibited most FOS to the nursing cue and least to the engineer cue, while for females the pattern was reversed (Janda, O'Grady & Capps, 1978). Males exhibit similar anxieties in terms of being teased and rejected socially when writing stories to John in nursery school than females do to the medical cue (Cherry & Deaux, 1978).

Makosky (1976) found women high in FOS to perform best on a task described as feminine, competing against another women while females low in the measure of FOS performed best on tasks described as masculine and when competing against a male.

FOS was not found to be related to a measure of sex role attitudes (Illfelder, 1980; Peplau, 1976a, b; Thesemer, 1977; Zuckerman & Wheeler, 1975) but FOS and sex role attitudes in combination seemed to predict career salience (Ill-

felder, 1980). Females low in FOS holding non-traditional sex role views exhibited the highest level of career salience, while females high in FOS in combination with a traditional sex-role view were lowest in level of career salience.

It can be concluded that the cue Horner used to measure FOS was too situation specific, leading to conscious response patterns reflecting to a large degree society's values about "appropriate" male and female occupations, rather than eliciting "spontaneous motivation or naturally-occurring concerns (Horner & Fleming, 1977, p. 2). Horner (1973) developed a new scoring method for fear of success, "free of conscious control on part of the subjects" (p. 10), using less specific and sex typed cues (for example: "Jane is going back to the office at the end of the day." "John is sitting in a chair with a smile on his face."

To improve the simple present-absent scoring criteria used to determine a person's motive to avoid success, Horner (1973) analyzed and compared story-themes written to three neutral TAT-cues by female subjects under aroused, (competitive), and neutral (non-competitive) achievement conditions. (For a more detailed analysis of Horner's study, see section five on FOS manipulation, below). Different story themes or categories "were systematically organized and compared for presence or absence in the arousal versus non-arousal condition" (Horner, 1973, p. 20). This resulted in a preliminary scoring system containing some 43 possible

categories. Stories of all subjects were then scored using these 43 categories, and each subjects score on a scrambled word task in a neutral setting was compared with subjects own score on an anagram task in a subsequent aroused condition. Values for each category were assigned according to how well a category predicted performance decrements from the neutral to the aroused session. Horner then analyzed in an ANOVA each category's significance in terms of predicting performance decrements from a neutral, non-competitive, to an aroused, competitive achievement situation. Finally a regression equation was used with the categories which approached significance leading to the final scoring scheme of six categories: a) non-contingent negative consequences; b) contingent negative consequences; c) interpersonal engagement; d) relief; e) absence of instrumental activity; f) absence of others (Horner 1973, Horner & Fleming, 1977).

"The new scoring criteria do not revolve around the avoidance of success per se but are more generally concerned with the avoidance of instrumental competence" (Horner & Fleming, 1977, p. 2).

Horner's new scoring criteria will be used in the following study as one of the two measures to determine a person's motive to avoid success.

To 4. Measuring FOS objectively:

Any subjective measure is more susceptible to

errors with regard to scoring and coding procedures than an objective measurement. In an attempt to eliminate coder biases, and to overcome the problem of cue specificity, several objective measures were developed, on the basis of Horner's construct of fear of success (Cohen, 1974; Good & Good, 1973; Ho & Zemaitis, 1981; Pappo, 1972; Spence, 1974; Zuckerman & Allison, 1976).

These scales however do not seem to measure the same unidimensional construct (Sadd, Lenauer, Shaver and Dunivant, 1978). Sadd et al. found that of the five objective measures (Cohen; Good & Good; Pappo; Spence; Zuckerman & Allison), only Spence's measure showed significant sex differences with males scoring higher in FOS than females. Correlations between the five measures were inconsistent, and a factor analysis of each scale, plus of two anxiety scales yielded 37 new variables. A factor analysis of these variables resulted in five orthogonal factors of which only the first factor was directly related to Horner's concept of FOS. This first factor dealt with concern about the negative consequences of success. Items which loaded highly on this factor expressed "concern about jealousy, exploitation, criticism, sabotage, rejection, burdensome responsibility, and pressure following success" (Sadd et al., 1978, p. 412). Factors two, three, four and five were concerned with self-deprecation and insecurity, test anxiety, attitudes towards success in medical school, and extrinsic motivation to excel, respectively. None of these four factors were directly

related to Horner's concept of FOS, which bases the motive to avoid success on the premise "that an expectancy is aroused in competitive achievement situations that success will lead to negative consequences..." (Horner, 1968, p. 16).

None of the above mentioned five factors included the fear of loss of ones femininity. (Horner hypothesized the loss of femininity to be one of the concerns about the negative consequences of success, leading to the inhibition of achievement strivings in women). Sadd et al. concluded that the scales did not measure the same unidimensional construct.

Using Sadd et al.'s findings, Ho & Zemaitis (1981) developed the CONCOS scale (concern over negative consequences of success) with Horner's conception of FOS in mind, but incorporating a more general definition excluding the concept of loss of femininity, in an attempt to construct a measure valid for females as well as males. The CONCOS scale is based on the items of the first factor in Sadd et al.'s study which seemed to reflect most accurately Horner's original conception of FOS: "concern over the negative consequences of success," but does not include the concept of loss of femininity.

Ho and Zemaitis administered the CONCOS scale to 46 male and 68 female subjects. No significant sex differences were found. Subjects high in CONCOS of either sex (scoring 56 points and above) performed less well on a timed Anagram task than did subjects low in CONCOS, supporting Horner's assumption that persons scoring high in FOS will do less

well on competitive achievement oriented tasks. Contrary to Horner's findings CONCOS was found to correlate with achievement motivation. The higher the CONCOS score for both sexes the lower a subject's achievement motivation. Contradicting Horner's conception of FOS, the CONCOS scale was not related to femininity, but was related to masculinity (as measured with a modified version of the Bem Sex Role Inventory). "For both sexes those who were high in masculinity, were low in CONCOS, regardless of their stance on femininity" (p. 26). The author concluded that results lent "further support to the contention that concerns over the negative consequences of success such as jealousy, exploitation and social rejection are just as likely to be concerns of men as they are of women" (p. 26).

✓ The present study will incorporate the CONCOS scale as one of the two measures to assess subjects' level of fear of success, and will use it in an initial assessment period to divide subjects into high and low scorers.

To 5. The Manipulation of the Motive to Avoid Success

According to Horner, the "motive to avoid success is based on the premise that an expectancy is aroused in competitive achievement situations that success will lead to negative consequences for women" (Horner, 1968, p. 16). If the aggressive overtones of a competitive achievement situation are minimized, the expectancy of possible negati-

ve social consequences, or the fear of success are not aroused. Horner did not manipulate the achievement situation or the strength of the expectancy of being socially rejected. "No attempt was made to create either an aroused or relaxed experimental atmosphere" (Horner, 1968, p. 40). The verbal leads used to assess the achievement motive and the motive to avoid success were introduced under standard neutral instructions identical to the ones used by Mc Clelland et al. (1953) in their study on achievement motivation. The large group initial testing situation was assumed to arouse FOS. No manipulations were attempted to differentially arouse and measure the motive in a relaxed or aroused condition (Tresemer, 1977). In order to determine whether a subject's behavior is a direct function of the aroused motive in question, the motive has to be manipulated in various arousal conditions. Ideally any manipulation of the motive should arouse only the motive in question, and a subject's action should be a direct function of the strength of the aroused motive in question. "The measure of a motive should reflect variations in only that motive. If A (variations in motive strength) leads to C (some behavioral sign), then C can be used to infer the presence of A, if and only if A is the one way to produce C" (Atkinson, 1958, p. 14). "The ideal situation for showing the relationship between the strength of a particular motive and behavior is one in which the only reason for acting is to satisfy that motive" (Atkinson & Feather, 1966, p. 14).

Most studies on the topic of FOS did not attempt any manipulation of the motive and continued to merely measure FOS in a neutral setting, and to subsequently compare scores of subjects who performed in a non-competitive condition, with scores of subjects who worked on an achievement task in a competitive setting.

Jackaway and Teevan (1976), attempted to differentially arouse FOS in a neutral and aroused condition. In the neutral condition, Thematic Apperception Tests assessing the motive to avoid success were collected prior to non-competitive task performance in a neutral setting. Subjects in the aroused condition competed against either a male or a female on a symbol coding task. Winners were publicly announced, which was assumed to arouse the FOS motive. Following the announcement, S_s were asked to complete the Thematic Apperception Test. While for males the FOS score stayed the same in both conditions, females scored higher in FOS after arousal supporting Horner's assumption that FOS is aroused in competitive achievement situations.

In the neutral condition, TAT cues were administered prior to task performance, while in the aroused condition subjects completed the TAT after competing on a symbol coding task and after winners had been publicly announced. Observed differences in FOS scores between non-aroused and aroused subjects could have been due to the fact that success was publicly announced or simply due to the fact that subjects in the aroused but not in the neutral group comple-

ted a symbol coding task before taking the TAT. Jackaway et al. did not test whether the reported increase of FOS imagery for females in the aroused condition lead to behavioral consequences in terms of performance decrements on a subsequent achievement task.—Horner (1973) aroused the motive to avoid success in an attempt to develop her new scoring criteria for FOS using neutral cues. In a first, neutral session subjects were given a set of TAT cues and subsequently completed the Lowell Scrambled Words Task. Subjects were then divided into three groups: aroused, non-aroused and cooperative (Horner did not report results for the cooperative group).

In a second session, upon arrival, subjects in the aroused group were assigned seats in mixed-sex pairs, and competed with each other on an arithmetic problem solving test. After completion of this task, feedback was given that the female had outperformed the male partner; subsequently subjects completed stories to TAT cues similar to the ones used in session I, and were then administered an anagram test from the word generation, which was seen as a task comparable to the Scrambled Words Task in session I, allowing for within-subject-comparision between the two sessions.

The non-arousal group in the second session, completed tasks identical to subjects in the aroused group, but in a non-competitive and relaxed atmosphere.

Since Horner's aim was to develop a new scoring criteria rather than test the degree of effectiveness of a

FOS-manipulation, Horner only reported means and standard deviations of subjects' performance scores on the Scrambled Words Task in session I and the Anagram task in session II. Mean performance for female subjects in the aroused condition on the Anagram task was 1.3 points higher than mean performance of non-aroused subjects on the same task. A within-subject comparison revealed a difference in means of almost nine points between aroused subjects performance in session I ($\bar{x} = 48.97$), and session II ($\bar{x} = 39.9$). While this difference was only four points for the non-aroused subjects (\bar{x} 42.75 and 38.6 respectively). Thus, there appears to have been a greater decrease in performance for aroused subjects compared to non-aroused subjects. However, mean performance on the Scrambled Words Task in session I of the aroused and non-aroused subjects was markedly different, 48.97 and 42.75 respectively, suggesting that the initial non-equivalence of the groups in session I may have lead to different regression effects at session II. Since no significance levels are reported for any of these comparisons, no definite conclusions can be drawn as to the effectiveness of Horner's FOS-manipulation.

No comparison was made between subjects' performance in the two experimental conditions on the arithmetic problem solving task administered before success-feedback was given. No within-subject comparison could be done, since the arithmetic test had not been administered in session I. Did aroused subjects perform poorer in the arithmetic test

than non-aroused subjects? Is it the competitive mixed-sex pair setting (a rather unusual achievement situation outside of the laboratory) that arouses FOS, or is it the success-announcement which arouses the motive to avoid success.

Both, Jackaway et al., and Horner, measured FOS in the arousal condition after success had already taken place (or had been announced). In this case FOS must be seen as a motive which is aroused after success has already taken place and been announced, rather than a motive which is aroused when a subject anticipates that success might lead to negative consequences, resulting or not resulting in conscious or unconscious reduced task performance.—The following experiment is an attempt to differentially arouse the motive to avoid success in a relaxed (rather than neutral) condition, an achievement-aroused condition (ach-aroused) and a FOS-aroused condition, which emphasizes the possibility of being socially rejected by one's partner, if a subject should outperform her partner, without involving success feedback.

According to Horner, competitive achievement situations arouse fear of success in many women but few men. While Horner's data supported her hypothesis, other studies reported FOS-scores for women which were far lower than Horner's findings. The question arises as to what exactly arouses the fear of negative consequences and a subsequent FOS in an achievement situation? Is it the achievement situation itself that is sufficient to arouse the motive, or is the motive more consistently

aroused when social negative consequences in an achievement situation are made more explicit? In the following experiment, the FOS-aroused condition is portrayed as a competitive achievement situation, similar to the ach-aroused condition, but the possibility of social rejection for the subject is more explicitly stated.

The motive is not expected to be aroused in the relaxed condition, which de-emphasizes achievement and stresses non-ego involvement, but is expected to be aroused in the ach-aroused condition, since socialization patterns in North-America do not stress competitive achievement strivings for females. The ach-aroused condition stresses intellectual ability and intelligence, emphasizing strong ego-involvement. Instructions for this condition are adapted from Mc Clelland et al.'s (1976) instructions to arouse achievement motivation.

FOS is expected to be highly aroused in the FOS-aroused condition, which combines achievement related instructions with a high possibility of being rejected by one's partner. Behavioral effects as a result of the motive manipulations are being assessed by measuring subject's cooperative and competitive responses in a Prisoner's Dilemma game.

To 6. The Motive to Avoid Success, and Competitive versus Cooperative situations

Atkinson's model of achievement motivation and Horner's fear of success construct are based on competitive achievement situations, and seem to imply that achievement is of high value only in competition against another person or that the North American way of achieving is mainly through competition and outperforming others. For example, questions such as "the rewards of a successful competition are greater than those received from cooperation", or "I am only happy when I am doing better than others", indicate high FOS if answered negatively on Zuckerman and Allison's objective FOS-measure, and agreement with the statement that "success has been emphasized too much in our culture" also indicates high FOS (Zuckerman et al., 1976, p. 423).

Sassen (1980) criticizes the narrow meaning of success, as defined in achievement motivation and FOS literature. Sassen criticizes Horner's new scoring criteria (1973) which was developed to include the presence of interpersonal engagement as an indicator of FOS, while no mention of interpersonal engagement was scored as absence of FOS.

While Horner defined FOS-anxiety as a response which is aroused in the anticipation of negative consequences with regard to one's actions, Sassen points out that anxiety arises when a person fails to make meaning or sense out of a situation, because of an inability to accommodate

the situation into existing patterns of seeing the world. According to Sassen, women "are unable to take competitive success and construct around it a vision, a new way of making sense, to which they can feel personally committed" (p. 18). From childhood on females form their gender-identity in relationships, while males do not. Females learn their role in close relationship with their mother, a relationship which continues into adulthood. Males do not form this kind of relationship, since their male role model is absent most of the day. Females incorporate the father into the relationship and learn to see life as being meaningful when tied to affection and relations. According to Sassen, this structure of making meaning in their lives, leads women to be concerned with preserving and fostering relationships rather than ignoring and outdoing others in competitions. Therefore a competitive achievement situation does not give meaning to women.

According to Sassen, males are "more rule-focused, individualistic, and rights-oriented", and see themselves more separate from a given context (p. 21). "Most of the men Horner tested were able to fit the John cue and the competitive definition of success comfortably into their structures. The female respondents, however, failed to make sense of the cue as a happy event because their meaning-making orientations were contextual, relational, and oriented toward the personal. The difficulty of assimilating the event to these structures created anxiety" (p. 21).

To date, no research has determined cooperative behavior in relation to FOS. Canavan-Gumpert, Garner, and Gumpert (1978) hypothesized that persons high in FOS would not show performance decrements in certain types of cooperative settings. However, Canavan-Gumpert et al.'s construct differs from Horner's; for the former, FOS is hypothesized to be a latent disposition developed early in childhood as a result of unresolved oedipal conflicts, leading to impaired performance in competitive situations especially against a same sex partner. FOS under this construct is assessed using either Pappo's (1972) or Cohen's (1973) measures, both of which correlate highly with each other but poorly with Horner's measure and are based on "psychodynamic determinants of the neurotic fear of success", present in both sexes (Canavan-Gumpert, p. 133). Sadd et al. (1978) concluded that Pappo's and Cohen's scale are measures of a different construct than Horner's FOS. Salbert (1980) using Canavan-Gumpert et al.'s construct of FOS found results contradicting the hypothesis. Subjects high in Canavan-Gumpert et al.'s measure, were generally found to perform better in a competitive situation than in a cooperative one. Canavan-Gumpert et al. concluded "that the phenomena to which we address our attention in this book are very different from the phenomena studied by Horner and her associates" (p. 131). Horner believes FOS to be the result of childhood socialization into societies role structures. Thus,

Canavan-Gumpert et al.'s construct of FOS will not be dealt with extensively in this study.

Horner's fear of success has caused much interest and probably equal concern among women who wonder whether their career strivings are hampered by an unconscious motivation to avoid success. Sassen criticizes the narrow competitive definition of success, which implies that there is something wrong with women, who are not able to accommodate this definition. Instead of telling women to change their values so as to fit into the competitive value structure of success, an attempt should be made to change existing achievement structures as to incorporate female values of success, allowing for the development of relationships and concern.

Are females high in the motive to avoid success more cooperative than low FOS-females? Are most achievement situations in fact as highly competitive as the simulated situations in a laboratory setting; and in what way do cooperative and competitive situations differ from each other?

A Theory of Cooperation

According to Deutsch (1949a) cooperative and competitive situations differ from each other in terms of goal interdependence. In his theory of cooperation and competition, Deutsch defined a cooperative situation as one where

at least two people mutually act towards the attainment of the same goal. Goal attainment by one automatically implies goal attainment by the other person. The behavior of one person increases one's own and one's partners chance of goal attainment and leads to three psychological consequences:

1. Substitutability:

The efficiency principle or the principle of least action. If A acts and brings all members closer to the goal then there is no need for another member to repeat this behavior.

2. Positive cathexis:

Members who contribute to goal attainment will be valued, liked and positively rewarded.

3. Inducibility:

Successful actions of one member induce positive supporting behavior in direction of the goal in other members of the group.

In a competitive situation goal attainment is negatively related, and goal attainment of one person means failure (non-goal attainment) for the other person. Substitutability is non-existent. There is negative cathexis, as feelings of dislike and non-acceptance are produced the closer one of the competitors moves towards the goal. There is no inducibility (negative inducibility might occur when one partner induces actions in the other partner leading him/her away from goal attainment; Deutsch, 1949a).

Deutsch hypothesized that cooperative groups would exhibit more unity than competitive groups as individuals pursued "promotively interdependent goals" (p. 150). He further hypothesized and experimentally verified that members linked cooperatively would show "more coordination of effort, more communication, and more positive feelings for each other and increased quantity and quality of production (Deutsch, 1949a, b).

Competition versus Cooperation

Despite the fact that competition does seem to be highly valued in North America, it does not mirror the majority of achievement situations especially outside the educational setting. "Competition is a very, very small part of interacting with other individuals in our society and probably not a very important type of human interaction" (Johnson & Johnson, 1974, p. 218). Decision making in industry is seldomly based on one individual alone and most areas of science have acquired such complexity that research is usually carried out in cooperative teams rather than by one individual. Quality and quantity of production is usually better (and never worse) in a cooperative team as compared to competing individuals (Blau, 1954; Johnson, Maru-

yama, Johnson, Nelson, Skon, 1981; Slavin, 1980). Cooperative teams of male and female subjects were found to be more effective in a cognitive problem solving task than competitive groups (Johnson, Johnson & Bryant, 1973; Laughlin & Glynn, 1967), and cooperative pairs performed better on a memory reasoning and problem solving task than competitive pairs (Husband, 1940; Shaw, 1958). Raven and Cachus (1963), and Crombag (1966) found better performance of cooperative triads in a task involving speed and efficiency. Contrary to the hypothesis subjects in the cooperative setting were more concerned over personal performance than subjects in the competitive condition.

High math achievers in a cooperative learning environment scored higher on two final tests when tested in their cooperative group and scored much higher on a retention test given two months later, than did subjects in an individualized setting (Johnson & Johnson, 1978).

Reviewing the literature on cooperative learning techniques, Slavin (1980) found that "for academic achievement, cooperative learning techniques are no worse than traditional techniques, and in most cases they are significantly better" (P. 337). "When the instructional task is some sort of problem solving activity the research clearly indicates that a cooperative goal structure results in higher achievement than does a competitive goal structure" (Johnson & Johnson, 1974). When the task is one of simple "drill", competitive structures seem to be more effective than coope-

rative ones (Johnson et al., 1973). Johnson et al. (1981) reviewed 122 studies involving cooperative, competitive and individualistic goal structures with regard to achievement. This Meta-Analysis included every available study conducted in North-America, which compared at least two of the above mentioned goal structures. Cooperation was found to be superior to competitive and individualistic ways of learning "for tasks involving concept attainment, verbal problem solving, categorization, spatial problem solving, retention and memory, motor performance, and guessing-judging-predicting" (p. 57). This was true across all subject areas and age groups. Johnson et al. concluded that "... the overall effects stand as strong evidence for the superiority of cooperation in promoting achievement and productivity" (p. 58).

Positive psychological effects in cooperative situations versus competitive situations were found in virtually all studies using affect as the dependent variable. Students in a cooperative setting feel more positive about themselves, their learning environment and task, and their teachers (Cooper, Johnson, Johnson & Wilderson, 1980; Johnson & Johnson, 1978; Jones & Vroom, 1964; Julian, Bishop & Fiedler, 1966). They engage in more interracial and cross-sex relationships (Cooper et al., 1980; DeVries & Edwards, 1974; Johnson, Johnson & Scott, 1978; Slavin, 1980) and generally show a more positive attitude and concern towards their fellow students and assume greater sharing of responsibilities (Laughlin & Glynn, 1967; Johnson, 1975; Johnson &

Ahlgren, 1976; Johnson et al., 1978; Johnson, Johnson, Johnson & Anderson, 1976; Scott & Cherrington, 1974; Slavin, 1980). Gottheil (1955) found that eighth grade boys after participating in a cooperative setting not only saw their group members in a more positive, more accepting and less indifferent way, but also generalized this to other class members who had not participated in their group. Cooperative learning was found to improve self-esteem (Johnson & Ahlgren, 1976; Julian & Bishop, 1966; Slavin, 1980). Students in cooperative environments were found to be more relaxed and showed fewer signs of anxiety (Hammond & Goldman, 1961; Johnson et al., 1973; Julian & Bishop, 1966).

Stendler, Damrin & Haines (1951) observed that under competitive conditions some children did not try from the outset, thereby alleviating their anxiety about the situation. These same children showed a high level of aspiration in the cooperative setting. Coleman (1959) concluded that interpersonal competition is conflict producing in that an individual might lower his/her achievement strivings, in response to general group norms which do not view achievement as positive. Therefore performance might be constrained in a competitive achievement situation if a person views his/her partner as one who dismisses achievement as inappropriate. One would assume this to be true regardless of sex. In a mixed sex pair, a female with traditional sex-stereotyped attitudes might perceive her male partner as one who regards high achievement as unfeminine. Responding to these

implicit cues the female might unconsciously or consciously lower her achievement strivings. A male with traditional sex-stereotyped attitudes on the other hand, might feel threatened by a highly competent female, which might cause additional anxiety, but not necessarily a performance decrement. On the contrary, it might even motivate a male to surpass his female partner, complying with traditional sex role expectations.

In a cooperative achievement situation both partners have to rely on each other in order to achieve at a maximum. Atkinson's theory of achievement motivation states that the tendency to achieve success is based on the motive to achieve, the strength of expectancy or probability of success and the incentive value of success (see above). In cooperative achievement situations the probability of success as perceived by each partner is likely to be viewed more positively than the probability of success for the same task in a competitive setting. Because of goal interdependence, the incentive value of success should be highly motivating since success on the task is likely to bring approval and positive supportive behavior from the partner (compare Deutsch's notion of inducibility and positive cathexis, above). Therefore high achievement of a female partner in a cooperative situation might not be perceived as unfeminine by either sex, since success can best be achieved if both partners contribute at their maximum, and since cooperation is generally accepted as one of the positive female traits.

According to Sassen (1980) and Hottes and Kahn (1974), females are more interested in fostering relations and understanding than in outperforming others. A cooperative achievement situation allows a female to interact with her partner and establish a positive relation, therefore anxiety about negative consequences of success will not be aroused, and a female is likely to achieve to her full potential. Since real life situations, especially outside the educational environment are based more on cooperation than competition (Johnson & Johnson, 1974), performance decrements of high FOS women in the laboratory setting might not be analogous to real life situations. This is supported by Hoffman (1977), who did not find any significant differences in actual educational attainment and type of occupation between females high, and females low in FOS.

In order to determine whether females high in the measure to avoid success have a stronger predisposition towards cooperation than females low in FOS, the following study will attempt to measure cooperative behavior in females using a Prisoner's Dilemma Game.

Cooperation versus Competition: The Prisoner's Dilemma Game

The Prisoner's Dilemma Game (PDG) and its variations have been used to determine cooperative and competitive behavior. The PDG is a nickname for a game with no satisfactory solution (Rapoport, 1965). It is derived from the following story:

Two suspects are held at the district attorney's office and charged with some crime. No sufficient evidence is available to convict them. The suspects are given two choices: either to confess, or not to confess. If both do not confess only minor charges will be laid against them. If both do confess then both will be prosecuted. If one confesses and the other does not, the confessor will be set free while the latter will receive a severe punishment (Luce & Raiffa, 1957).

The dilemma can be illustrated in a pay-off matrix:

		<u>Prisoner I</u>	
		not confess	confess
<u>Prisoner II</u>	not confess	one year prison each	no charges for confessor, ten years for non-confessor
	confess	no charges for confessor, ten years for non-confessor	five years each

The prisoners are faced with a psychological dilemma:

Confessing definitely has the least negative consequences, but only if the other one does not confess. If one confesses and the other confesses as well then a five year prison sentence will be passed down, while if both partners cooperated by choosing not to confess, they only would receive a one year sentence, but simultaneously lose their chance of being set free by behaving competitively.

Prisoner's dilemma games are used "as a sort of projective test, the basic assumption being that different kinds of people play the same game in different ways, perhaps reflecting their personalities in their style of play" (Rapoport, Guyer & Gordon, 1976, p. 113). The Prisoner's Dilemma is believed to reflect every day life situations: the dilemma of having to decide whether to act in ones self-interest by making a competitive choice, or whether to act cooperatively. For example, two store owners have to decide whether to cooperate or compete in their price policy. If only one store lowers its prices, it might lose profit, but at the same time gain customers from the other store. This in turn might initiate the other store owner to lower his prices the next day. Now both stores will lose their profits and have to come to some kind of agreement in order to stay in business (Davis, 1970).

In the case of a water shortage, cooperation of just a few citizens in saving water will lead to no results. If all act out of self-interest, the water shortage will be

severe for everyone; but if everyone saves only a little bit of water, the shortage can be overcome without too much difficulty (Davis, 1970).

In a Prisoner's Dilemma Game, "whatever choice is recommended by rational considerations, has something wrong with it in spite of the fact that nothing remains unknown about the situation. In other words, the chooser cannot do better by finding out more. Hence the dilemma" (Rapoport, 1965, p. ix).

Players of a PDG see an identical matrix in front of them, which lists the pay-offs for both players. A pure PDG has to satisfy the following conditions: $S < P < R < T$ and $2R > S + T$, to ensure that the "jointly cooperative strategy choice will produce the largest joint pay-off, rather than allow an alternating pattern between CD and DC choices [cooperative and competitive or defecting choices] to produce the joint pay-off" (Oskamp, 1971, p. 228).

"S" symbolizes "sucker's" pay-off, or the pay-off received by a player who cooperated while the other defected or competed. "T" symbolizes "temptation", or the pay-off each player can hope for by competing, only when the other player is making a cooperative choice. "P" stands for "punishment" when both players defect. "R" symbolizes "reward" for a cooperative choice by both players (Rapoport et al., 1976). The following is an example of a standard PDG pay-off matrix:

Player I

Player II

	cooperate	compete
cooperate	3(R) 3(R)	4(T) 1(S)
compete	1(S) 4(T)	2(P) 2(P)

Usually players are not allowed to communicate with each other. Both players are presented with the same pay-off matrix and are then instructed to communicate their choices via an electrical switchboard. This apparatus consists of a panel with two buttons or switches, which are color-coded and resemble either the cooperative or the competitive choice. Once both players have chosen their strategy and pushed one of the two buttons or switches, one of four lights on each player's panel will flash simultaneously representing one of the four possible outcomes. A flashing light in the upper left hand corner signals a cooperative choice by both players while a flashing light in the lower right hand corner would signal competitive choices by both players (see page 58). An automatic recorder records each player's choice and pay-off. In order to ensure standard conditions for all subjects, subjects may unknowingly play against a simulated other, who plays according to a pre-determined strategy.

The PDG and Sex Differences

A general belief exists that females are more cooperative than males. Most researchers support this notion, despite the fact that actual empirical evidence on the issue is somewhat contradictory or inconclusive. While some studies involving a PDG or one of its variations have found women to be more cooperative (Conrath, 1972; Komorita, 1965; Smith, Vernon & Tarte, 1975); others have found no difference (Grandberg, Stevens & Katz, 1975; Kuhlman & Marshello, 1975; Lutzker, 1961). Bedell and Sistrunk (1973), Hottes and Kahn (1974), Mack, Auburn, and Knight (1971), Skotkol, Langmeyer, and Lundgren (1974) found female pairs to be more competitive than male pairs, and mixed sex pairs less competitive than females pairs, but more competitive than or equal to (Bedell & Sistrunk, 1973) male pairs.

One explanation for higher male cooperation is optimal-strategy-play, rather than any disposition towards cooperation. Males seem to focus more on strategies which maximize personal gain, and communicate this to their partner through play, while females seem to respond more to the social context of the situation (Komorita, 1965; Skotkol et al., 1974). Males in a mixed pair condition cooperated to the same degree as in the same sex condition, while females responded to the change in social situation by increasing their cooperative choices with a male partner (Bedell & Sistrunk, 1973).

As pointed out earlier, society expects males to attempt their best in achievement situations regardless of the circumstances, while females are not expected to outperform a male partner, and may have to face social rejection if they do. Hence females may play a PDG more cooperatively with a male partner than with a female partner. According to Hottes and Kahn (1974), females are not attracted to competitive or mixed motive games (such as the PDG), since they are socially oriented and interested in pleasant social situations. It is difficult, however, to be sociable when behavior is restricted to pushing buttons. Therefore, whenever possible, females "should attempt to turn such situations into ones of pure cooperation" (p. 271). However, the total restrictions in communication in a PDG prevent women from adopting a purely cooperative strategy, and competitive responses may be used as a defense in an attempt at self-protection from looking foolish. Playing competitive guarantees that the partner does not get more than oneself, and minimizes possibilities of being "hurt" or exploited and ending up with the "sucker's pay-off". This might explain why females play more defensively (i.e., competitively) against another female and more cooperatively against a male. Fear of possible rejection from a male partner might override the fear of being exploited. The fear of being exploited and labeled stupid by a female partner however, might be stronger than the fear of social rejection in terms of being labeled unfeminine and weird.

Hence females play more competitively against another female as a defense.

It will be assumed that females high in the measure to avoid success will play more cooperatively against a male partner. Accordingly, females low in FOS will not focus on the social situation of the game, but will try to play a game of maximal gain strategy similar to males. This prediction is supported by the findings of Conrath (1972), and Baefsky and Berger (1974), who concluded that females who have assumed traditional male roles will play more like males, trying to maximize personal gain. (No research comparing cooperative behavior in a PDG and level of FOS is known to the author of this study).

Horner's theory states that FOS is aroused in competitive achievement situations. According to Horner, given a choice, a female high in FOS will avoid competitive achievement situations altogether, or if this is not possible will either a) repress performance or b) engage in defensive behavior to relieve anxiety. Even though the PD game provides the possibility to avoid a competitive situation, by playing cooperatively, women high in FOS do actually compete as a defensive response to protect themselves from looking foolish. However, this defensive behavior should change over trials when the high fear of success female plays against a mainly cooperative player.

Oskamp (1971) investigated the effects of the percentage of partner's cooperation on subject - cooperative-

ness and found a 100% cooperative strategy to elicit more cooperative responses than either a 25% or a zero percent cooperative strategy. However, "smaller differences in levels of randomized cooperation (e.g., 75 percent versus 50 percent cooperation) do not usually produce significant differences in the subjects' concurrent cooperation" (p. 246).

Mack, Williams, and Kremer (1979) found female subjects who knew that they were playing against a computer, to be more cooperative than males, when playing against a random 80% cooperative strategy. Males tended to exploit the situation more often than females.

Hartman (1980) found no sex differences in cooperative behavior in a non-contingent 85% cooperative PDG.

According to Kuhlman and Marshello (1975), subjects with a disposition to cooperate, cooperated when playing 30 trials against a tit-for-tat or a 100% cooperative strategy, while competitive oriented subjects defected against these two strategies. Individualistic oriented subjects defected against a cooperative and competitive strategy but cooperated against a tit-for-tat strategy. Kuhlman and Marshello concluded that "a 100% cooperative strategy produces cooperation only among cooperative subjects, individualists and competitors exploit such a person" (929).

The following experiment will use a standard PDG in an attempt to determine differences in play strategy between high and low FOS female subjects.

To ensure uniform conditions, all subjects will play against a simulated partner who will adopt a random strategy of 80% cooperative and 20% competitive play. It is assumed that a 80% cooperative strategy will allow cooperative subjects to play cooperatively. A randomized cooperative strategy below 80% is assumed to prevent subjects from playing cooperatively, since subjects will experience too many retaliative responses, which will make them feel insecure about the possibility of ending up as the "sucker", thus leading to a defensive competitive play (see Oskamp, 1971). On the other hand a 90% or 100% cooperative strategy is likely to induce suspicions about the existence of the other player, especially for competitive subjects who win every trial against a 100% cooperative (simulated) player.

Hypotheses

Hypothesis I

There will be a main effect of FOS as measured by CONCOS on overall cooperative behavior in the PDG.

1. Females low in CONCOS will play more competitively to maximize their personal gain, regardless of sex of partner and treatment condition. (In a predetermined 80% cooperative game, competition with the stooge presents the optimal gain strategy).
2. Females high in CONCOS will play more cooperatively than females low in CONCOS regardless of sex of partner and treatment condition.

Explanation of Hypothesis I

To 1. According to Horner, "the suggested presence of a motive to avoid success is based on the premise that an expectancy is aroused in competitive achievement situations that success will lead to negative consequences for women", in terms of social rejection and negative labeling (Horner, 1968, p. 16). Horner states that the tendency to avoid success "will function as either a) a negative inhibitory tendency acting against the expression of the positive tendency to avoid success which is also aroused in achievement

oriented situations, or b) as a motivator of defensive responses to relieve anxiety" (Horner, 1968, p. 23). If there is no fear of negative consequences, fear of success will not be aroused. Horner assumed this to be the case for most men.

In a Prisoner's Dilemma Game it has been found that males adopt a game strategy which maximizes their own gain, regardless of the sex of partner. Males will play cooperatively or competitively depending on whether it is cooperation or competition which produces overall maximal personal gain (Komorita, 1965; Skotkol et al., 1974).

Low FOS (as measured by CONCOS) females are expected to adopt a behavior pattern in the PDG similar to that of men. Since they do not fear social rejection by others, low FOS females are expected to adopt a strategy maximizing their own gain, regardless of the sex of the partner or treatment condition. Since the strategy to maximize one's own gain is through competition, females low in FOS are expected to compete.

To 2. Horner's theory states that FOS is aroused in competitive achievement situations. Given a choice, a female high in FOS will avoid competitive achievement situations altogether, or if this is not possible will either repress performance or engage in defensive behavior to relieve anxiety. In a 80% cooperative PDG, females can cooperate without becoming the "sucker".

Hypothesis II

There will be an interaction effect of sex of partner and CONCOS.

- 3. Females high in CONCOS, will play more cooperatively with a male than a female partner.

Explanation of Hypothesis II

To 3. It has been shown that in a PD game women play more defensively against another women than against another male, regardless of whether the optimal game strategy is one of cooperation or competition (Mack et al., 1971). Bedell et al. (1973), Hottes et al. (1974), Skotkol et al. (1974), concluded that women focus on the social aspect of the situation therefore responding to the sex of the partner with a change in response behavior. It was found that women, but not men change response strategy with a change in sex of partner (Hottes & Kahn, 1974; Komorita, 1965; Skotko et al., 1974). In accord with FOS theory it is predicted that females high in FOS (as assessed by CONCOS) playing against a male, fear possible social rejection in the event that they should outdo their male partner. Since a competitive strategy would lead to a devastating loss for the male partner (stooge), who is playing cooperatively 80% of the time, females high in CONCOS will adopt a more cooperative strategy against a male partner.

Against a female partner a high fear, of success subject (as assessed by CONCOS) will play more competitively in an attempt to protect herself from looking foolish.

Hypothesis III

There will be an interaction effect of arousal condition and CONCOS.

4. In the FOS-aroused condition females high in CONCOS will play more cooperatively than in the relaxed condition, or the ach-aroused condition; and females in the ach-aroused condition will play more cooperatively than in the relaxed condition.

Explanation for hypothesis III

To 4. In the two arousal conditions, the PD game is presented as a game which reveals general intelligence and leadership ability. In the FOS aroused condition the partner is presented as one who is in his second game round and has chances to advance to a third game round where the pay-off would be \$100. As the instructions become more ego-involved, social rejection from the partner becomes more likely, if the subject played competitively against a 80% cooperative player (which would make the partner(stooge) look rather "stupid" since the partner would end up with the "sucker's"

pay-off 80% of the time). Therefore, females high in CONCOS will play more cooperatively.

Hypothesis IV

There will be a main effect of arousal condition on level of FOS as assessed by Horner's FOS measure (1977).

6. Fear of success is expected to be strongly aroused in the FOS aroused condition, and only minimally aroused in the relaxed condition. (The nature of the game (unusual electrical apparatus, separation of subjects etc.) can be expected to somewhat arouse FOS even in the relaxed condition). The achievement aroused condition is also expected to arouse FOS, but to a lesser degree than the FOS aroused condition.

METHODDesign of Study:

The following study will attempt to validate Horner's measure of FOS for females by differentially arousing the motive to avoid success in three experimental conditions:

1. a relaxed condition, stressing non-ego involvement and de-emphasizing achievement;
2. an achievement-aroused condition (ach-aroused), stressing ego-involvement by emphasizing the task as a test of intellectual ability.
3. a FOS-aroused condition, identical to the achievement aroused condition, but with an additional emphasis on the possibility of social rejection.

Behavioral effects of the motive manipulation are assessed by recording subjects' cooperative responses on a Prisoner's Dilemma Game. The experiment is a 3 x 2 x 2 (x 5) repeated measures design (cooperative behavior will be recorded five times in blocks of ten trials each). The first factor, motive arousal, consists of three levels: relaxed, achievement-aroused, and FOS-aroused. The second factor, sex of partner, has two levels and the third factor, FOS as assessed by CONCOS, has two levels, high and low. This results

in 12 factorial cells (see figure 1). The dependent measures are subject responses to Horner and Fleming's (1977) FOS story leads (to assess the strength of the motive arousal of the three experimental conditions) and total number of cooperative responses in a 50 trial PDG.

Subjects will be female undergraduate students.

Subjects

The subjects for the experiment were 80 females undergraduate students enrolled at Concordia University for the fall semester, 1982. In an initial assessment period, 1036 female and male undergraduates completed the "Concern over the Negative Consequences of Success Scale" (Ho & Zemaitis, 1981). Of the 1,036 students, 236 males and 169 females volunteered to participate in phase II of the study by writing their name and phone number in a designated place at the bottom of their answer sheet. Two hundred (200) males and all the females were divided into high and low scores on the 27 items of the CONCOS scale. Subjects with scores in the bottom third of the distribution, ranging from 31 to 51 points inclusive, were assigned to the low FOS group, while subjects who scored above the 68th percentile, with scores ranging from 58 to 76 inclusive, were assigned to the high fear of success group. Subjects with scores in the middle third ranging from 52 to 57 points inclusive were excluded from further analysis. This resulted in a possible subject pool of 63 females low in FOS, 51 females high in FOS, 75 males low in FOS, and 68 males high in FOS. (The cut-off point for high CONCOS scorers was similar to that of Ho and Zemaitis (1980) who used a median split technique to arrive at a cutoff point of 56 and over for high CONCOS scorers). Only the experimental data for females have been analyzed and are presented in the results.

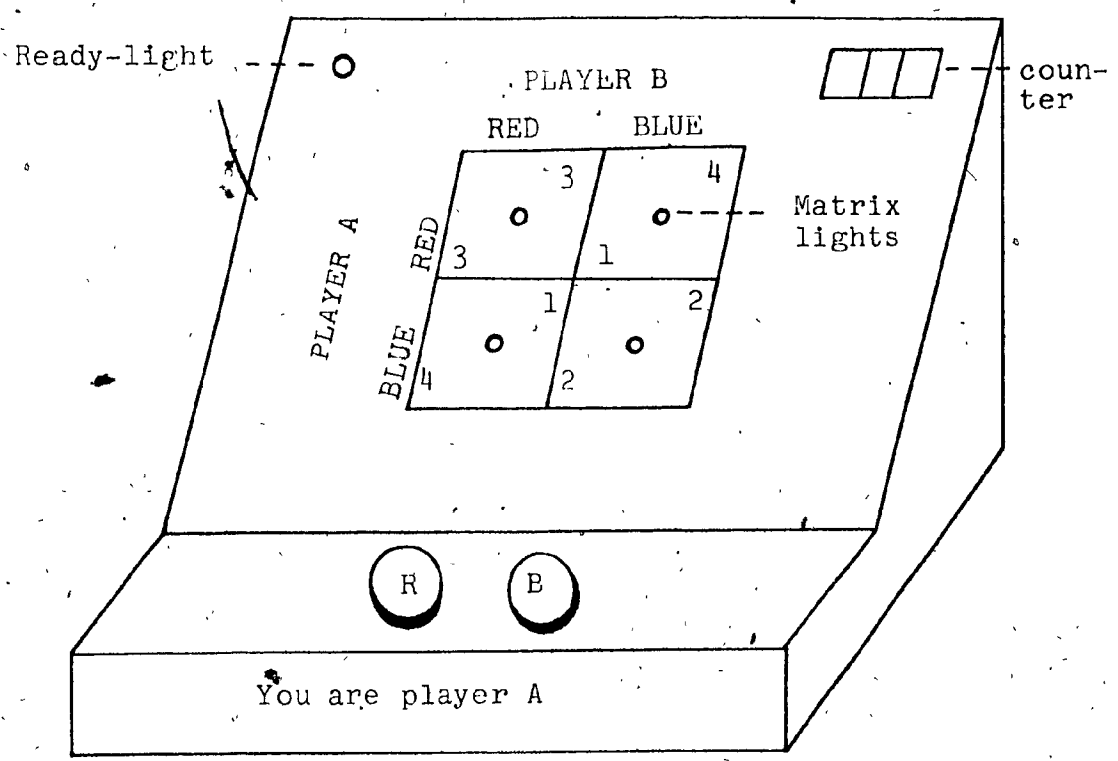
Apparatus

1. The PD game

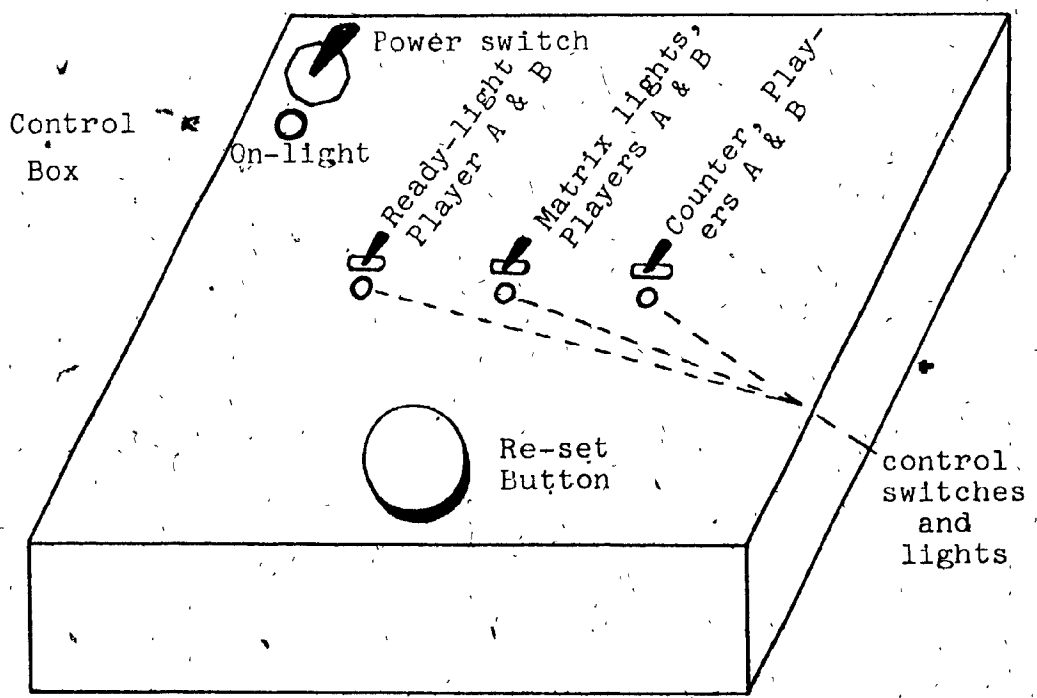
The Prisoner's Dilemma Game consisted of three wooden boxes: a main box used to activate and control the two boxes of each player (see figure 2). The main box consisted of one electrical outlet, two outlets to connect the two game boxes; a power switch which in its on position activated a green light, and three small switches which could be used individually to control the counter, matrix lights, and ready lights on the player's boxes.

The players' boxes consisted of two buttons, one red, one blue, four small yellow lights, one red ready-light in the upper left hand corner of the box, and an automatic display counter on the upper right hand side of the box, which accumulated the player's score after each move. The ready-light signaled to the players, at an interval of four seconds, when to make their move. Any move made during the four second time span when the light was off, was not counted, and no matrix light was activated.

The pay-off matrix used in the game was directly painted onto the boxes. Each of the four squares of the matrix contained one of the small yellow lights, one of which would activate after each move of the two players, indicating the outcome of any given trial. The numerical pay-off for the subject was listed in the lower left hand cor-



Player's box



control switches and lights

Figure 2. The PDG Apparatus

ner of each square of the matrix. The pay-off for the simulated player was listed on the top right hand corner of each square. Each square was labeled either red or blue. A standard pay-off matrix was used, giving the players three points for mutual cooperative choices, two points for mutual competitive choices, and one and four points for a cooperative choice and a competitive choice respectively on any given trial.

The players' boxes were designed in such a way that the two buttons were situated on a horizontal plane, while the matrix was displayed on an angle comfortable for players to read.

2. Tape-recorder:

A Sanyo tape-recorder was used to record and play instructions.

3. Cassettes:

Six 90 minutes BASF cassettes were used to record and play instructions for the six experimental groups (relaxed, achievement-aroused, FOS-aroused condition times, female and male game partner).

4. Intercom:

A simple Archer four station intercom system was used. Call buttons on the two speakers in the subject's room were removed.

Technical procedures:

The experimental rooms were located on opposite sides of a short hallway. Three 60 foot cables were required to connect the subjects's game board to the main box in the experimenter's room, and to connect the intercom stations. Two stations of the intercom system were placed upright into a styrofoam box (with openings for the speakers), about eight inches off the table and five inches apart from each other with a styrofoam division in between stations in order to reduce vibration and noise. One of the stations was directly connected with the tape recorder in the experimenter's room, while the other one was connected with the main intercom station in E's room.

At the end of the tape recorded instructions, the tape continued to run emitting background sounds identical to the ones present at the time the tape had been recorded. This was done to minimize an audible change of tone of voice of the experimenter speaking on tape and speaking directly to the subject via the intercom.

Measures

1. Concern over the Negative Consequences of Success Scale (CONCOS):

The CONCOS scale (Ho & Zemaitis, 1981) was used during the initial assessment period. The scale consists of 27 items of which 17 are worded in the fear of success direction and ten are worded in the opposite direction.

Items are answered on a four-point scale of strongly disagree, disagree, agree, strongly agree. The lowest possible score on the CONCOS measure is 27, while the highest possible score is 108 points. In order to disguise the nature of the CONCOS scale, 13 questions directly related to work, school and play were included in the questionnaire. The resulting 50 questions were randomly distributed, and an additional eight questions, designed to obtain student background information, were included at the beginning of the questionnaire (see appendix A).

2. Horner's Measure of FOS

Four story leads were used to measure FOS (Horner, Fleming, 1977) in the following order:

1. Jane is going back to the office at the end of the day.

2. Jim is looking into his microscope.

3. John is sitting in a chair with a smile on his face.

4. Linda is looking out at the sunset.

Each story lead was typed at the top of the page. At the bottom of the page a notice read: Please do not write on this page, write your story on the following page. The following page contained guide questions at the top of the page (Horner, 1973, see Appendix B).

3. The Post-Experimental Questionnaire:

Four simple questions pertaining to the purpose and nature of the experiment were presented to the subjects to determine what suspicions if any they had about the study. Each question was typed at the top of a page, leaving the rest of the page blank for subjects' responses (see Appendix C). A scoring criteria for the post-experimental questionnaire was developed to assess suspiciousness of subjects about a) the FOS-manipulation, b) the simulated game partner, and c) the PDG-instructions. Suspiciousness on these three subsets of the experiment was scored independently by three judges on a scale ranging from zero (not

at all suspicious) to two points (highly suspicious, definitely influenced subject's behavior; see Appendix D).

Suspiciousness scores given by the three judges were added for each subject, and subjects' data with a combined score of four points or more on any one of the three subsets were excluded from the analyses.

Procedure

Towards the end of the summer term 1982, and the early beginning of the fall term, professors of mostly introductory courses in various faculties of Concordia University were approached in order to obtain permission for class administration of the disguised CONCOS measure.

At a pre-arranged date and time, the experimenter entered a classroom and introduced herself as a research assistant, working for the Department of Education. The CONCOS scale was introduced to students as an attitude questionnaire on work, school and play, administered as part of a university wide survey carried out by the Department of Education. All items on the scale were answered on a separate answer sheet. About half way through answering the questionnaire, students were verbally informed, about the second phase of the study. Phase II was briefly explained on the last page of the questionnaire (see Appendix A). The experimenter also provided a similar verbal explanation, adding upon being questioned that the game involved two

players and that the outcome of the game depended on the decisions of both players. Students were told that the game was simple and that they would be paid \$5 for participation. (It had been decided to pay all participating subjects a flat rate rather than an equivalent of accumulated game points. This was done in order not to present the game as one of competition, which possibly might have prevented high fear of success subjects from volunteering for phase II). The complete questionnaire took between 20 and 30 minutes to administer.

Within a few weeks of the initial assessment period, subjects from the subject pool were contacted by phone by two female graduate students.* At this time subjects were informed that they would be playing with another student, and it was emphasized that subjects arrive on time for their appointments since another player was arriving at the same time. No mention was made of the exact nature of the game. Words such as competition, cooperation, winning or losing were avoided.

A random running order was established for the 24 cells of the design. (Despite the fact that the analysis of this study concerns itself with female subjects only, male subjects were also run and the results will be analyzed at a later date). Once testing proceeded, the running order

* Miranda D'Amico and Bette DeBellefeuille, graduate students in Educational Studies, served as the telephone contacts.

had to be somewhat altered, since it was not always possible to randomly run subjects of both sexes in succession, or to always randomly run subjects high and low in fear of success. Subsequently an effort was made to fill the 24 experimental cells at an equal rate, a procedure which came closest to a totally randomized running order.

All subjects were met by the experimenter in the lobby of the Education Department at a pre-arranged time. The experimenter introduced herself to the subject with her first name, thanked the subject for coming and escorted the subject into the experimental room. In the ach-aroused and FOS-aroused condition the experimenter was wearing an official looking white lab coat and was carrying a clip-board. In the relaxed condition the experimenter carried the clip-board but was not wearing a lab coat. In the experimental room the subject was seated at a desk, facing the Prisoner's Dilemma Game, an empty pad of paper, and a colored folder labeled "instructions".

Subjects in the relaxed condition were told that the task was a very simple one (even if it looked somewhat complicated at the outset). Subjects were asked to make themselves comfortable and were told that they would enjoy the game. Subjects in the ach-aroused and FOS-aroused condition were asked to sit down and subjects in all three conditions were given the following explanation:

"The game you see in front of you is the game you will be playing. It is quite simple. You will be playing

with Victor (Joanne), who is playing in another room. He (she) has the same game-board as you and you are connected with one-another. There is a reason why you are not playing in the same room. We do not want the two players to see each other or to communicate with each other prior to the game. Why this is I will explain in more detail a little later on during the instruction period. Although you can't see or speak to each other, your game boards are connected, and the outcome of the game depends on the decisions of both of you. You both play simultaneously.

In order to be able to speak to both of you at the same time, and also to be able to keep instructions standard for everybody, I will read you the instructions over an intercom system. Once I start reading, please open your folder and read along with me. Again in order to keep instructions standard for all participants in this study, you will be referred to as player A, since you are in room A, and Victor (Joanne) will be referred to as player B, throughout the instruction period. So please remember that you are player A, while Victor (Joanne) is player B".

Subjects in all three conditions were told that they would be playing with Victor (Joanne) (the word "against" was avoided as not to give subjects a preconceived notion of how to approach the game). Subjects who had arrived on time for their appointment were told that the experimenter was meeting the subject's partner (Victor or Joanne) just outside the department and that instructions

would begin as soon as the experimenter had introduced Victor (Joanne) to his (her) room. Subjects were then asked to wait for two or three minutes, and not to look at the instructions until they heard the experimenter's voice over the intercom system.

Subjects who had arrived late for their appointment were told that Victor (Joanne) was already waiting in his (her) room, ready to start playing.

Instructions for all three arousal conditions were given via an intercom system. Two cassettes had been prepared for each condition, one with a bogus female partner, and one with a bogus male partner. At the end of the instruction period these simulated game partners asked a question concerning the pay-off of the game, which was audible to the subjects (see Appendix D for complete instructions to all three conditions). Instructions for all conditions were equal except for the initial introduction to the task, which constituted the various arousal conditions.

For the relaxed group, care was taken to give subjects the impression that it was not a game of intellectual ability, but a game of intuitive decision making, which was still in its development. Ego-involvement was de-emphasized, as the importance was placed on the improvement and development of the game rather than the intelligence of the player (see Mc Clelland et al., 1976).

In the ach-aroused and FOS-aroused conditions a deliberate attempt was made to provide "additional achieve-

ment related cues", emphasizing ego-involvement by stressing that the task was one of intelligence and accurate decision making (Mc Clelland et al., 1976, p. 102). The aim was to portray a highly achievement oriented environment.

The achievement related instructions were identical for the achievement-aroused and the FOS-aroused condition, but the FOS-aroused condition included the possibility of being rejected by one's partner. Subjects in this condition were made to believe that a win was very important to their game partner, implying that a subject could possibly be faced with rejection in the case that her partner lost. It was made explicit that the subject would meet her partner after the game (see Appendix D).

After the arousal instructions, subjects were asked to complete four simple stories, which were introduced in the relaxed condition as a task of creative writing related to attitudes on work, school and play, and as a task of creative writing related to a person's intelligence in the two arousal conditions. Subjects were given 20 seconds to read each story lead and were then told to start writing their story. Three and a half minutes later subjects were advised that they had 30 seconds left to complete their story. At the end of four minutes subjects were told to turn their page and that they had 20 seconds to read the next story lead (all instructions were tape recorded).

The story leads were followed by detailed instructions of how to play the game, identical for all three conditions. The game instructions were more detailed and longer than the ones used by Rapoport (1965), since it had been found during pilot testing that subjects did not comprehend fully the more condensed version and were reportedly pressing buttons at color preference or at random without understanding the consequences. The more explicit second version was to ensure complete comprehension of the effects of a player's move without necessitating physical intervention and explanation by the experimenter. This aim seemed to have been successfully achieved since only a few subjects asked questions during the following question period (see Appendix E for PDG instructions).

After the PDG instructions, the experimenter announced that she would open the intercom lines for questions and explained that questions had to be asked one subject at a time. Each question period began with a question by either Victor or Joanne, the subjects' simulated partner. Victor or Joanne asked the following question in the relaxed and ach-aroused condition:

"I just want to make sure, my pay-off is always the one listed in the upper right hand corner of each square, no matter what?"

The experimenter answered affirmatively and explained again the pay-off for player A (the subject) and player

B.

For the FOS-aroused group, Victor (Joanne) asked the following question:

"I just want to make sure, last time I played, my pay-off was always the one listed as the bottom number in each square, this time it is always listed as the top number, no matter what, is that correct?"

The experimenter pointed out that last time Victor (Joanne) had been player A, while this time he (she) was player B, and went on to explain the pay-off for each player once again.

Then the experimenter assured herself that Victor (Joanne) had no more questions. At this point the tape recorded instructions ended, and the experimenter asked subjects directly over the intercom system for questions (very few subjects did have any questions). Subjects were then told that the game would begin and that players were not to start before getting the verbal signal to do so.

The experimenter turned on the main box, activating the ready light and the counter on the player's box and gave the signal to start playing.

The game consisted of 50 trials, and the experimenter was playing a strategy of 80% cooperative and 20% competitive, randomly predetermined within five blocks of ten trials each (see Appendix E). The experimenter's first move for all subjects was cooperative. If during any given trial a subject did not respond, the trial was repeated.

After 50 trials the experimenter asked players to stop playing, but to stay in their rooms, since the experimenter would bring a post-experimental questionnaire. The experimenter then waited for about two minutes to simulate that she had been in Victor's (Joanne's) room first, and then went with a (supposedly collected) instruction folder and the post-experimental questionnaire to the subject's room. Subjects were asked not to spend much more than five minutes in filling out the questionnaire. After the subjects completed the questionnaire, they were given a detailed explanation of the study, paid \$5 for participation and were asked not to speak about the experiment until the end of term. One testing session including about 15 minutes of debriefing time, lasted one hour and 15 minutes. Care was taken that all subjects left the experiment feeling comfortable and relaxed.

RESULTS

Results will be presented in two sections. Section I reports the analysis of the CONCOS scale and relates to all analyses using cooperative behavior in the PDG as the dependent variable. Section II reports all analyses performed which relate to Horner's measure of fear of success. Analyses of variance were done using the BMDP2V analysis of variance computer program.

Table 1 shows the distribution of subjects across the 12 experimental cells. Cell sizes are small because of difficulty in identifying appropriate subjects, and because data were time consuming to collect. Table 2 shows that subject-to-subject variability was large in the PDG. The ratio of explained between-group variance to within-group variance was .15; MS_E was 11.24. Consequently the power of the F-ratios was low considering cell sizes and the size of error variability. It was therefore decided to probe effects which were "marginally" significant ($P < .10$). The reader is cautioned that such a large nominal alpha level increases the probability of committing a Type I error.

Section I:Analysis of the CONCOS scale

Of the 1036 female and male students who completed the CONCOS scale, 169 females volunteered to participate in phase II of the study. Only data of females who had volunteered for further participation was analyzed. Total CONCOS scores ranged from a low of 34 points to a high of 75 points ($\bar{x} = 53.70$, $SD = 8.15$). Females with scores ranging from 34 to 51 points inclusive (lower 37% of the distribution) were classified as low CONCOS subjects, while females with scores from 58 to 75 inclusive (upper 31% of the distribution) were classified as high CONCOS subjects. This resulted in a subject pool of 63 females low in CONCOS (CONL) and 51 females high in CONCOS (CONH). Females whose scores ranged in the middle 32% of the distribution (55 cases), were excluded from further participation. Of the 114 low and high scorers (CONLH) contacted, 80 females completed phase II of the study. They were distributed across the experimental cells as shown in Table 1.

Table 1. Number of Subjects in each of the 12 Experimental Cells (Total n = 80).

CONLH ^a	SEXPA ^b	AROUSAL ^c	COUNT
Low	Male	Relaxed	6
Low	Male	Ach-aroused	7
Low	Male	FOS-aroused	7
Low	Female	Relaxed	7
Low	Female	Ach-aroused	6
Low	Female	FOS-aroused	6
High	Male	Relaxed	6
High	Male	Ach-aroused	7
High	Male	FOS-aroused	7
High	Female	Relaxed	7
High	Female	Ach-aroused	8
High	Female	FOS-aroused	6

a CONCOS-low, high.

b sex of partner.

c Arousal condition.

Analyses using cooperative behavior in the PDG as the dependent variable.

Hypothesis I was confirmed. Females high in CONCOS played significantly more cooperatively in the PDG than females low in CONCOS, $F(1,68) = 4.41, p = .04$ (see Tables 2 and 3, and Figure 3). The overall means in total cooperative behavior were 16.79 (SD = 6.46) for CONL and 20.49 (SD = 8.18) for CONH.

The analysis of variance of cooperative behavior for CONLH, sex of partner and arousal condition was repeated excluding 10 subjects who had scored four or more on at least one of the three subsets of the PEQ. Findings supported hypothesis I, $F(1,58) = 5.11, p = .028$ (see Table 4). Since results were similar when analyzing the following data excluding subjects with a suspiciousness score of four and over on any of the three subsets on the PEQ, remaining data in section I is presented using 80 subjects for all PDG analyses.

Table 5 presents the means and standard deviations of cooperative behavior by five blocks of 10 trials, and total cooperative behavior over all 50 trials, for all 12 experimental cells. Overall cooperative behavior was highest in block I.

The trials factor for cooperative behavior was highly significant, $F(4,272) = 14.49, p = .00$ (see Table 6).

Table 2. Analysis of Variance of Cooperative Behavior for CONLH, Sex of Partner (SEXPA) and Arousal Condition (n = 80).

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability (p =)
(C)	49.61	1	49.61	4.41	.04
(S)	1.39	1	1.39	.12	.73
(A)	63.55	2	31.77	2.83	.07
CS	1.83	1	1.83	.16	.69
CA	6.68	2	3.34	.30	.74
SA	2.48	2	1.24	.11	.90
CSA	7.86	2	3.93	.35	.71
ERROR.	764.45	68	11.24		

(C) CONLH

(S) SEXPA

(A) AROUSAL

Table 3. Means and Standard Deviations of Cooperative Behavior for CONL and CONH, by Five Blocks of 10 Trials each, and Total Cooperation.

CONCOS SCORE ^a	Block I (1-10)		Block II (11-20)		Block III (21-30)		Block IV (31-40)		Block V (41-50)		TOTAL (1-50)	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Low	4.38	1.77	3.56	2.04	3.08	1.69	3.26	2.23	2.51	2.01	16.79	6.46
High	5.27	1.70	4.10	1.80	3.85	2.29	3.51	2.13	3.76	2.59	20.49	8.18

^a n = 80

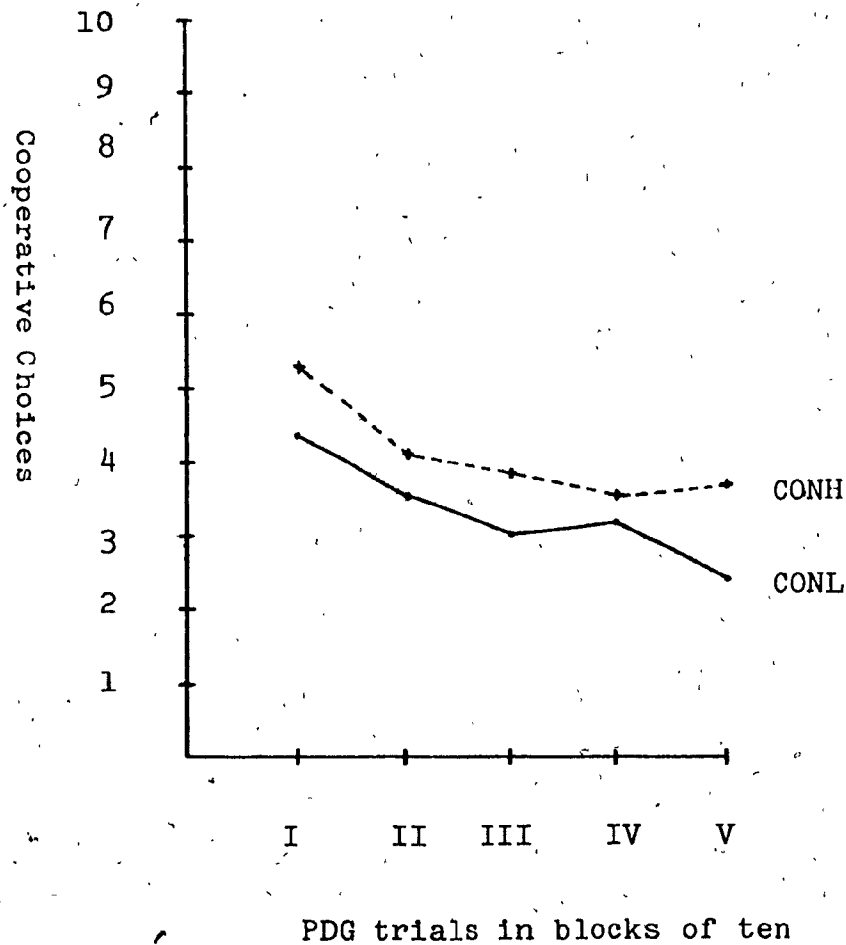


Figure 3. Cooperative choices of females low (—; n = 39) and females high (----; n = 41) in CONCOS.

Table 4. Analysis of Variance of Cooperative Behavior in a PDG for CONLH, Sex of Partner and Arousal Condition (n = 70).

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability (p =)
C	46.33	1	46.33	5.11	.028
S	1.40	1	1.40	.15	.696
A	29.46	2	14.73	1.62	.206
CS	.90	1	.09	.01	.923
CA	11.73	2	5.87	.65	.527
SA	28.86	2	14.43	1.59	.212
CSA	6.15	2	3.08	.34	.714
ERROR	525.78	58	9.07		

Table 5. Means and Standard Deviations of Cooperative Behavior by Blocks of 10 Trials, and Total Cooperative Behavior over all 50 Trials, Presented for the 12 Experimental Cells.

EXPERIMENTAL CONDITION ^a		COOPERATIVE CHOICES IN PDG														
Cell	CONLH	SEXPA	AROUSAL	Trial I (1-10)		Trial II (11-20)		Trial III (21-30)		Trial IV (31-40)		Trial V (41-50)		TOTAL (1-50)		
				\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	
1	Low	M	Relaxed	4.00	3.16	2.33	1.97	2.50	1.76	3.50	2.88	2.00	2.10	14.33	9.95	
2	Low	M	Ach-aroused	4.43	1.27	4.57	1.27	3.57	1.27	4.14	1.86	3.29	2.29	20.00	5.23	
3	Low	M	FOS-aroused	3.71	2.14	2.71	2.93	3.29	2.14	3.86	2.79	2.43	2.37	16.00	7.64	
4	Low	F	Relaxed	4.43	1.13	4.00	1.53	3.14	1.57	2.57	2.23	2.43	1.72	16.57	5.00	
5	Low	F	Ach-aroused	5.00	1.55	4.00	2.68	3.50	2.35	2.17	1.83	2.50	2.07	17.17	6.24	
6	Low	F	FOS-aroused	4.83	.98	3.67	.82	2.33	1.03	3.17	1.72	2.33	2.07	16.33	4.80	
7	High	M	Relaxed	5.50	1.38	3.67	1.37	3.67	1.75	2.50	2.07	2.00	1.67	17.33	4.93	
8	High	M	Ach-aroused	4.71	1.89	4.71	1.98	4.57	2.70	4.43	2.44	4.29	2.63	22.71	8.62	
9	High	M	FOS-aroused	5.14	1.57	4.00	1.63	3.57	2.51	3.14	2.19	3.00	2.16	18.86	7.20	
10	High	F	Relaxed	5.57	1.72	3.43	1.90	3.14	2.48	3.00	1.63	3.29	2.29	18.43	7.39	
11	High	F	Ach-aroused	5.88	2.10	4.25	2.60	5.00	2.50	4.50	2.62	5.50	2.98	25.13	11.91	
12	High	F	FOS-aroused	4.67	1.63	4.50	.84	2.83	1.17	3.17	1.33	4.00	2.83	19.17	5.56	

^an = 80

Table 6. Analysis of Variance of Cooperative Behavior on Five Blocks of 10 Trials each for CONLH, Sex of Partner and Arousal Condition.

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability (p =)
(Trials)					
R	146.85	4	36.71	14.49	.00
RC	10.06	4	2.51	.99	.41
RS	15.92	4	3.98	1.57	.18
RA	16.44	8	2.06	.8	.59
RCS	20.37	4	5.09	2.01	.09
RCA	21.36	8	2.67	1.05	.40
RSA	13.61	8	1.70	.67	.72
RCSA	5.04	8	.63	.25	.98
ERROR	689.07	272	2.53		

A trend analysis for cooperative behavior by five blocks of 10 trials was performed. The linear trend analysis was significant, $F(1,68) = 27.27$, $p = .00$. Cooperation decreased over trials (see Figure 4). The quadratic trend also reached significance, $F(1,68) = 7.64$, $p = .007$. The decrease in cooperation was greatest between blocks I and II.

Arousal had a marginally significant effect on cooperative behavior $F(1,68) = 2.83$, $p = .07$. The highest overall cooperation occurred in the ach-aroused group. The mean totals for cooperative choices over 50 trials of the PDG were 16.73 (SD = 6.79) for the relaxed group, 21.54 (SD = 8.69) for the ach-aroused group, and 17.58 (SD = 6.27) for the FOS-aroused group (see Table 7 and Figure 5).

To probe for significance levels of any of these interactions, Tukey's HSD (honestly significant difference) test of paired means was performed. There were significant differences between the ach-aroused group and the FOS-aroused group (HSD = 2.24, $p < .05$) and between the ach-aroused group and the relaxed group (HSD = 2.24, $p < .05$). There was no significant difference between the FOS-aroused group and the relaxed group.

Hypothesis III was not supported. No interaction effect of arousal condition by CONLH on cooperative behavior was found, $F(2,68) = .30$, $p = .74$. Females high in CONCOS did not show an increase in cooperative behavior

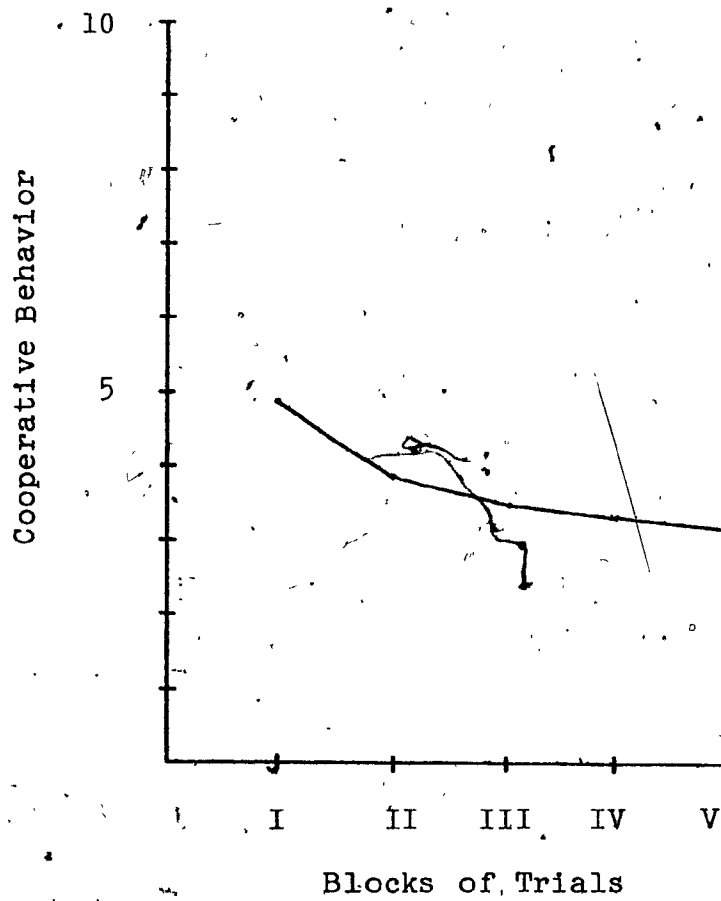


Figure 4. Overall cooperative behavior by five blocks of 10 trials each.

Table 7. Means and Standard Deviations of Cooperative Behavior for Arousal Condition by Blocks of Trials, and Total Cooperation.

AROUSAL CONDITION ^a	Block I (1-10)		Block II (11-20)		Block III (21-30)		Block IV (31-40)		Block V (41-50)		TOTAL ^a (1-50)	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Relaxed	4.85	1.97	3.38	1.72	3.12	1.86	2.88	2.12	2.46	1.92	16.73	6.79
Ach-aroused	5.04	1.75	4.39	2.10	4.21	2.25	3.89	2.31	4.00	2.67	21.54	8.69
FOS-aroused	4.58	1.65	3.69	1.85	3.04	1.82	3.46	2.02	2.92	2.31	17.58	6.27

^a n = 80

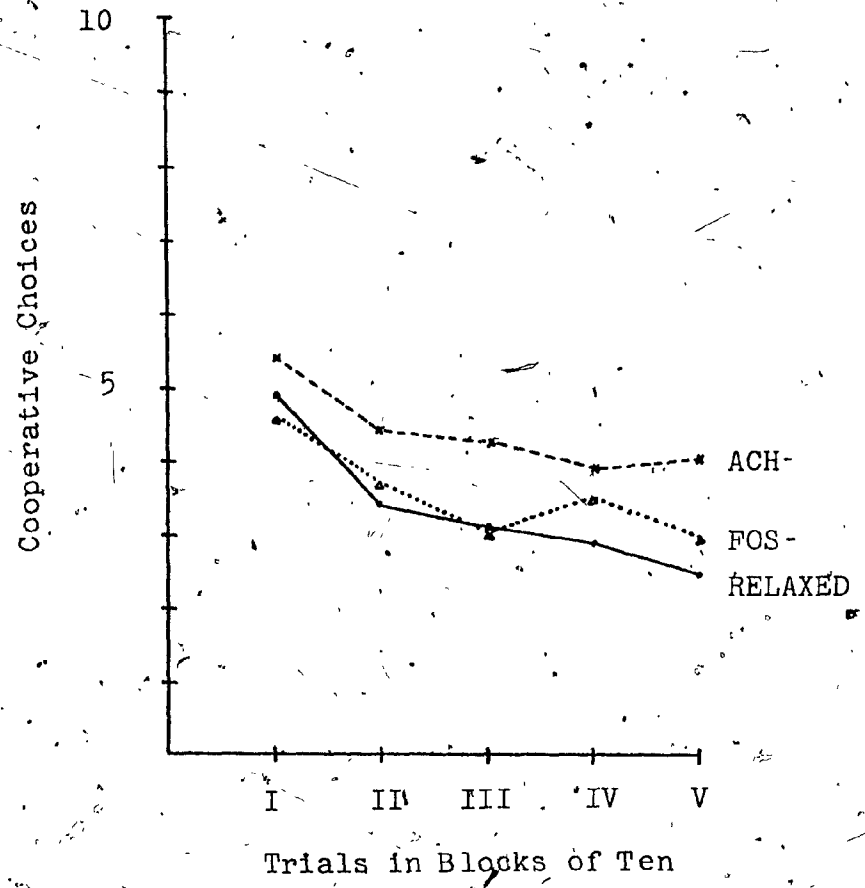


Figure 5. Cooperative choices by arousal condition in a PDG.

Relaxed .———. (n = 26)
Ach-aroused x ----- x (n = 28)
FOS-aroused/ Δ.....Δ (n = 26)

as a function of arousal condition. An analysis of means and standard deviations shows that the highest cooperation occurred for females high in CONCOS in the aroused group ($\bar{x} = 24.00$, $SD = 10.21$), while the lowest cooperation occurred for females low in CONCOS in the relaxed group ($\bar{x} = 15.54$, $SD = 7.42$, see Table 8).

There was no main effect of sex of partner on cooperative behavior. An analysis of means showed that females played no more cooperatively against a male than against a female (see Table 9 and Figure 6).

Hypothesis II was not supported. Sex of partner by CONLH had no effect on cooperative choices in the PDG, $F(1,68) = .16$, $p = .69$. Females high in CONCOS did not play more cooperatively with a male partner than with a female partner. The mean rate of cooperation for females low in CONCOS playing against a male partner was 16.90 ($SD = 7.68$) and 16.68 ($SD = 5.07$) when playing against a female partner. For females high in CONCOS these figures were 19.75 ($SD = 7.18$) when playing against a male partner and 21.19 ($SD = 9.16$) when playing against a female partner.

Table 8. Means and Standard Deviations of Cooperative Behavior for CONLH by Arousal Condition.

CONLH	AROUSAL	\bar{x}	SD
Low	Relaxed	15.54	7.42
Low	Ach-aroused	18.69	5.66
Low	FOS-aroused	16.15	6.23
High	Relaxed	17.92	6.14
High	Ach-aroused	24.00	10.21
High	FOS-aroused	19.00	6.23

Table 9. Means and Standard Deviations of Cooperative Behavior for Sex of Partner.

SEX OF PARTNER	Block I (1-10)		Block II (11-20)		Block III (21-30)		Block IV (31-40)		Block V (41-50)		TOTAL ^a (1-50)	
	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD	\bar{x}	STD
Male	4.58	1.95	3.70	2.03	3.55	2.05	3.63	2.33	2.88	2.24	18.33	7.48
Female	5.10	1.58	3.98	1.83	3.40	2.06	3.15	2.01	3.43	2.53	19.05	7.75

a $n = 80$

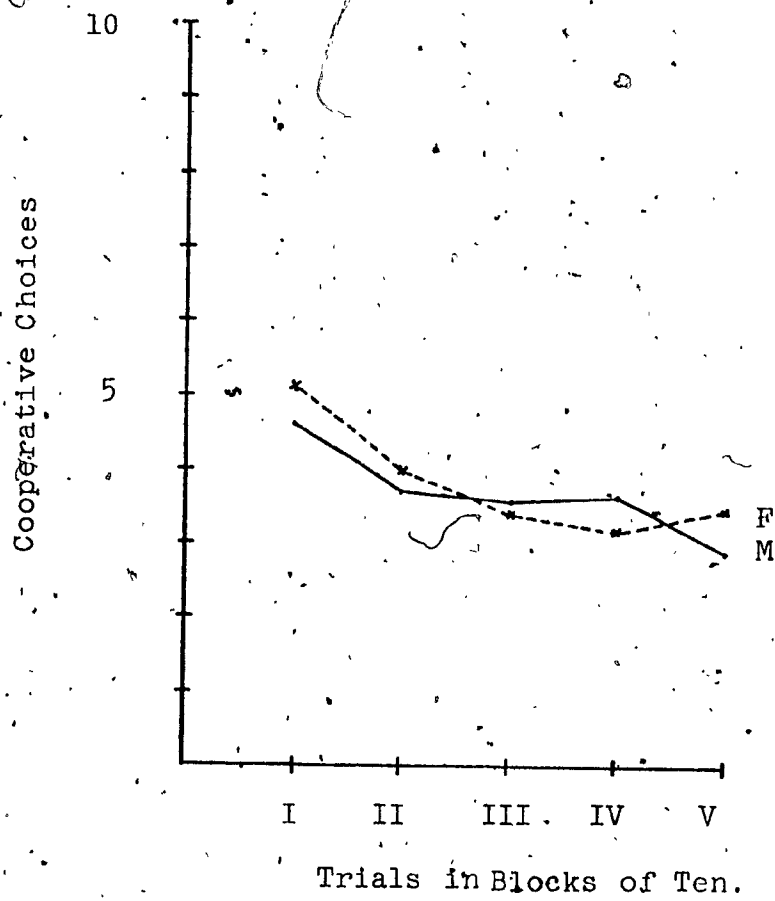


Figure 6: Cooperative choices by sex of partner.

M = ——— (n = 40).

F = x-----x (n = 40)

Section IIAnalyses related to Horner's fear of success measure (FOS).

Seventy-four (74) subjects were included for all the following analyses. Five subjects with incomplete data on Horner's FOS measure, and one subject who was familiar with Horner's story leads were excluded from data analysis.

Hypothesis IV was not supported. Fear of success as measured by Horner's scoring of the neutral story cues did not increase significantly as a function of arousal condition, $F(1,62) = .09$, $p = .92$ (see Table 10).

Individual cell means and standard deviations show that only for females low in CONCOS, playing against a male partner in the relaxed, ach-aroused and FOS-aroused conditions, the FOS effect as assessed by Horner's measure is in the predicted direction: Low CONCOS females playing against a male scored lowest in FOS in the relaxed condition, and highest in the FOS-aroused condition (see Table II; however it was expected that females low in CONCOS would not be affected by the FOS manipulations). None of these findings approached significance. The overall highest FOS-score was obtained by females low in CONCOS, playing against a female partner, in the ach-

Table 10. Analysis of Variance for CONLH, Sex of Partner and Arousal Condition (dependent measure: Horner's FOS).

Source	Sum of Squares	Degrees of Freedom	Mean Square	F	Tail Probability
(C)	2.86	1	2.86	.33	.57
(S)	.03	1	.03	.00	.95
(A)	1.53	2	.76	.09	.92
CS	.29	1	.29	.03	.85
CA	83.69	2	41.84	4.85	.01
SA	17.42	2	8.71	1.01	.37
CSA	41.71	2	20.86	2.42	.10
ERROR	534.73	62	8.62		

(C) CONLH

(S) SEXPA

(A) AROUSAL

aroused condition ($\bar{x} = 4.00$, $SD = 2.12$).

CONLH and arousal condition in combination had a significant effect on Horner's FOS measure, $F(1,62) = 4.85$, $p = .01$. In the relaxed group, CONCOS predicted FOS. Subjects low in CONCOS scored $-.077$ ($SD = 2.81$) in FOS in the relaxed group, while subjects high in CONCOS scored 2.45 ($SD = 3.45$). This trend is reversed in the ach-aroused and the FOS-aroused conditions. Low CONCOS females in the ach-aroused condition scored 2.33 ($SD = 2.71$) on Horner's FOS measure, while females high in CONCOS scored $.00$ ($SD = 2.22$). For the FOS-aroused condition these figures were 2.23 ($SD = 3.27$) and 1.00 ($SD = 3.29$) respectively (see Table 12). To probe for significant differences of any of these interactions, Tukey's HSD test of paired means was performed. There were no significant differences between any of the paired means ($HSD < 3.68$, $p < .05$; see Table 13). Because Tukey's HSD controls for experimentwise error rate, it sets a conservative per comparison error rate. The significant interaction was probed further by computing two-tailed t-tests on each of the 15 pairs of means. There were significant differences between the CONL/ach-aroused group and the CONL/relaxed group ($t = 2.83$, $p < .01$), and between the CONL/FOS-aroused group and the CONL/relaxed group ($t = 2.58$, $p < .02$). There were also significant differences between the CONH/relaxed and CONL/relaxed group ($t = 2.48$, $p < .05$),

Table 11. Means and Standard Deviations for the 12 Experimental Cells for Horner's FOS Measure.

Cells	EXPERIMENTAL CONDITION			FOS TOTAL ^a (Horner)	
	CONLH	SEXPA	AROUSAL	\bar{x}	STD
1	Low	Male	Relaxed	0.00	2.19
2	Low	Male	Ach-aroused	1.14	2.54
3	Low	Male	FOS-aroused	3.71	3.35
4	Low	Female	Relaxed	-.14	3.44
5	Low	Female	Ach-aroused	4.00	2.12
6	Low	Female	FOS-aroused	.50	2.35
7	High	Male	Relaxed	2.40	.89
8	High	Male	Ach-aroused	.29	1.89
9	High	Male	FOS-aroused	.60	4.45
10	High	Female	Relaxed	2.50	4.81
11	High	Female	Ach-aroused	-.29	2.63
12	High	Female	FOS-aroused	1.33	2.34

^a
n = 74

Table 12. Mean scores on FOS (Horner's Measure) for CONLH by Arousal Condition.

AROUSAL

	Relaxed	Ach-aroused	FOS-aroused
CONL	$\bar{x} = -.77$ SD = 2.81	$\bar{x} = 2.33$ SD = 2.71	$\bar{x} = 2.23$ SD = 3.27
CONH	$\bar{x} = 2.45$ SD = 3.45	$\bar{x} = .00$ SD = 2.22	$\bar{x} = 1.00$ SD = 3.29

Table 13. Results of Tukey's Multiple Comparison Test of Mean Differences for CONLH by Arousal on Horner's FOS Measure.

MEAN DIFFERENCES							
GROUPS	\bar{x}	1	2	3	4	5	6
1. CONH/RELAXED	2.45	-	.12	.22	1.45	2.45	2.53
2. CONL/ACH-AROUSSED	2.33		-	.10	1.33	2.33	2.41
3. CONL/FOS-AROUSSED	2.23			-	1.23	2.23	2.31
4. CONH/FOS-AROUSSED	1.00				-	1.00	1.08
5. CONH/ACH-AROUSSED	.00					-	.08
6. CONL/RELAXED	- .08						-

Tukey's HSD-value = 3.68^a

^a In order to conclude that there are mean differences between groups, the numbers in the above table have to equal, or be larger than the value of HSD.

between the CONL/ach-aroused group and the CONH/ach-aroused group ($t = 2.38, p < .05$) and between the CONL/FOS-aroused group and the CONH/ach-aroused group ($t = 2.15, p < .05$; see Table 14).

The mean score on FOS for females playing against a male and females playing against a female partner was 1.38 (SD = 2.89) and 1.11 (SD = 3.23) respectively. This difference was not significant ($F = .00, p = .95$).

The mean score on FOS-Horner for females low in CONCOS was 1.47 (SD = 3.08), and 1.06 (SD = 3.06) for females high in CONCOS. Results did not reach significance ($F = .33, p = .57$).

Separate ANOVAS for all six subscales of Horner's measure were performed. CONCOS was found to be related to only one of Horner's six scoring categories. A significant CONCOS effect was found for Horner's second scoring category: Contingent - Negative Consequences, $F(1,62) = 9.83, p = .003$. The mean score of subjects low in CONCOS on contingent negative consequences was .58 (SD = 1.03) and .06 (SD = .33) for subjects high in CONCOS. This finding is opposite from what had been expected.

Arousal condition had no significant effect on five of Horner's six scoring categories. Arousal condition did have a significant effect on Horner's fourth scoring category: Relief, $F(1,62) = 3.44, p = .04$.

Table 14. Fifteen t-Tests (two-tailed) for Horner's FOS Measure Comparing all Combinations of CONLH by Arousal Condition.

GROUPS	\bar{x}	SD	t
1. CONH/Relaxed	2.45	3.45	.09
2. CONL/Ach-aroused	2.33	2.71	
1. CONH/Relaxed	2.45	3.45	.16
3. CONL/FOS-aroused	2.23	3.27	
1. CONH/Relaxed	2.45	3.45	1.01
4. CONH/FOS-aroused	1.00	3.29	
1. CONH/Relaxed	2.45	3.45	2.04
5. CONH/Ach-aroused	.00	2.22	
1. CONH/Relaxed	2.45	3.45	2.48*
6. CONL/Relaxed	-.77	2.81	
2. CONL/Ach-aroused	2.33	2.71	.08
3. CONL/FOS-aroused	2.23	3.27	
2. CONL/Ach-aroused	2.33	2.71	1.06
4. CONH/FOS-aroused	1.00	3.29	
2. CONL/Ach-aroused	2.33	2.71	2.38*
5. CONH/Ach-aroused	.00	2.22	
2. CONL/Ach-aroused	2.33	2.71	2.83***
6. CONL/Relaxed	-.77	2.81	
3. CONL/FOS-aroused	2.23	3.27	.99
4. CONH/FOS-aroused	1.00	3.29	

Table 14 (cont'd)

GROUPS	\bar{x}	SD	t
3. CONL/FOS-aroused	2.23	3.27	2.15*
5. CONH/Ach-aroused	.00	2.22	
3. CONL/FOS-aroused	2.23	3.27	2.58**
6. CONL/Relaxed	-.77	2.81	
4. CONH/FOS-aroused	1.00	3.29	.87
5. CONH/Ach-aroused	.00	2.22	
4. CONH/FOS-aroused	1.00	3.29	1.40
6. CONL/Relaxed	-.77	3.29	
5. CONH/Ach-aroused	.00	2.22	.79
6. CONL/Relaxed	-.77	2.18	

* $p < .05$ ** $p < .02$ *** $p < .01$

Mean scores, of arousal condition on "relief" were $\bar{x} = .04$ (SD = .20) for the relaxed group, $\bar{x} = .11$ (SD = .32) for the ach-aroused group, and $\bar{x} = .29$ (SD = .46) for the FOS-aroused group.

Table 16 presents the overall means of FOS scores for each of Horner's six scoring categories. For each category, a score close to zero would indicate that across all the experimental subjects there was almost complete absence of that subtype of the motive. This is the case for three categories: Contingent Negative Consequences, Relief and Absence of Instrumental Activity. Furthermore, there was a slightly higher, but still very low overall presence of the remaining categories: Non-contingent Negative Consequences, Inter-personal Engagement and Relief. (The possible maximum score for a subject on each of the first three categories over four stories is eight. The maximum score over four stories for the remaining three categories: Relief, Absence of Instrumental Activity and Absence of Others is four, four and minus eight respectively).

Table 15. Overall Means of FOS Scores for Horner's Six Scoring Categories.

SCORING CATEGORIES	\bar{x}	SD
Non-Contingent Negative Consequences	1.00	1.30
Contingent Negative Consequences	.32	.68
Interpersonal Engagement	.89	1.55
Relief	.14	.34
Absence of Instrumental Activity	.16	.46
Absence of Others	-1.24	1.62
(TOTAL)	(1.27)	3.07

Summary of results relating to the four hypotheses.

Hypothesis I was confirmed. Females high in CONCOS played significantly more cooperatively in the PDG than females low in CONCOS.

Hypothesis II was not supported. Sex of partner by CONLH had no effect on cooperative choices in the PDG. Females high in CONCOS did not play more cooperatively with a male partner than a female partner.

Hypothesis III was not supported. There was no significant interaction effect of arousal condition by CONLH on cooperative behavior in the PDG. Females high in CONCOS did not show an increase in cooperative behavior as a function of arousal condition.

Hypothesis IV was not supported. Fear of success as measured by Horner's story leads did not increase significantly as a function of arousal condition.

DISCUSSION

The discussion is divided into two sections and a conclusion. Section I deals with the results related to cooperative behavior in the PDG, while section II relates to the findings of Horner's fear of success measure.

Section I

Hypothesis I was supported, females high in CON-COS played significantly more cooperatively than females low in CONCOS. This finding is in line with Horner's hypothesis that females high in fear of success avoid competitive achievement situations and therefore offers some additional support for the validity of CONCOS as a fear of success measure. (Ho & Zemaitis (1981) found support for the predictive validity of CONCOS. CONCOS was found to be negatively related to subjects' achievement motivation and performance on an Anagram test). In a PD game, players have a choice whether to compete or whether to cooperate with their partner. With an 80% cooperative strategy by the stooge, competition insures the highest individual pay-off. While females low in CONCOS chose to compete (which gave them the greatest pay-off), females high in CONCOS cooperated more often, choosing the largest

joint pay-off rather than the largest individual pay-off.

Horner's theory also states that fear of success is more strongly aroused when females compete against a male rather than a female partner. This hypothesis was not supported, no difference in cooperative play was found between females playing against a male or a female partner, and contrary to hypothesis II females high in CONCOS did not play more cooperatively with a male partner than a female partner.

According to Sassen (1980), females high in the motive to avoid success do not avoid success per se, but rather "women are unable to take competitive success and construct around it a vision, a new way of making sense, to which they can feel personally committed" (p. 18). Possibly females high in CONCOS are unable to accommodate competitive achievement situations into their existing patterns of seeing the world. According to Sassen, females form their gender-identity from childhood on in relationships while males do not. Females learn their role in close relationship with their mother integrating the father into this relationship. Males do not form this kind of close bond since their role model is absent most of the day. Sassen concludes that women learn to derive meaning in their lives through preserving and fostering relationships rather than through ignoring and outdoing others in competitions, regardless of sex of partner.

Therefore, women high in CONCOS might choose cooperation over competition in a PDG, thereby establishing a kind of relationship with their (invisible) male or female partner.

This assumption is supported by the effects of the three aroused conditions on cooperative behavior. According to Horner's theory, females would have avoided competition most in the FOS-aroused group, since it was in this condition that possible rejection from the partner in case the partner lost was made most explicit. This was not the case. No difference in cooperative behavior was found between the relaxed group and the FOS-group, but the ach-aroused group cooperated significantly more than the relaxed and FOS-aroused groups.

According to Sassen, females should avoid competition in all three conditions, since they are interested in establishing some kind of relationship with their partner, rather than outdoing their partner. Why then did females cooperate significantly more in the ach-aroused group? Since females are not interested in outdoing others, they are possibly making an effort to "come out even" with their partner in order to protect both, themselves and their partner from appearing unintelligent. The task is introduced as one of intelligence testing, and females might be aware of the feelings of their partner (No one likes to come out as the "dumb one"). Co-

operation is a means of relating to one's partner, since it assures that both players emerge as equally intelligent. In the FOS-aroused condition on the other hand, the situation can be regarded as "uneven" right from the outset. The partner is already presented as very intelligent, since he/she has won the previous round. This situation might not attract females very much, since they are interested in establishing mutual understanding and communication. In this situation however, they are faced with a partner who makes it quite clear that he/she intends to outdo his/her opponent. Since no verbal communication is possible, females might not perceive of a possibility to "equate the situation", hence their game behavior equals their behavior in the unaroused, relaxed condition.

Another possible explanation why the ach-aroused condition affected cooperative behavior in the PDG while the FOS-aroused condition did not, is offered below:

The FOS-aroused condition differed from the ach-aroused condition in two ways. In both conditions the task was introduced as one of intelligence testing. In addition to this, subjects in the FOS-aroused group were told that they were playing against a partner who had already played and won in a previous round, and that they would meet their partner after the game. The fact that subjects were told that their partner had won previously implied that

a) the partner was intelligent (since the game had been introduced as one of intelligence testing) and b) the objective of the game was to outdo one's partner, rather than to cooperate with one's partner. Since the instructions implied that the game was one of competition, subjects did not have a real choice between competitive and cooperative behavior in the PDG, and competitive behavior might have been further enhanced by the implicit statement that winning meant being more intelligent. Hence a low rate of cooperative behavior was found in the FOS-aroused group. In the ach-aroused group on the other hand, no mention was made about winning or losing the game. The game was portrayed as one of intelligence testing, but it was left to the individual player to decide whether a cooperative or competitive move "would be more intelligent". Furthermore, in the FOS-aroused group many subjects reported after the game to have been confused about their partner who supposedly was intelligent and knew the game, yet continued to constantly lose playing an 80% cooperative strategy against a competitive partner. The "unintelligent play" of the partner (stooge) became more obvious the more a subject competed. Therefore quite a few more subjects than was apparent from the Post-Experimental Questionnaires might have been seriously suspicious about the existence of the other player, confounding the FOS-manipulation.

Possibly the problem of partner suspiciousness could be alleviated by having the stooge play a less cooperative strategy. However, Oskamp (1971) found that while a 100% cooperative strategy elicits more cooperative behavior than a zero- or 25% strategy, smaller differences in cooperation such as 75% or 50% cooperation does not yield significant differences in subjects' cooperative responses. Possibly a certain point exists at which subjects can no longer accurately assess the level of cooperative behavior on the part of the stooge. At this point the play of the other might be perceived as unpredictable, and rather than risking to lose by playing cooperatively, subjects might choose to play competitively. However, in the FOS-aroused group the high rate of cooperative behavior of the stooge evoked suspicions only because subjects had been told implicitly to compete. Instead of lowering the stooge's rate of cooperative play, care should be taken that any instructions used do not bias a subject towards playing competitively or cooperatively. The instructions given in the FOS-aroused group were intended to arouse the motive to avoid success. Possibly the partner could be presented in terms of certain personality characteristics, rather than mentioning the partner's success in a previous game round. For example, a partner described as conservative with conservative sex role attitudes, might be more likely to in-

duce fear of negative social consequences than a partner who is described as liberal.

As discussed above, females did not play more cooperatively with a male than with a female partner and no interaction effect of CONLH by sex of partner was found. The PDG literature on this point is not consistent. While some researchers have found women to cooperate more with men and less with another woman (Bedell & Sistrunk, 1973; Hottes & Kahn, 1974), others have found the opposite to be true or have found no sex differences (Conrath, 1972; Kuhlman & Marshello, 1975; Smith, Vernon, & Tarte, 1975). It had been proposed earlier that these inconsistencies in sex differences in the PDG literature could possibly be explained by a CONLH by sex of partner interaction on cooperative behavior. It had been hypothesized that females high in the motive to avoid success would play more cooperatively with a male partner than a female partner, while no difference in game strategy was expected for females low in FOS playing against an opposite or same sex partner. It was therefore speculated that sex differences in game behavior described in prior PDG literature might have varied from study to study depending on the proportion of high FOS females present in the tested samples. This speculation was not supported by the present findings. The motive to avoid success did not explain observed sex differences in the PDG 11-

terature. Females did not play more cooperatively with a male than with a female partner, and no interaction effect was found between sex of partner and CONLH. An alternative speculation as to the inconsistencies in sex differences in the PDG is offered below.

The ambiguous findings might be due to the instructions used to explain the PDG. Many more females than males (who were tested simultaneously) reacted with verbalized insecurity at the initial confrontation with the PD game and asked questions such as: "Is it difficult?" After the experiment many female subjects reported that they had worried whether they would understand the game, since it looked complicated. None of the males, whose data will be analyzed at a later point, expressed this fear. Quite to the contrary, over the intercom system males were heard exploring the game board, pushing the buttons, and trying to remove the intercom speakers from their styrofoam boxes. Only a few females attempted to push the buttons on the game board during instructions. In a pilot study carried out prior to the experiment all five females tested reported not having understood the game instructions, and having felt immediately nervous and apprehensive at the sight of the unusual electrical game board. Instructions used during this pilot study had been adapted from Rapoport's standard game instructions (1965). The instructions were

then rewritten in a much longer and more detailed version than seems usual in PDG research. It is possible that females need a more detailed explanation of the game to overcome their initial insecurity upon being faced with the unusual electrical PDG apparatus and the mathematical matrix design. (Again quite a few males but no females reported after the experiment to have been familiar with a matrix set-up. More males than females expressed having been curious about the game, while more females than males reported to have been apprehensive about the game as soon as they saw the game board). More research needs to be done to probe this speculation of possible psychological differences between males and females upon initial contact with the PDG, and the possibility of these differences affecting the understanding of the instructions.

Section II

Hypothesis IV was not supported. FOS as measured by Horner's story leads was not differentially aroused by the three experimental conditions. According to Horner, FOS should be aroused in competitive achievement situations, and should not be aroused when the aggressive overtones of a competition are not present. In the relaxed group the task was introduced as one which was

still being developed, ego-involvement was de-emphasized, and it was not expected that this situation would arouse FOS. The two arousal conditions implied strong ego involvement in that the task was introduced as one that would reveal a person's general level of intelligence. In the FOS-aroused condition it was implied that a win was very important to the subject's partner, and that the subject would meet her partner after the game. The threat of being rejected by one's partner in case the partner lost was quite explicit. Subjects could only prevent their partner from losing by playing cooperatively. There was some evidence that the two arousal instructions had an effect on subjects, since many subjects expressed having been anxious during the experiment, and subjects in the FOS-aroused condition had felt at a disadvantage playing against a partner who had already played and won in a previous round. Possibly the game instructions used with strong emphasis on a person's intelligence aroused more strongly the fear of failure (and "looking dumb") than the motive to avoid success. Since no fear of failure measure was employed, this remains a speculation only.

Another reason why no differences on the FOS-measure were found between the three experimental conditions, was the fact that hardly any FOS was scored for subjects using Horner's measure. The overall mean FOS score on four stories was 1.27, an extremely low total

taking into account that for four stories a subject's total FOS score can range from -8 (the lowest possible score) to 32 (the highest possible score). This range however, is deceiving since a score of zero on Horner's FOS measure already indicates absence of FOS. These findings reflect the ambiguity about Horner's projective FOS measure. Zuckerman and Wheeler (1975) and Tresemer (1976) in their reviews of FOS literature found fear of success imagery to range from 20% to 80% and concluded that the FOS was low in reliability. Even though this study did not investigate FOS differences between the four story cues used, Zuckerman and Wheeler reported low homogeneity reliability of 30% to 40% for the cues used to assess the motive to avoid success. Possibly some cues are more likely to measure the motive than others. Furthermore, despite the fact that coder biases have been discussed as possible explanations for the wide range of obtained FOS scores in prior research (Hoffman, 1977; Peplau, 1976a); no study so far has investigated the degree to which a coder's own level of FOS or personal feelings about the FOS theory might influence his/her way of scoring. For example, a coder who does not believe that interpersonal engagement (one of Horner's six scoring categories) is a reflection of FOS, might score this category less often as reflecting a subject's fear of success. More research is needed to investigate these assumptions.

An analysis of Horner's scoring categories revealed that three out of the six scoring categories used to assess a person's FOS score had mean scores close to zero (contingent Negative Consequences, Relief and Absence of Instrumental Activity). There was almost a complete absence of these themes in the stories coded. The overall mean FOS total was majorly comprised of the remaining three categories: Non-contingent Negative Consequences, Interpersonal Engagement and Absence of Others. Sassen (1980) criticized the inclusion of interpersonal engagement as a measure of FOS, since it is interpersonal engagement which gives meaning not only to women's lives, but to the lives of most people in general.

Do all of Horner's six scoring categories reflect dimensions of the FOS motive? Possibly certain categories which did reflect dimensions of FOS five years ago are no longer accurate measures of the motive. A re-evaluation of Horner's six scoring categories seems necessary. Furthermore, the various story cues used to assess FOS should be examined in terms of their possible differences in measuring the motive. For example, are cues such as "John is looking into the microscope" and "Linda is looking out at the sunset" truly ambiguous as intended, or are they perceived by subjects as being sex stereotyped? Are both cues equivalent measures of the FOS motive? If several cues are given to assess a sub-

ject's motive to avoid success, what kinds of cues should be combined and in what order?

The CONCOS measure did not predict a subject's score on Horner's FOS measure, despite the fact that CONCOS is based on Horner's FOS construct (excluding the loss of femininity). Subjects low in CONCOS scored higher on the average on Horner's measure than subjects high in CONCOS. This trend is opposite from what had been predicted, and leads to the conclusion that these two measures possibly do not measure the same construct. This is supported by the significant but rather inconclusive finding about the effect of CONLH by arousal condition on Horner's FOS measure. Only in the relaxed group did CONCOS predict FOS in that low CONCOS females scored lower than high CONCOS females on FOS. In the two arousal conditions this trend was reversed. Females low in CONCOS scored higher on FOS than females high in CONCOS. CONCOS was significantly related to only one of Horner's six scoring categories: Contigent Negative Consequences. Since overall FOS scores found with Horner's measure were extremely low, comparison with CONCOS is limited and further research is needed in order to determine whether these two FOS measures are in fact measures of a different construct.

Conclusion

Do women fear success, or do they simply dislike competitions, because it does not give them satisfaction and meaning? Does Horner's theory really provide an explanation, as to "the withdrawal of so many trained American women from the mainstream of thought and achievement" (Horner, 1970, p. 70)?

More research is needed to determine whether females high in FOS are more cooperative as a way of deriving meaning in their lives, or if cooperative behavior is the result of a person's fear about negative social consequences? It is suggested that females high in the motive to avoid success might have developed a predisposition towards cooperation. They might not fear success per se but might be unable to construct meaning around a competitive achievement situation, and therefore avoid such situations. Females high in the motive to avoid success might not be interested in outdoing others, but might derive their meaning in life through establishing close relations with others. Future research in FOS should focus on tasks allowing subjects to choose between cooperation and competition. Furthermore the concept of success underlying the FOS construct should be more carefully defined and possibly reassessed. What kind of society are we aiming at that values success only when

it is achieved by outdoing others in competitions? Is "no fear of success" a positive and valuable personality characteristic to possess if it means that "I am only happy when I am doing better than others" (Zuckerman & Allison, 1976, p. 423)? As Sassen (1980), has pointed out, we should start looking at the narrow way success is defined in our society, and instead of trying to change women to fit into this competitive notion of success, we should start bringing values of cooperation into the existing competitive value system.

So far most FOS studies have been carried out in controlled laboratory settings, involving a competitive task against another person. This setting is very much unlike a real life situation, where competitive behavior and cooperative behavior are much more intertwined.

Johnson and Johnson (1974) write that "competition is a very small part of interacting with other individuals in our society and probably not a very important type of human interaction" (p. 218). Possibly fear of success has behavioral consequences only in the laboratory.

Hoffman (1977) found no differences in terms of occupation between females high and females low in FOS. Research in the area of FOS is needed which looks at differences in actual occupations held between females high and low in FOS, in order to determine in what way the FOS concept can be generalized from the laboratory

setting to real life situations.

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APPENDIX A

CONCOS Questionnaire (disguised)

Note, CONCOS items are preceded by *
Agreement with items preceded by **
indicates high CONCOS.

Work, School, and Play Questionnaire

This is a questionnaire designed to measure college students' attitudes toward work, school, and play. We are interested in measuring these attitudes and determining whether there are reliable differences between students at Concordia University. Because this is an attitude questionnaire, there are no right or wrong answers.

We would appreciate your cooperation in completing the questionnaire which should take less than thirty minutes of your time. Please answer all the questions on the specially prepared answer sheet. Please do not mark your answers on the questionnaire.

If you have any questions, please raise your hand; do not shout out questions. We welcome your comments concerning the questionnaire. Please make these comments on the back of your answer sheet.

Thank you for your cooperation.

REMEMBER: Mark your answers to these questions on the specially prepared answer sheet.

- 1) Your sex:
 - a) male
 - b) female

- 2) What is your marital status?
 - a) single
 - b) married
 - c) divorced
 - d) other

- 3) Your age:
 - a) 18-25
 - b) 26-29
 - c) 30-35
 - d) 36-over

- 4) Are you employed?
 - a) Yes - full time
 - b) Yes - part time
 - c) No

- 5) What is your present yearly income?
 - a) \$2,000 or less
 - b) \$2,001 to \$5,000
 - c) \$5,001 to \$10,000
 - d) \$10,001 to \$15,000
 - e) over \$15,000

- 6) Are you a full-time student?
 - a) yes
 - b) no

- 7) Your general academic major:
 - a) Fine Arts
 - b) Commerce and Administration
 - c) Engineering
 - d) Liberal Arts
 - e) Natural Sciences

- 8) What is your present level at university?
 - a) U 1 (first year university)
 - b) U 2 (second year university)
 - c) U 3 (third year university)
 - d) Diploma or Graduate Program

INSTRUCTIONS: The remaining questions ask about your attitudes towards work and play. For each question, use the following scale in marking your judgements.

a strongly disagree c agree
b disagree d strongly agree

Please do not leave any answers blank.

- ** 9) When I am on top the responsibility makes me feel uneasy.
- * 10) I am not prone to worry that I may antagonize others if my work is of superior quality.
- 11) It nags me if I lose in a game.
- 12) I love playing sports.
- ** 13) I believe that successful people are often sad and lonely.
- 14) I believe that personal effort determines my performance in university.
- 15) I enjoy playing games for excitement and fun.
- ** 16) When things seem to be going really well for me, I get uneasy that I'll do something to ruin it.
- * 17) I would not worry that others might try to take advantage of me if I were extremely competent at something.
- 18) Physical exercise is a good way to relax.
- * 19) I am not prone to worry that undue pressures would be placed on me if I were to develop considerable competency in some field.
- * 20) I don't worry about the possibility of being criticized by my friends and associates for being too involved with my work.
- 21) I am very persistent when playing a game.
- ** 22) If I were to do well at something I would worry that someone might try to undermine my success.

For each question, use the following scale in marking your judgements.

a strongly disagree c agree
b disagree d strongly agree

Please do not leave any answers blank.

- 23) When I play games, even if it is for fun, I like to win.
- ** 24) I have occasionally deliberately done average or mediocre work in order to make sure that someone else would do better than I.
- * 25) I don't worry that I may become so knowledgeable that others will not like me.
- 26) I regularly participate in a team sport.
- ** 27) I have a tendency to fear that others might like me only for what I could do for them due to my competency in a certain field.
- ** 28) I sometimes do less than my very best so that no one will be threatened.
- ** 29) People's behavior changes for the worse after they become successful.
- * 30) I would not worry that others might think I was peculiar or strange if I were too devoted to my work.
- 31) I believe that a career is an important means of self-fulfillment.
- ** 32) If it weren't for some remarkably good luck I would not have gotten as far as I have.
- 33) One's family life should take priority over one's career.
- 34) University education is very important in determining one's future success.
- 35) I like to play games which are relaxing.
- ** 36) I become embarrassed when others compliment me on my work.
- 37) Luck determines to a major degree the winner of a game.

For each question, use the following scale in marking your judgements.

a strongly disagree c agree
b disagree d strongly agree

Please do not leave any answers blank.

- ** 38) I do not seem to enjoy doing superior work as much as I feel I should.
- ** 39) I am prone to worry that undue pressures would be placed on me if I were to develop considerable competency in some field.
- 40) Grades in university are largely determined by luck and often depend on how well the instructor likes you.
- 41) The most important aspect for me about a career is to be able to support myself financially.
- 42) I believe that if you have a dynamic instructor, you are bound to do well in a course.
- ** 43) At times, I believe I have gotten by in school because of good luck and the carelessness of teachers.
- ** 44) I would find it nerve-wracking to be regarded as one of the best in my field.
- * 45) I don't seem to be drawn to activities which are not very challenging.
- ** 46) When I notice that things have been going particularly well for me, I get the feeling that it just can't last.
- ** 47) If I get a high grade in a work assignment, I tend to feel that I fooled the teacher.
- 48) I like games where you have to make strategic decisions.
- 49) I frequently play games with friends and family.
- 50) I sometimes feel nervous playing a game even if the game is just for fun.
- 51) Marriage is important to one's personal development.
- 52) I do not like games where you have to think before making a move.

For each question, use the following scale in marking your judgements.

- a strongly disagree c agree
b disagree d strongly agree

Please do not leave any answers blank.

- * 53) I never worry about the possibility of being disliked by others for doing well at something.
- ** 54) If I were outstanding at something, I would worry about the possibility of others making fun of me.
- * 55) I seldom worry about the possibility that others will think I am a "show-off".
- 56) University is not necessary for a career, but it is a means of keeping young people off the labour market in order to control unemployment.
- 57) To me, marriage is more important than a career.
- * 58) I don't have a tendency to worry that someone may become jealous if I do well at something.

* * *

Thank you very much for your time. We would appreciate your further participation in the study. Phase II of this study deals with research on gaming and decision making. We are interested in knowing whether there are general differences in game playing behavior between students. In other words, is the way people play simple games related to their general attitudes towards work and play? Phase II involves participating in an uncomplicated and enjoyable game.

Each participant in this part of the study will be paid approximately \$5. Less than one hour of your time is required. Scheduling will be at your convenience and at a location in the Hall Building.

Please leave your name and telephone number at the bottom of your answer sheet. You will be contacted shortly. Your participation is important!

ANSWER SHEET:

Please circle only ONE answer per question. Do not leave any answers blank.

- | | | |
|--------------|-------------|-------------|
| 1) a b | 24) a b c d | 47) a b c d |
| 2) a b c d | 25) a b c d | 48) a b c d |
| 3) a b c d | 26) a b c d | 49) a b c d |
| 4) a b c | 27) a b c d | 50) a b c d |
| 5) a b c d e | 28) a b c d | 51) a b c d |
| 6) a b | 29) a b c d | 52) a b c d |
| 7) a b c d e | 30) a b c d | 53) a b c d |
| 8) a b c d | 31) a b c d | 54) a b c d |
| 9) a b c d | 32) a b c d | 55) a b c d |
| 10) a b c d | 33) a b c d | 56) a b c d |
| 11) a b c d | 34) a b c d | 57) a b c d |
| 12) a b c d | 35) a b c d | 58) a b c d |
| 13) a b c d | 36) a b c d | |
| 14) a b c d | 37) a b c d | |
| 15) a b c d | 38) a b c d | |
| 16) a b c d | 39) a b c d | |
| 17) a b c d | 40) a b c d | |
| 18) a b c d | 41) a b c d | |
| 19) a b c d | 42) a b c d | |
| 20) a b c d | 43) a b c d | |
| 21) a b c d | 44) a b c d | |
| 22) a b c d | 45) a b c d | |
| 23) a b c d | 46) a b c d | |

PHASE II PARTICIPATION

Name:

Phone Number(s):

Convenient time to phone:

Jane is going back to the office at the end of the day.

PLEASE DO NOT WRITE ON THIS PAGE,
WRITE YOUR STORY ON THE NEXT PAGE.

APPENDIX B

Story Leads

What is happening? Who are the people?
What has led up to the situation? That is, what has hap-
pened in the past?
What is being thought and felt? What is wanted? By whom?
What will happen? What will be done?

Please use reverse side of previous page if more room is
needed. Do not turn page until told to do so.

Jim is sitting in a chair with a smile on his face.

PLEASE DO NOT WRITE ON THIS PAGE,
WRITE YOUR STORY ON THE NEXT PAGE.

What is happening? Who are the people?
What has led up to the situation? That is, what has hap-
pened in the past?
What is being thought and felt? What is wanted? By whom?
What will happen? What will be done?

Please use reverse side of previous page if more room is
needed. Do not turn page until told to do so.

John is looking into his microscope.

PLEASE DO NOT WRITE ON THIS PAGE,
WRITE YOUR STORY ON THE NEXT PAGE.

What is happening? Who are the people?
What has led up to the situation? That is, what has hap-
pened in the past?
What is being thought and felt? What is wanted? By whom?
What will happen? What will be done?

Please use reverse side of previous page if more room is
needed. Do not turn page until told to do so.

Linda is looking out at the sunset.

PLEASE DO NOT WRITE ON THIS PAGE,
WRITE YOUR STORY ON THE NEXT PAGE.

What is happening? Who are the people?
What has led up to the situation? That is, what has hap-
pened in the past?
What is being thought and felt? What is wanted? By whom?
What will happen? What will be done?

Please use reverse side of previous page if more room is
needed. Do not turn page until told to do so.

APPENDIX C

Post-Experimental Questionnaire

POST EXPERIMENTAL QUESTIONNAIRE

On the following pages are a series of four questions designed to assess your impressions of the study you have just participated in. Please answer the questions individually and in order, as candidly as possible.

-o-o-o-o-o-

1. Please briefly describe in a few sentences the study you just participated in.

2. At the beginning of today's session, the experimenter explained the purpose of the study. Please briefly describe that purpose and your reaction to it.

3. Did you have any pre-conceptions about your partner in the game or the way your partner played?

4. In what way if any, did your pre-conceptions about your partner or about the study in general influence your participation?

POST EXPERIMENTAL QUESTIONNAIRE SCORING SHEET:A) FOS MANIPULATION:

- | | |
|---|----------|
| 1. Was not suspicious about first part of study. | 0 POINTS |
| 2. May not have understood the purpose of stories, which may have influenced Ss-response. | 1 POINT |
| 3. Did not believe purpose of stories, which influenced Ss-response. | 2 POINTS |

PDG:

- | | |
|---|----------|
| 1. Was not suspicious about existence of partner, or was not sure about existence of partner, but this did not influence his/her way of play. | 0 POINTS |
| 2. Was not sure about existence of partner, which may have influenced his/her way of play. | 1 POINT |
| 3. Definitely did not believe that the other person existed and this belief influenced subject's responses. | 2 POINTS |

B) UNDERSTANDING OF INSTRUCTIONS:PDG:

- | | |
|--|----------|
| 1. Understood, or understood after a few trials, or no answer. | 0 POINTS |
| 2. May not have understood. | 1 POINT |
| 3. Did not understand game instructions. | 2 POINTS |

TOTAL:

A) FOS MANIP.: PDG:
 B) INSTRUCTIONS, PDG:

APPENDIX D

Instructions for the Relaxed,
ACh-aroused and FOS-aroused
conditions.

INSTRUCTIONS (RELAXED GROUP)

Player "A" and player "B", I will now give you a more detailed explanation about the objectives and rules of the game. Please follow the written instructions in front of you as I read them over the intercom. For reasons of uniformity for all participants in this study, please do not ask questions until I tell you to do so. If you have any questions while I am giving the instructions, you can mark them down on the piece of paper right in front of you. Since communication over the intercom system is possible only one way at a time, I will not be able to hear your questions until after I have given you all necessary instructions, at which point I will clear the intercom lines so that you may ask any questions you might have.

Now let's start. In front of you, you see a small electrical push button game. We want to find out whether the way students play this game is related to their general attitudes on work and play. Please note that the game is just in its development and it is possible that the way people play it is not related to their attitudes on work and play at all. Your participation, comments and critique about the game will be helpful to us, since they will aid us greatly in the further development of the game and the understanding of leisure behavior.

It is a game of intuitive decision making. The game is played by both of you simultaneously, and the outcome of

the game depends on the decisions of both of you. You will not be able to communicate with each other before or during the game. The reason for this is that we want to compare responses and decisions of students who see each other and know something about each other, with responses of students who do not see each other and know nothing about each other. In a third phase of this study, beginning next term, players will be allowed to communicate with each other prior to the game.

Before explaining the rules of the game in more detail, I would like you to complete four simple stories for me. It has previously been found that the content and style of creative writing is related to work and leisure activity including game playing...

You are going to see a series of verbal leads or cues, and your task is to tell a story that is suggested to you by each cue. Try to imagine what is going on in each. Then tell what the situation is, what led up to the situation, what the people are thinking and feeling, and what they will do.

In other words, write as complete a story as you can - a story with plot and characters.

You will have twenty (20) seconds to read the verbal cue and then 4 minutes to write your story about it. Write your first impressions and work rapidly. I will keep time and tell you when it is time to finish your story and to get ready for the next cue.

There are no right or wrong stories or kinds of stories so you may feel free to write whatever story is suggested to you when you look at a cue. Spelling, punctuation, and grammar are not important. What is important is to write out as fully and quickly as possible the story that comes into your mind as you imagine what is going on in each cue.

To help you cover all the elements of a story plot in the time allowed, you will find the following guide questions listed at the top of each story page:

What is happening? Who are the people?
What has led up to this situation? That is,
what has happened in the past?
What is being thought? What is wanted?
By whom? What will happen?
What will be done?

Please note that there will be one page for writing each story, following the page on which the verbal cue is given. If you need more space for writing any story, use the reverse side of the previous page - the one on which the cue was presented. Do not turn or go on to the next page until I tell you to do so.

You will now have twenty (20) seconds to read the verbal cue, after which time I will tell you to start writing your first story on the page following your cue. Please turn to the next page now.

INSTRUCTIONS (ACHIEVEMENT AROUSED GROUP)

Player "A" and player "B", I will now give you a more detailed explanation about the objectives and rules of the game. Please follow the written instructions in front of you as I read them over the intercom. For reasons of uniformity for all participants in this study, please do not ask questions until I tell you to do so. If you have any questions while I am giving the instructions, you can mark them down on the piece of paper right in front of you. Since communication over the intercom system is possible only one way at a time, I will not be able to hear your questions until after I have given you all necessary instructions, at which point I will clear the intercom lines so that you may ask any questions you might have.

You are participating in an important research project on intelligent decision making carried out by the Department of Education and sponsored by the federal government.

The game which you are going to play indicates in general a person's level of intelligence. It is a game developed to select candidates for important administrative positions. Thus in addition to general intelligence, this game brings out an individual's capacity to organize material, and his or her ability to evaluate situations quickly and make fast and accurate decisions.

The game is played by both of you simultaneously and the outcome of the game depends on the decisions of both of

you. You will not be able to communicate with each other before or during the game. The reason for this is that we want to compare responses and decisions of students who see each other and know something about each other, with responses of students who do not see each other and know nothing about each other. In a third phase of this study, beginning next term, players will be allowed to communicate with each other prior to the game.

Before explaining the rules of the game in more detail, I would like you to complete four simple stories for me. It has previously been found that the content and style of creative writing is related to a person's general level of intelligence.

You are going to see a series of verbal leads or cues, and your task is to tell a story that is suggested to you by each cue. Try to imagine what is going on in each. Then tell what the situation is, what led up to the situation, what the people are thinking and feeling, and what they will do.

In other words, write as complete a story as you can - a story with plot and characters.

You will have twenty (20) seconds to read the verbal cue and then 4 minutes to write your story about it. Write your first impressions and work rapidly. I will keep time and tell you when it is time to finish your story and to get ready for the next cue.

There are no right or wrong stories or kinds of stories so you may feel free to write whatever story is suggested to you when you look at a cue. Spelling, punctuation, and grammar are ~~not~~ important. What is important is to write out as fully and quickly as possible the story that comes into your mind as you imagine what is going on in each cue.

To help you cover all the elements of a story plot in the time allowed, you will find the following guide questions listed at the top of each story page:

What is happening? Who are the people?
What has led up to this situation? That is, what has happened in the past?
What is being thought? What is wanted?
By whom? What will happen?
What will be done?

Please note that there will be one page for writing each story, following the page on which the verbal cue is given. If you need more space for writing any story, use the reverse side of the previous page - the one on which the cue was presented. Do not turn or go on to the next page until I tell you to do so.

You will now have twenty (20) seconds to read the verbal cue, after which time I will tell you to start writing your first story on the page following your cue. Please turn to the next page now.

INSTRUCTIONS (FEAR OF SUCCESS AROUSED GROUP)

Player "A" and player "B", I will now give you a more detailed explanation about the objectives and rules of the game. Please follow the written instructions in front of you as I read them over the intercom. For reasons of uniformity for all participants in this study, please do not ask questions until I tell you to do so. If you have any questions while I am giving the instructions, you can mark them down on the piece of paper right in front of you. Since communication over the intercom system is possible only one way at a time, I will not be able to hear your questions until after I have given you all necessary instructions, at which point I will clear the intercom lines so that you may ask any questions you might have.

You are participating in an important research project on intelligent decision making carried out by the Department of Education and sponsored by the federal government.

The game which you are going to play indicates in general a person's level of intelligence. It is a game developed to select candidates for important administrative positions. Thus in addition to general intelligence, this game brings out an individual's capacity to organize material, and his or her ability to evaluate situations quickly and make fast and accurate decisions.

The game is played by both of you simultaneously and the outcome of the game depends on the decisions of both of

you. In the course of the game each player can obtain a maximum of 200 points. From among all the players participating in this study, those with the most points are eligible to participate in another round where they are able to earn \$25 for participation and also acquire the chance to participate in a final session where the pay-off will be \$100. Today player "B" is attempting his second round, since he proved to be a high scorer in the first session. *

You will not be able to communicate with each other before or during the game. The reason for this is that we want to compare responses and decisions of students who see each other and know something about each other, with responses of students who do not see each other and know nothing about each other. In a third phase of this study, beginning next term, players will be allowed to communicate with each other prior to the game. Although you will not be able to communicate with each other during the game, you will be introduced to each other at the end of the game. At that point, you will be free to discuss the game and your strategies with each other.

Before explaining the rules of the game in more detail, I would like you to complete four simple stories for me. It has previously been found that the content and style of creative writing is related to a person's general level of intelligence.

You are going to see a series of verbal leads or cues,

* Female pronouns were used when the game partner (stooge) was female.

and your task is to tell a story that is suggested to you by each cue. Try to imagine what is going on in each. Then tell what the situation is, what led up to the situation, what the people are thinking and feeling, and what they will do.

In other words, write as complete a story as you can—a story with plot and characters.

You will have twenty (20) seconds to read the verbal cue and then 4 minutes to write your story about it. Write your first impressions and work rapidly. I will keep time and tell you when it is time to finish your story and to get ready for the next cue.

There are no right or wrong stories or kinds of stories so you may feel free to write whatever story is suggested to you when you look at a cue. Spelling, punctuation, and grammar are not important. What is important is to write out as fully and quickly as possible the story that comes into your mind as you imagine what is going on in each cue.

To help you cover all the elements of a story plot in the time allowed, you will find the following guide questions listed at the top of each story page:

What is happening? Who are the people?
What has led up to this situation? That is,
what has happened in the past?
What is being thought? What is wanted?
By whom? What will happen?
What will be done?

Please note that there will be one page for writing each story, following the page on which the verbal cue is given. If you need more space for writing any story, use

the reverse side of the previous page - the one on which the cue was presented. Do not turn or go on to the next page until I tell you to do so.

You will now have twenty (20) seconds to read the verbal cue, after which time I will tell you to start writing your first story on the page following your cue.* Please turn to the next page now.

APPENDIX E

PDG - Instructions

I will now explain the game to you in more detail.

The game is played by both of you simultaneously and the outcome of each trial depends on the respective moves of both players. Each player has the option of 2 choices for each trial of the game: you can either push the red button or the blue button. These are the only 2 choices each player has. On the upper left hand side of your box, you see a little red light. This light will go on and off in intervals of 4 seconds each. That is, the light will be on for 4 seconds, during which time each player has to make his move by either pressing the red button or the blue button. Only press one button per trial, and do not press when the red light is off since otherwise you might lose points. Please do not slam down on the buttons, but press one of the 2 buttons down in its center, hold for approximately one second and release. Do not keep your finger on the button.

The little diagram that you see on the box in front of you, is called a pay-off matrix. It shows you the possible outcomes for each trial or move that player "A" and "B" make during any given light-on-period. You see 4 little squares, which means that there are 4 possible outcomes for each trial of the game. Each square contains a little yellow light. After each move player "A" and "B" make, one of these yellow lights will come on, showing you the outcome of that particular trial. In each square you see 2 numbers, a lower number and an upper number. The lower number always lists the pay-off or points earned by player "A", while the

upper number shows the points gained by player "B". I repeat: the lower number in each square lists the pay-off for player "A", while the upper number in each square lists the pay-off for player "B". For example, if the little yellow light comes on in the upper right hand square, you can see that the outcome of that particular trial is 1 point for player "A", the lower number in this square, and 4 points for player "B", the upper number in that square. If the little yellow light comes on in the lower left hand square, you can see that the outcome is 4 points for player "A", the lower number in this square, and 1 point for player "B", the upper number in the square.

Each square is labelled either by the word BLUE or the word RED, corresponding to the blue and red buttons respectively. The labels BLUE and RED on the left side of the matrix refer to player A's moves, and the labels RED and BLUE on top of the matrix refer to player B's moves. I repeat: the labels BLUE and RED on the left side of the matrix refer to player A's moves, and the labels RED and BLUE on top of the matrix refer to player B's moves. Now you can exactly determine which button each player has to push on his box to produce any one of the 4 possible outcomes in the matrix. Please follow the labels with your finger, while I give you a few examples.

If player "A" pushes the red button (look for the word RED on the left side of the matrix which refers to player "A"), and player "B" presses the

red button as well (look for the word RED) on top of the matrix, which refers to player "B"), the little yellow light in the upper left hand square will come on, indicating that the pay-off is 3 for each player. I repeat: If player "A" pushes the red button (look for the word RED on the left side of the matrix which refers to player "A"), and player "B" presses the red button as well (look for the word RED on top of the matrix, which refers to player "B"), the little yellow light in the upper left hand square will come on, indicating that the pay-off is 3 for each player.

Let's go through another example. If player "A" pushes the red button and player "B" pushes the blue button, the outcome is the one listed in the upper right hand corner, 1 point for player "A", the lower number in this square, and 4 points for player "B", the upper number in the square. If player "A" pushes the blue button and player "B" pushes the red button, then the outcome is the one listed in the lower left hand square, 4 points for player "A", the lower number, and 1 point for player "B", the upper number. If both players push the blue button on their respective boxes, the outcome is the one shown in the lower right hand square, 2 points for each player.

The points that each player accumulates will appear on the counter on the top right side of your box. If it happens that no yellow matrix light activates after you have pressed one of the buttons while the red light was on, it means that your partner did not play during that trial. In this case no

points will be counted. Simply wait for the next on-period and continue playing. Please try not to miss your on-periods. It might seem fast to you at first, but you will see that after about seven or eight trials, you will find that a four second on-period and a four second off-period is ample time for you to respond. Please remember, only press one button during the light on-periods, do not press when the little red light is off.

On the following page you will find a series of questions related to the rules of the game. This is for you to practice and make sure that you have understood the rules. I will read the questions, give you a few seconds to fill in the answer and will then tell you the correct answer. Please turn your page now.

Question number one:

If player "A" chooses RED and player "B" chooses BLUE, player A's pay-off will be ..., and player B's pay-off will be ... points.

Question number two:

If player "A" chooses BLUE and player "B" chooses RED, player A's pay-off will be ..., and player B's pay-off will be ... points.

Question number three:

If player "B" chooses RED and player "A" also chooses RED, player B's pay-off will be ..., and player A's pay-off will be ... points.

Question number 4:

If player "A" chooses BLUE and player "B" chooses BLUE as well, then player A's pay-off will be ..., and player B's pay-off will be ... points.

TRIALS:Ss:

- 1) RED
- 2) RED
- 3) RED
- 4) RED
- 5) RED
- 6) BLUE
- 7) BLUE
- 8) RED
- 9) RED
- 10) RED

- 11) BLUE
- 12) RED
- 13) RED
- 14) RED
- 15) BLUE
- 16) RED
- 17) RED
- 18) RED
- 19) RED
- 20) RED

- 21) RED
- 22) RED
- 23) RED
- 24) BLUE
- 25) BLUE
- 26) RED
- 27) RED
- 28) RED
- 29) RED
- 30) RED

TRIALS:Ss:

- 31) RED
- 32) BLUE
- 33) RED
- 34) RED
- 35) RED
- 36) BLUE
- 37) RED
- 38) RED
- 39) RED
- 40) RED

- 41) RED
- 42) BLUE
- 43) BLUE
- 44) RED
- 45) RED
- 46) RED
- 47) RED
- 48) RED
- 49) RED
- 50) RED

