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Generalized Expectancy and Athletic Performance

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ATHLETIC PERFORMANCE

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Abstract

Rotter's (1966) locus of control concept has been used to validate the belief that "athletics builds character." Internality is defined as the belief that reinforcement follows or is contingent upon one's own behavior. Externality is the belief that reinforcement is controlled by forces outside oneself, and independent of one's own actions. Previous authors have suggested that athletic participation fosters the development of an internal locus of control. Results have been inconclusive.

The goal of this study was to investigate the range of scores on the Internal-External Locus of Control Scale among female professional golfers. It was hypothesized that locus of control would be predictive of level of performance. Level of performance was operationalized by a performance scale including each player's average earnings per event and average strokes

per round for the 1986 season through the month of July.

Forty-eight members of the Ladies Professional Golf Association's tournament division participated in the study. The mean age of participants was 28.32 years. The mean number of years on the professional tour was five. The mean average earnings per event was $1865.72, and the mean average score per round was 74.76.

Locus of control was found to have a null relationship with golf performance. The importance of mental strategies and performance evidenced a slight, but nonsignificant relationship. No relationship was noted between the importance of mental strategies and locus of control.

Explanations for a null relationship between golf performance and locus of control include the potential need for sport-specific measures of locus of control, and a perhaps, ill conceived relationship between high performance (or achievement) and internality. The relationship of locus of control and performance may more closely resemble the theological paradigm which suggests that a belief in a sovereign God requires a balance between internal and external control since one must balance God's sovereignty with personal

responsibility. It may be that a balanced locus of control is more indicative of a realistic mental perspective which recognizes the reality of personal responsibility versus unpredictable external factors in athletic performance.

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T.L.P.

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Chapter 1

INTRODUCTION

Interest in the application of psychological principles to competitive sport can be traced back to the 1913 Congress for Psychology and Physiology of Sport organized in Lausanne, Switzerland by Baron Pierre de Coubertin, the founder of the modern day Olympics (Geron, 1983). The 1950's saw the first practical attempts to apply psychological methods to sport. In 1965, the first International Congress of Sport Psychology was held in Rome. Over the past twenty years, sport psychology has become a legitimate field of scientific inquiry with a view to understand and improve athletic performance and coaching methodology.

The field of sport psychology has focused on the assessment and description of personality characteristics common among athletes, the study of correlations between various psychological measures and measures of motoric and physiological performance, and

the application of systematic intervention strategies to improve performance (Silva, 1984).

Objectives of the Study

The primary objective of this study was to investigate the relationship between athletic performance and locus of control (Rotter, 1966). Professional golfers from the Ladies Professional Golf Association (LPGA) served as the population sample. This study is unique in that it studied a group of truly elite athletes representing approximately 200 of the top female golfers in the world. Most studies are done with convenient samples from junior high school, high school, or college athletes.

Previous studies have predicted a relationship between athletic participation and locus of control, postulating that "athletics builds character" as evidenced by higher internality, or the belief that reinforcement is primarily contingent on one's behavior or personal attributes. Participants were expected to demonstrate a higher internal control than non-participants. Results have been inconclusive.

This study suggested that there was a range of locus of control among athletes, and that an athlete's generalized expectancy, as operationalized by Rotter's I-E Scale, would be predictive of their level of

athletic performance or achievement when skill was held relatively constant. Only one study (Celestino, Tapp, & Brumet, 1979) has approached the relationship of athletic performance and locus of control. This study was an effort to expand and support Celestino, Tapp, and Brumet's finding of a "small, but significant correlation between internality and finish time" among marathon finishers in the 1976 Skylon International Marathon between Buffalo, New York and Niagra Falls, Ontario.

A second objective of this study was to investigate the relationship between mental strategies and locus of control in an effort to generate questions for future study. Is an internal locus of control predictive of a strong mental game? Can locus of control be trained to effect a stronger mental game? Sport Psychology is grounded in the belief that one's mental focus can be trained and performance thereby improved. Such questions have implications for the practical application of Sport Psychology.

I-E Concept

Rotter's (1966) concept of internal-external locus of control emerged from social learning theory. "In social learning theory, a reinforcement acts to strengthen an expectancy that a particular behavior or

event will be followed by that reinforcement in the future" (Rotter, 1966, p. 2). An individual with a belief in external control perceives reinforcement as following some action of his own, but not being entirely contingent upon his action. From this orientation, reinforcement would be viewed as the result of luck, chance, fate, or under the control of powerful others or unpredictable circumstances. On the other hand, an individual with a belief in internal control would perceive reinforcement as contingent upon his own behavior or his own relatively permanent characteristics.

According to Rotter (1966), individuals differ in their locus of control depending upon the individual's history of reinforcement. Dependent on their history of reinforcement, the individual develops a generalized expectancy for a class of related events.

In 1975, Rotter responded to problems and misconceptions related to the construct of internal versus external control. He noted that generalized expectancies "have limitations since they represent only one of many variables that enter into the prediction of behavior" (p. 59). As a result, "a very broad generalized expectancy allows prediction in a large number of different situations, but at a low

level" (p. 59). Rotter has admitted that situation-specific measures would have a higher predictive power. Continued investigation into the nature of the relationship between athletic performance and expectancy is needed to develop such sport-specific measures.

I-E and Causal Attribution

About 1979, studies of the role of expectancy in athletic performance began to switch emphasis under the influence of Lefcourt (1980) and Weiner (1979) and focus on questions of causal attribution rather than locus of control. This change in emphasis seems to be partially a response to the need for situation-specific measures, but also a reconceptualization of locus of control as a multi-dimensional concept.

This study was limited to Rotter's original scale and generalized concept, not to discount the importance of recent studies utilizing new scales and the significance of attributions to expectancies, but to back track to what was considered some uncharted ground in the study of athletic performance and locus of control. It was hoped that this study would provide further information for the development of sport-specific scales and the understanding of factors affecting performance outcomes.

I-E and Athletic Participation

Athletics participation is an activity which has been traditionally associated with the "building of character." Early studies using Rotter's conceptualization of internal-external locus of control postulated that "given their participation in competitive situations, athletes might be expected to possess a greater internal locus of control than non-athletes" (McKelvie & Huband, 1980, p. 819). The implication is that athletic participation fosters internal locus of control. This hypothesis has been tested with mixed and inconclusive results.

Lynn, Phelan, and Kiker (1969) studied three groups of 30 male junior high school students. Group A, school basketball players, was considered team sports participants, Group B, gymnasts, was considered individual sports participants, and Group C was considered non-participants. The subjects ranged in age from 12 to 15. All subjects were administered the Rotter I-E Scale. Basketball players were found to be significantly more internal than gymnasts and non-participants. Lynn et al. (1969) concluded that team sports participants were more internally controlled because they were trained to cooperate as members of a team and seemed more able to see a direct

connection between their efforts and the rewards and reinforcements of the society.

In 1973, DiGiuseppe sought to refine Lynn, Phelan, and Kiker's (1969) design by including subjects representative of four team sports (football, basketball, soccer, and baseball), five individual sports (gymnastics, archery, bowling, track, and cross-country), intramural sports participants, and non-participants. The participants included 167 high school freshman in physical education classes at a Pennsylvania high school. Rather than using the multiple t-test used in the Lynn et al. (1969) study, DiGiuseppe utilized analysis of variance. An analysis of variance of the mean I-E scores for the four groups yielded a nonsignificant F-ratio.

Gilliland (1974) criticized the previous two studies for their lack of generalizability to high-level athletic competitors. Gilliland studied ninety students at San Jose State University with an average age of 19.7 years. The following groups (n=5 per group) were compared: males in team sports (football, basketball, waterpolo); males in individual sports (judo, fencing, track, gymnastics); females in team sports (field hockey, volleyball); females in individual sports (gymnastics, fencing, tennis); male

non-participants; and female non-participants. The results indicated no significant differences between male and female athletes, nor between athletes and non-participants with regard to locus of control as measured by the Rotter I-E Scale.

The Illinois Competition Questionnaire measuring trait anxiety in competitive sports situations, and the Rotter I-E Scale were administered to 92 athletes and 93 non-athletes at Bishops University in a study conducted by McKelvie and Huband (1980). The authors sought to sample a larger, more representative group of athletes and non-athletes since previous studies chose "a rather homogenous group of students in psychology" to represent the non-athletic "control group." Their findings suggested no systematic relationship between athletic involvement and locus of control.

This study postulated that consistent, high level athletic performance would be positively correlated with internal locus of control as operationalized by the Rotter I-E Scale. It was suggested that an internal locus of control would be related to the mental strategies required to compete at consistently high levels of performance. Therefore, locus of control was hypothesized to be predictive of athletic

performance and positively related to strong mental strategies.

I-E and Athletic Performance

Studies of locus of control and performance have primarily focused on academic achievement. In 1983, Findley and Cooper conducted a quantitative review of the research investigating the relationship between locus of control and academic achievement. Each test of the hypothesis that internality was positively correlated with academic achievement was coded as "positive", "negative" or "null finding." Of 75 usable studies, and 275 hypothesis tests, 193 resulted in positive findings, 25 in negative findings, and 55 fell into the null category. From the analysis, the authors concluded that locus of control and academic achievement were significantly positively related.

Expectancy has been shown to be significantly related to athletic performance. Nelson and Furst (1972) told relatively weak subjects that they were stronger than their relatively strong partners in arm strength. The objectively weaker subjects proceeded to win arm wrestling competitions with their objectively stronger partners 83% of the time. In a similar study, Ness and Patton (1979), found weight lifters were able to lift more weight when they believed the weight was

less than its actual value. In both of these studies, the subjects performance outcome was affected by their expectancies based on their opponent's ability or task difficulty.

As previously mentioned, Celestino et al. (1979) studied 74 male finishers and 23 non-finishers who participated in the Skylon International Marathon in 1976. Comparisons of finishers and non-finishers showed no significant differences in locus of control. However, a small but significant difference was found among finishers in the direction of greater internality for those with faster finish times.

A relationship between internality and performance (achievement) is intuitively comfortable. Studies of academic achievement seem to support this hypothesis. Limited study has been done on athletic performance and locus of control, but preliminary findings suggest a positive relationship between internality and athletic performance, and warrant further investigation.

I-E and Mental Strategies in Athletic Performance

Arnold Palmer (1963) quoted his father by saying "Ninety per cent of golf is played from the shoulders up" (pg. 15). According to Palmer, "psychology, the mental approach, is a much greater factor in golf than has ever been fully appreciated" (p. 14).

Indeed, the very foundation of applied Sport Psychology is the belief that performance can be enhanced by proper mental strategies such as relaxation techniques to produce optimal anxiety levels, visual imagery, goal setting, planning, and neuro-linguistic programming.

In selecting such a highly competitive sample, this study allowed for the investigation of mental factors affecting performance, while essentially controlling skill level. On such a highly competitive level, the game is not won or lost on the approximately 6000 yards of manicured lawn called a golf course, but "on a 6 inch course - the space between one's ears" (Kirschenbaum and Bale, 1980, p. 334).

Garfield (1984) recounts his experience in meeting a group of Soviet sports psychologists and physiologists while lecturing in Milan, Italy in 1979. He was told of government funded athletic programs in Russia which integrated sophisticated mental training and physical training. Four matched groups of world class Soviet athletes trained under four different regimens. One regimen was 100% physical training, a second was 75% physical and 25% mental training, a third regimen included 50% physical and 50% mental training, and the final regimen included 25% physical

and 75% mental training. Shortly before the 1980 Winter Olympics in Lake Placid, New York, group four which emphasized mental training over physical training, showed significantly higher performance.

Kirschenbaum and Bale (1980) conducted a content analysis of what the pros said about the mental side of golf by studying a sample of 68 instructional golf books and the previous two years of Golf Digest and Golf Magazine. They developed a five-component self-regulation training program for golfers which included deep muscle relaxation, planning, imagery, positive self-monitoring, and positive self-statements. They called their program "Brain Power Golf" (BPG). Data from a 1977 study and a 1978 study conducted by the authors indicate positive benefits from BPG among intercollegiate golfers at the University of Cincinnati, although a cause-effect relationship is not implied.

There can be no argument that mental strategies are a primary component of any athletic event. It seems plausible to associate locus of control with mental strategies since one's expectation of reinforcement can be described as a "mental set" based on several factors, one of which is an individual's previous reinforcement history. In a

cognitive-behavioral framework, an individual's interpretation of their previous reinforcement history is a mediating factor. Logically, previous events can be reinterpreted, thereby altering an individual's expectancy regarding similiar situations. It was, therefore, postulated that locus of control would be found to be a component of mental strategies in athletics which can be altered through cognitive-behavioral techniques.

Hypotheses

1: Internal locus of control, as measured by the Rotter I-E Locus of Control Scale, will be positively correlated with golf performance as operationalized by a performance scale comprised of average earnings per event, and and average score per round.

2: Importance of mental strategies will be positively correlated with athletic performance.

Questions for Study

In addition to the above hypotheses, this study examined the relationships between performance, number of years competing as a professional, and the age the player began playing golf. Other demographic variables, including age, marital status, and education were checked for significance in relation to

performance and locus of control. Two questions which have been highly correlated with the concept of spiritual well-being (Paloutzian & Ellison, 1983) and the Hardiness Scale (Kobasa, 1985) have also been included[1].

In summary, this study investigated the relationship between athletic performance among female professional golfers and internal-external locus of control, a popular social-psychological research concept since 1966 (Rotter, 1966). It was hypothesized that high golf performance would be positively correlated with an internal locus of control, or the belief that reinforcement is contingent on one's behavior or relatively enduring personal characteristics. The hypothesis was supported by a previous study which showed a positive relationship between an internal locus of control and faster finish times among marathon runners. This study holds

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[1]Two questions related to spiritual well-being were included at the request of Rodger K. Bufford, dissertation committee chairman. The Hardiness scale was included at the request of the study statistician. Data from these items were not analyzed for the purpose of this study.

significance within the field of applied Sport Psychology, and in the development of sport-specific measures of locus of control.

Chapter 2

Methods

Subjects

The participants for this study were solicited from the 1986 tournament division membership of the Ladies Professional Golf Association (LPGA). Tournament players must qualify for playing eligibility at the LPGA Annual Qualifying Tournament held in October of each year. Once qualified, players must meet specified criteria each season to maintain eligiblity. As a result, the membership of the LPGA tournament division is comprised of the top 200 female golfers in the world. By this subject selection, the variables of skill and ability are presumed to be relatively controlled. The majority of research is conducted on convenient samples within school settings (ie. junior high school, high school, college). This study is a unique investigation in that it sampled the highly competitive world of professional athletes.

There are approximately 200 women golfers who play at least one tournament each season. However, those

who play at least half of the possible 28 tournaments during a season number closer to 160. The statistics for this study were taken from two different sources, the 1986 LPGA Player Guide which included 192 players, and the 1986 Money list which included the 176 players who had won money through the month of July. Reference is made to these different reference populations throughout the text.

Seventy-five Sports Study Questionnaires were distributed. Two women apparently each took two questionnaires, on two different occasions, and returned only one to the investigator. One player returned the questionnaire uncompleted since she had played only one tournament all season. Following the return date of July 31st, two golfers apologized by mail, indicating that they had lost the questionnaires. Twenty questionnaires were unaccounted for.

Fifty completed Sports Study Questionnaires were returned. Two questionnaires were disqualified, one due to limited play in 1986, and one due to an inability to match player statistics with the questionnaire. The participants included 48 tournament division members of the LPGA. This represents 25% of the 192 members listed in the 1986 LPGA Player Guide, 30% of the division's active membership (approximately

160 players), and 64% of those originally contacted for the study.

The mean age of the sample was 28 years with an age range of 22-45 years of age. Sixty-seven percent (n=32) of the sample had never been married, 25% (n=12) were married, and 6% (n=3) were divorced. Two percent (n=1) identified themselves as living with someone. Educational status ranged from 12-18 years with a mean of 15.75 years (S.D.=1.12). The number of years on tour ranged from 1-22 with a mean of 5 years (S.D.=4.23). The mean age at which players began playing golf was 10.9 (S.D.=3.94) with a range of 4.5 to 23.

Statistics from LPGA official records (Appendix A) were matched with the player questionnaires. Results indicated that within the sample the mean number of tournaments played during the 1986 season through July 31st was 17.10 (S.D.=3.26). The mean of average earnings per event was $1865.72 (S.D.=2504.08) with a range of $23.00 to $13,996.00 and a median of $965.00. The mean of average scores per round was 74.76 (S.D.=1.56). Average scores ranged from 72.12 to 78.23. Demographic data are summarized in Table 1.

Table 1

Demographic Data: Sports Study Sample (N=48)

Variable	Mean	S.D.	Median	Range
Age	28.35	4.94	26.50	22-45
Educational Status	15.75	1.12	15.99	12-18
Age Began Playing Golf	10.91	3.94	11.00	4.5-23
No. of Yrs. on Tour	5.00	4.23	3.75	1-22
No. of Tournaments Played	17.10	3.26	17.93	9-22
Average Earnings Per Event	$1866	$2504	$965	$23-13,996
Average Score Per Round	74.75	1.56	74.45	72.12-78.23

Demographic data on age, number of years on tour, average earnings per event, average score per round, and average number of tournaments played were taken from the 1986 Players Guide and LPGA official records to compare the sample with the total population of the 1986 tournament division. Comparison of the means

(Glass and Hopkins, 1984) indicated that the 48 participants were representative of the total membership of the tournament division in regards to average earnings per event and number of tournaments played. The players differed significantly from the total population on the demographic variables of age ($p<.01$) and number of years on tour ($p<.02$). The players also differed significantly from the total population in regards to average score per round ($p<.001$). A summary of comparisons between the Sports Study sample and the total membership of the LPGA tournament division is included in Table 2.

Table 2

Comparison of Means: LPGA Tournament Division Players Versus Study Sample

Variable	Study Sample[a]		LPGA		t-Score
	Mean	S.D.	Mean	S.D.	
Age	28.35	4.94	30.45[b]	4.33	2.91**
Years on Tour	5.00	4.23	6.98[b]	5.30	2.42***
Tournaments Played	17.90	3.26	16.17[c]	2.75	.74
Average Earnings	$1866	2504	$1801[c]	2534	.16
Average Score	74.76	1.56	73.88[c]	1.68	3.57*

LPGA = 1986 LPGA Tournament Division

[a]N = 48 (Sports Study Questionnaire Sample)

[b]N = 192 (Statistics from 1986 Player Guide)

[c]N = 176 (Statistics from 1986 LPGA Money List)

*p<.001. **p<.01. ***p<.02.

Materials

Materials for the study were combined to form a Sports Study Questionnaire (Appendix B) which included demographic information, the Rotter Internal-External

Locus of Control Scale (I-E Scale) and the Hardiness Scale (Kobasa, 1985). The questionnaire was numbered consecutively from item 1 through 52 and was estimated to take approximately 20-30 minutes to complete. The I-E Scale (Rotter, 1966) was the primary instrument used in this study.

Performance Scale. Statistical information regarding player performance during the 1986 season through July 31st was obtained from LPGA official records. A performance scale was developed using average earnings per event and average strokes per round. This information was transformed into Z-scores with a high scores indicating high performance. Each participant's performance score was computed by summing their Z-scores on average earnings and average strokes (with signs reversed for strokes).

Hardiness Scale. The Hardiness Scale (see Footnote 1) is a 20 item questionnaire which includes six of the Rotter items. Hardiness is defined as a personality disposition which moderates the otherwise debilitating effects of stressful events (Kobasa, Maddi, & Kahn, 1982), and has primarily been used in the field of nursing.

Demographic Data. Demographic data were solicited, including age, marital status, education,

age the person began playing golf, number of years on the LPGA Tour, use of the services of a sport psychologist or other similar professional, and importance of mental strategies. A section on mental strategies used in athletic competition was also included. These questions were answered in a Likert format and served to generate questions for future study rather than as a direct focus of this study. Spiritual well being was addressed through the use of two questions which have been highly correlated with this concept, importance of religion and frequency of church attendance (see Footnote 1). Two final demographic questions were included on the importance of family and frequency of contact with family. These items were primarily used as a buffer to the spiritual well-being questions in order to make them more innocuous and appear a part of a set of items rather a discrete issue in this study.

Rotter I-E Scale. The Rotter Internal-External Locus of Control Scale (1966) is a 29 item, forced-choice test including six filler items intended to make the purpose of the test more ambiguous. The score is based on the number of items endorsed in the external direction, therefore, a high score reflects

external locus of control and a low score indicates a internal locus of control.

Internal consistency measures have ranged from $\underline{r}$=.65 to $\underline{r}$=.79. Split-half reliability was $\underline{r}$=.79. The Kuder-Richardson tests have yielded correlations from $\underline{r}$=.69 to $\underline{r}$=.76 (Rotter, 1966). Test-retest reliability has ranged from $\underline{r}$=.49 to $\underline{r}$=.83. Efforts were made by Rotter to limit the correlation between the I-E scale and measures of intelligence and gender. Studies have shown a significant difference between the scores of Blacks and Caucasians on this scale. Caucasians were significantly more internal. Social desirability was controlled by eliminating items which showed high correlation with the Marlowe Crowne Social Desirability Scale (Rotter, 1966).

A common criticism of the I-E Scale is that it is not unidimensional. A review of the literature conducted by Levenson (1972) indicated that the scale did contain several distinct factors. Rotter (1966) conducted factorial studies on his 29-item questionnaire and found that all items loaded significantly on one general factor which accounted for 53% of the total scale variance. It has been argued that its "multidimensionality does not invalidate the concept of generalized expectancy" (Fink, 1983, p. 57).

Rotter further argued that the factorial studies done in criticism of the I-E Scale resulted in different loadings on a variety of factors, dependent on the population sampled (Rotter, 1975).

Procedures

Contact was made with Cris Stevens[2] who acted as the collaborator for this study. She agreed to distribute the questionnaire packets during the first two weeks of July. The collaborator was instructed by mail (Appendix C) that the study was to be explained as a study of attitudes among athletes. The purpose and nature of the study were not revealed to her to prevent biasing of answers.

Questionnaire packets were distributed during the first two tournaments of July at the LPGA Fellowship and by personal contact. Packets included instructions for completing the questionnaire and a self-addressed stamped envelope for ease in returning to the examiner. Packets were numbered consecutively from 1-75 and a numbered list (Appendix D) with player's names was kept by the collaborator and returned to the examiner for

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[2]Cris Stevens represents Alternative Ministries which coodinates the LPGA Fellowship. She also represents LaMode DuGolf, a clothing company.

the purpose of matching performance criteria with I-E scores and other independent variables. The list was destroyed by the examiner when the statistical analyses were complete. This procedure was to assure as much confidentiality in responses as possible. A deadline of July 15th for the return of the questionnaires to the examiner was indicated in the instructions. A follow-up letter (Appendix E) was mailed to the Denver tournament, July 31 - August 3, to the players who had not returned questionnaires. The collaborator followed up through personal contact and encouraged a speedy return.

Chapter 3

Results

The primary purpose of this study was to investigate the relationship of locus of control, as conceptualized by Rotter (1966), and level of athletic performance. Professional golfers from the tournament division of the Ladies Professional Golf Association served as the sample for this investigation. Performance was operationalized by a level of performance scale comprised of average earnings per event and average score per round transformed into Z-scores. It was hypothesized that level of performance would be positively correlated with internal locus of control.

A secondary focus of this study was to investigate the relationship of mental strategies, athletic performance and locus of control. It was hypothesized that a self-report of importance of mental strategies would be positively correlated with performance. It was further hypothesized that importance of mental

stategies would show a positive relationship to internal locus of control.

Forty-eight golfers completed the Sports Study Questionnaire. The reader is referred to Table 1 for a description of the demographic data. The sample was representative of the total membership of the LPGA tournament division in regards to average earnings per event and number of tournaments played. The sample was significantly younger in age ($p<.01$), had been on tour fewer years ($p<.02$), and scored significantly higher on average score per round ($p<.001$) than the total population of the LPGA tournament division (see Table 2).

Performance Scale

A performance scale was contructed using average earnings per event and average strokes per round. Statistics for each player were taken from LPGA statistical records for the 1986 season through July 31st (1986 LPGA Money List). Average earnings per event and average strokes per round were transformed into Z-scores; the directionality of Z-scores for average score per round was reversed and the two Z-scores were summed so that high scores indicated high performance. Cronbach's alpha was used to test the internal consistency of the scale. Alpha for the

Performance Scale was .83. Performance Scale scores ranged from -2.95 to +6.54.

Locus of Control

Scores on the Rotter Internal-External Locus of Control Scale (I-E Scale) were computed in the normal fashion by scoring 1 point for each item endorsed in the external direction. Therefore, high scores indicated externality and low scores internality. Possible scores range from 1-23. In the case of missing data, the group mean for the item was substituted. [Ten items on the I-E Scale were missing data for 1 case. One item was missing 2 cases and two items were missing 3 cases.] Cronbach's alpha was used to test the internal consistency of the scale. Alpha for the scale was .71. The mean I-E score for the sample was 9.03 with a standard deviation of 3.39.

Rotter's 1966 monograph reports a mean I-E score of 8.42 (S.D.=3.97) for 605 female elementary psychology students at Ohio State University. McKelvie and Huband (1980) reported a mean I-E score of 10.40 (S.D.=3.71) for 54 athletes. Celestino et al. (1979) reported mean I-E scores of 6.78 (S.D.=4.5) for finishers and 8.65 (S.D.=4.7) for non-finishers in the 1976 Skylon International Marathon.

The I-E scores for the Sports Study sample did not vary significantly from the norms given by Rotter in his 1966 monograph for 605 female elementary psychology students. However, a t-test of the means and an F-test of the variances for the Sports Study sample and the 74 marathon finishers in the Celestino et al. (1979) study, revealed that the Sports Study sample scored significantly more in the external direction on the I-E scale. Similar tests of means and variances were done for the Sports Study sample and the 92 athletes in the McKelvie and Huband (1980) study. The Sport Study sample scored significantly lower, or in the direction of internality, than McKelvie and Huband's subjects. Table 3 summarizes the differences between the means and variances of these three samples and the Sports Study sample in regards to I-E scores.

Table 3

Comparison of the Means and Variances on I-E:

Sports Study Sample versus Three Previous Studies

Study	N=	Mean	Variance	t-Test	F-Test
Sports Study (1986)	48	8.80	12.99	--	--
Rotter (1966)	605	8.42	16.48	.62	1.27
Celestino et al. (1979)	74	6.78	20.25	2.59*	1.56***
McKelvie & Huband (1980)	92	10.40	13.76	2.43**	.29

Sports Study = Sports Study Sample/LPGA Golfers (1986)

Rotter = Rotter/Female Psychology Students (1966)

Celestino et al. = Celestino et al./Male Marathon Finishers (1979)

McKelvie & Huband = McKelvie & Huband/Athletes at Bishops University (1980)

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

Locus of Control and Performance

Locus of control and performance showed no significant relationship in this study. A Pearson correlation of r=.03 (p=.42) did not show any

relationship between locus of control and performance. A scattergram did not reveal any significant non-linearity.

A second correlation was computed after dropping out two outliers with the chance that they may have been affecting the relationship of performance and locus of control. The correlation improved only slightly (r=.11; p=.24).

Each subscale (average earnings per event and average score per round) of the performance scale was tested for a relationship with locus of control using a Pearson correlation. Locus of control correlated with average earnings per event and average score per round at a r=.01 (p=.41) and r=.05 (p=.37) respectively. These results indicate there is no relationship between either component of performance (earnings and score) and locus of control in this sample.

Mental Strategies

A slight tendency toward a negative correlation (r=-.22; p=.06) was found between performance and self-reported importance of mental strategies. However, this relationship failed to reach an adequate level of significance. The reported importance of mental strategies increased with age (r=.24; p=.05) and showed the greatest relationship with whether one was

currently seeing (r=.34; p=.009) or had ever seen (r=.43; p=.001) a sports psychologist or similar professional. No relationship was found between locus of control and importance of mental strategies (r=.13; p=.19).

Six mental strategies were investigated for frequency of use to stimulate questions for future study. Responses were given on a 7 point Likert scale with 1 representing never and 7 representing always. The most frequently used mental strategies included self-talk (M=.58), visual imagery (M=5.29), and goal setting (M=5.06). Self-hypnosis (M=2.00) and neuro-linguistic programming (M=1.91) were the least frequently used mental strategies.

Other Relationships

Performance showed the greatest relationship (r=.34; p=.01) with the number of years a player had been on the LPGA tour. Locus of control showed a significant negative relationship (r -.33; p=.01) with the age one began playing golf, that is, the younger one began playing golf, the more external their locus of control. Locus of control was also significantly related to education (r=.27; p=.03) and seeking the services of a sport psychologist or similar professional (r=.28; p=.03).

Age was significantly related to the age one began playing golf (r=.33; p=.01), number of years on tour (r=.32; p=.01) and importance of mental strategies (r=.24; p=.05).

Twenty-nine percent (n=14) of the sample had never seen a sport psychologist or similar professional. Twenty-one percent (n=10) had sought these services on one occasion, 22% (n=11) sought these services 2-5 times, 11% (n=4) 6-10 times, 6% (n=3) 11-20 times, and 13% (n=6) more than 20 times. Thirty-seven percent of the sample were seeing a sport psychologist or similar professional at the time of the investigation.

Summary of Findings

The goal of this study was to test the hypothesis that athletic performance is positively correlated with internal locus of control. It was also hypothesized that importance of mental strategies is positively correlated with performance and with internal locus of control. A raw data table (Appendix F) and a summary of Pearson correlation coefficients (Appendix G) can be found at the back of this study. Subjects for the study included 48 members of the LPGA tournament division. Players were representative of the total membership of the tournament division in regards to number of tournaments played and average earnings per

event. They varied significantly on the variables of age and number of years on tour and average score per round.

Locus of control was found to have no significant relationship to performance as operationalized by a performance scale comprised of average earnings per event and average score per round. Importance of mental strategies and performance showed a slight, but insignificant relationship. No relationship was found between importance of mental strategies and locus of control.

The importance of mental strategies increased with age and showed the greatest relationship with whether one was currently or had ever seen a sport psychologist or similar professional. The most frequently used mental strategies were self-talk, visual imagery and goal setting.

Of the variables investigated, performance showed the greatest relationship to number of years on tour. Locus of control evidenced a significant negative relationship with the age one began playing golf, and a positive relationship with education and seeking the services of a sport psychologist or similar professional.

Chapter 4

Discussion

It was hypothesized that internal locus of control would be positively correlated with athletic performance and that importance of mental strategies would be positively correlated with athletic performance. The relationship between importance of mental strategies and locus of control was also investigated.

The Sample

Forty-eight members of the 1986 tournament division of the LPGA returned completed Sports Study Questionnaires. An examination of the differences between the means of the sample and the total 1986 membership of the tournament division showed the sample to be representative of all LPGA players on the variables of number of tournaments played and average earnings per event. However, the sample was not representative of all LPGA players in regards to age, number of years on tour, and average score per round.

The difference between the two groups on age and number of years on tour is likely related to the fact that values for these two variables were taken from the 1986 Player Guide. The Player Guide includes several of the older players who have been on tour 15-25 years, and who play a limited to zero number of tournaments per year. As a result, the majority of these players presumably were not represented on the 1986 Official LPGA Money List which served as the reference for the variables of number of tournaments played and average earnings per round. Thus, the mean age and mean number of years on tour may be inflated when considering the total membership of the tournament division. Also, since the older, more seasoned players participate in only a few tournaments each year, it is likely that they were unavailable for sampling.

The fact that the sample differed significantly from the total players listed on the 1986 money list in average score per round is bothersome. This difference is attributable to the small standard deviations for this variable, and may have been decreased had more of the unaccounted for 20 questionnaires been returned. This discrepancy may also be due to occasional players who played well, but played only a few tournaments. In terms of the study's reliability in regards to the 48

players sampled, this difference is negligible, since this variable correlated adequately with average earnings per event and qualified for inclusion in the performance scale. However, this discrepancy does limit the generalizability of the study's results to the total membership of the LPGA tournament division.

It is significant that the sample for this investigation was representative of the total membership of the tournament division in regards to the variable of average earnings per event which was one of the two subscales on the performance scale used in the study.

The educational status (15.75 years) is reflective of the trend which began in women's athletics about 1970 to provide athletic scholarships for women. Eighty-three percent of the sample completed 4 years or more of post high school education.

Performance Scale

A performance scale was contructed using average earnings per event and average strokes per round. A test of internal consistency indicated that the two subscales were valid measures for combination into a single scale. The original study design planned for average putts per round to be included in the performance scale. However, a return letter from the

LPGA (Appendix H) indicated these statistics were unavailable.

Locus of Control

The internal consistency of the Rotter I-E Scale as used in this study fell within previously reported ranges (Rotter, 1966). The mean I-E score and standard deviation for the sample showed no significant difference from those reported for 605 female psychology students at Ohio State University in Rotter's 1966 monograph. The mean and standard deviation, however, were significantly higher than those reported for the male marathon finishers in the Celestino et al. (1979) study which suggests a significant sample difference between lady professional golfers and male marathon finishers. The obvious difference of sex does not likely account for this variance since previous studies report no systematic differences between sexes on the I-E Scale (Rotter, 1966). Although the lady professional golfers also differ significantly from McKelvie and Huband's (1980) study, this difference is not as great as in the case of the Celestino et al. (1979) study.

Locus of control demonstrated a significant positive relationship with educational status. That is, those with higher educational status scored in the

direction of a more external locus of control. Although academic achievement has been the focus of several studies as noted by Findley and Cooper (1983) in their review of the literature, no studies were found which investigated the relationship of educational status and locus of control.

Locus of Control and Performance

The notion that internal locus of control and performance (achievement) are related is not without support. Previous studies of academic achievement and locus of control evidenced a positive relationship in 70% of the hypotheses tested (Findley & Cooper, 1973). Celestino et al. (1979) demonstrated a positive relationship between internal locus of control and faster finish times among marathon runners.

The findings of this study show no relationship between locus of control and golf performance for LPGA members. Several possible explanations may be rendered in light of the null relationship found in this study between these two variables.

First, the lack of a significant relationship between locus of control and athletic performance resonates with the trends of the early 1980's (Weiner, 1979; Lefcourt, 1980) toward situation-specific measures and away from a generalized

scale of expectancy. It was previously suggested by Rotter (1975) himself that a generalized expectancy measure may lack the sensitivity to measure significant relationships in specific situations which are no longer ambiguous and novel. Rotter stated, "the relative importance of generalized expectancy goes up as the situation is more novel or ambiguos and goes down as the individual's experience in that situation increases" (Rotter, 1975, p. 57). This suggests that situation-specific expectancies and sport-specific scales may hold greater promise in discovering and understanding factors affecting expectancies of reinforcement in athletic performance. Investigation of sport-specific expectancies may yield a common set of variables which can be generalized to a range of athletic events.

Secondly, the findings of Celestino et al. (1979) may not have been replicable in light of significant differences between lady professional golfers and male marathon finishers. These differences are apparent, but unknown at this time.

Finally, there has been a tendency over the years to place a value on internality and externality as if to imply that an internal locus of control is

indicative of "mental health." Rotter (1975) cautions against this misinterpretation.

It may be the notion that an internal locus of control and high golf performance should be correlated is an ill conceived relationship. For example, theologically, one might expect spiritual health to be characterized by a balance of internal and external locus of control. Internally one must assume personal responsibility for their behavior and life (Ephesians 5:15-16), while externally acknowledging the sovereignty of God (Romans 8:28). Packer (1961) speaks to this balance in relationship to evangelism and the sovereignty of God. In relationship to golf performance, one must assume responsibility for mental preparation and skill practice, while at the same time accepting the uncontrollable external factors such as weather, course conditions, and spectator comments. Perhaps a balance of internal and external control is a more desirable personality characteristic in the pursuit of high golf performance.

Although the I-E Scale has demonstrated predictive power with academic achievement, a null relationship in this study suggests that different variables likely interact with academic achievement and golf performance. It is suggested that there are inherent

differences between the task demands of the two achievement situations, and that the I-E Scale is more sensitive to academic achievement and locus of control relationships since some of the items relate more directly to this task.

Mental Strategies

A positive correlation between performance and self-report of importance of mental strategies was hypothesized. However, a slight, but insignificant, tendency toward a negative relationship was noted between these two variables. This tendency may suggest that the players who perform at higher levels have become unaware of their use of mental strategies, having learned to rely on the reflexive response of their athletic skills. It is possible that they use mental strategies such as positive self-talk, visual imagery, and goal setting, but that their awareness of these strategies is blurred by their ability to maintain a mental focus with little distraction and great confidence.

It was hypothesized that an internal locus of control would be positively correlated with importance of mental strategies. No relationship was found between these two variables. It may well be that correlating the value (importance) of mental strategies

with a presumed function (locus of control) of mental strategies was inappropriate and a little like comparing apples with oranges. The relationship of locus of control and mental strategies may better be investigated by the construction of a mental strategies scale. However, the construction of such a scale reached outside the limitations of the present study.

Frequency responses on a Likert scale indicated that self-talk, visual imagery, and goal setting were the most frequently used mental strategies. Neuro-linguistic programming and self-hypnosis were the least frequently used. The six mental strategies listed in the Sports Study Questionnaire were given with no definition since they were not a direct focus of this study. However, when dealing in a specific field of knowledge, clear definition of terms is of utmost importance. It is suggested that in the development of a mental strategies scale terms should be adequately defined to avoid idiosyncratic interpretation not related to the specific cognitive-behavioral techniques implied. It is possible that neuro-linguistic programming and self-hypnosis were rated as the least frequently used techniques because they are less familiar terms to the participants. The terms self-talk, visual imagery,

and goal-setting are more easily self-defined. As a result the frequency of their use may not accurately be reported since subjects were allowed to make idiosyncratic interpretation of these terms.

Other Relationships

Performance showed the greatest relationship to the number of years a player had been on the LPGA tour. One explanation for this finding may be that those who tend to play well stay on tour, while those who perform poorly leave and pursue other career objectives.

Other explanations for the aforementioned relationship include the maturity and adjustments one must go through as they enter the world of professional golf. The schedule is demanding from the fourth week of January through the second week of September. One's livelihood depends on one's performance. Other factors one must accomodate to are the presence of larger galleries (spectators), living out of a suitcase, limited social support, and the pressure, in most cases, of going from being a "big fish in a little pond" to being a "little fish in a big pond." Most players come from backgrounds where they were the best or one of the best. They enter a world where the best of the best enjoy success and the level of competition

increases significantly. Few players become instant successes. Most players require a period of maturing and adjustment.

The younger one was when she began playing golf, the more external her locus of control at the time of the study. Having begun golf at an early age, one might have narrowed her focus to the sport-specific skill and related variables, and not develop a sense of internal generalized expectancy regarding her world as a whole. Expectancy of reinforcement in the skill of golf is situation-specific, and not easily generalizable to other areas of one's life. One who began golf at a later age may have experienced reinforcement contingent on her own behavior in a variety of experiences and settings, and not be limited to the expectancy that her behavior counts only in regards to her performance outcomes in golf.

Externals tended to seek the services of a sport psychologist or similar professional more frequently than internals. By definition (Rotter, 1966), externals perceive reinforcement to be a result of luck, chance, fate, or under the control of powerful others or unpredictable circumstances. It can be postulated that those who seek the services of a sport psychologist or similar professional have a lower

degree of confidence in their own ability to effect reinforcement, and seek the services of a "powerful other" to increase their chances of receiving reinforcement.

Seventy percent of the sample had sought the services of a sport psychologist or similar professional on at least one occasion. Thirty-seven percent of the sample were seeing a sport psychologist or similar professional at the time of the investigation.

Conclusion

Previous studies investigated the relationship of locus of control and athletic participation. No systematic relationships were found. One study found that internal locus of control was positively correlated with faster finish times among marathoners. The present study followed this line of investigation and hypothesized that locus of control would be positively correlated with golf performance as operationalized by average earnings per event and average score per round. The importance of mental strategies and its relationship to performance and locus of control were also investigated. Forty-eight members of the LPGA tournament division served as subjects for the study.

No significant relationship was found between locus of control and performance. It is suggested that the Rotter I-E Scale lacks the specificity necessary for teasing out expectancy of reinforcement in golf performance. The development of a sport-specific scale needs to continue to be pursued. The inability to replicate the findings of Celestino et al. (1979) is likely due to personality differences between female professional golfers and male marathon finishers. The lack of a relationship between golf performance and locus of control may also suggest misconception in the original hypothesis. A balance of internal and external locus of control seems more consistent with Biblical teaching and may be more optimal in the performance of athletic skills.

The importance of mental strategies showed no significant relationship with locus of control or with performance. In regards to mental strategies, it is recommended that a mental strategies scale be contructed with clear definition of cognitive-behavioral techniques to avoid idiosyncratic interpretation of terms.

In conclusion, the Rotter I-E Locus of Control Scale appears to be unrelated to golf performance in LPGA tournament professionals. Other factors which may

have more predictive significance, such as causal attribution and use of mental strategies, should be further investigated.

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APPENDIX A

Letter of Request for LPGA Player Statistics

July 8, 1986

Ladies Professional Golf Association
1250 Shoreline Dr.
Sugarland, Texas 77479

RE: Request for LPGA Player Statistics (scores, money list, average putts per round and number of tournaments played covering current season to date and previous two seasons.)

I am currently completing a doctoral program in clinical psychology and am conducting a study of attitudes among athletes for my doctoral dissertation.

Over the past seven years I have had the pleasure of working with Margie (Davis) Henderson and the LPGA Fellowship. As a result I have spent a good deal of time travelling with the tour, corresponding with some of the players, and caddying on occasion at the Ping and Safeco Classic.

Few studies have been conducted in Sport Psychology using professional athletes. Many of the players have agreed to participate in my study by filling out a Sports Study Questionnaire. In order to complete the study, I am in need of the player statistics as outlined above. Please send the information to my home address: 353 N.E. 72nd, Portland, Oregon 97213.

Thank-you for your prompt attention to this request.

Sincerely,

Terry Lee Paddon, M.A., M.Ed.
Doctoral Candidate, Clinical Psychology

353 N.E. 72nd
Portland, Oregon 97213
Home: (503) 253-8475
Work: (503) 655-8401

APPENDIX B

Sports Study Questionnaire

SPORTS STUDY QUESTIONNAIRE

Instructions

You have been asked to participate in a study of attitudes among athletes. You responses will be kept strictly confidential. An identifying number has been placed on the questionnaire to insure that all your responses are kept together. Please do not place your name on any of the materials. A summary of the results will be made available when the investigation is completed. If you would like to receive a copy of the summary, fill out the attached sheet and return it with the questionnaire.

It should take 20-30 minutes to complete the questionnaire. Please answer each question, but do not spend too much time on any one item. Be sure to respond to every item.

Once you have completed the questionnaire, please return it to Cris Stevens of Alternative Ministries, or to the examiner in the enclosed addressed/stamped envelope. Please return the questionnaire by July 15th.

THANK-YOU FOR YOUR PARTICIPATION

ID # _____

SPORTS STUDY QUESTIONNAIRE

GENERAL:

1. AGE: _____

2. MARITAL STATUS: Indicate which of the following best describes your current status.

_____ Never married
_____ Married
_____ Divorced (# of times_____)
_____ Widowed
_____ Separated
_____ Living together

3. EDUCATION: Show highest level completed.

_____ Grades 1-12 (specify highest grade)
_____ College (specify number of years)
_____ Post College (specify number of years)

4. FAMILY: (Please circle the number which best describes you)

A. Importance of family:

Little importance 1 2 3 4 5 6 7 Extremely important

B. Frequency of contact:

Have limited/no contact 1 2 3 4 5 6 7 Maintain regular contact

5. RELIGION:

A. Importance of religion:

No importance/ have no religious faith. 1 2 3 4 5 6 7 Extremely important/ religious faith is the center of my life.

B. Frequency of attendance at religious services or groups:

_____ Not at all
_____ Less than once/year
_____ Once or twice/year
_____ 3-11 times/year
_____ 1-3 times/month
_____ Once a week
_____ More than once/week

GOLF:

6. AGE BEGAN PLAYING GOLF: _____

7. NUMBER OF YEARS ON LPGA TOUR: _____

See following page for additional items.

8. SPORTS PSYCHOLOGY:

A. I have sought the services of a Sports Psychologist (or other similar professional):

_____ Never
_____ Once
_____ 2-5 times
_____ 6-10 times
_____ 11-20 times
_____ 20+ times

B. I am currently seeing a Sports Psychologist (or other similiar professional): Yes _____ No _____

9. MENTAL STRATEGIES:

A. How important are mental strategies to your game?

Little importance 1 2 3 4 5 6 7 Extremely important

B. How often do you use the following mental strategies?

	Never						Always
Relaxation Techniques	1	2	3	4	5	6	7
Visual Imagery	1	2	3	4	5	6	7
Self-Hypnosis	1	2	3	4	5	6	7
Goal-setting	1	2	3	4	5	6	7
Neuro-Linguistic Programming	1	2	3	4	5	6	7
Self-talk	1	2	3	4	5	6	7
Other (Please specify:_____ _____	1	2	3	4	5	6	7
Other (Please specify:_____ _____	1	2	3	4	5	6	7

OTHER:

On items 10-38 simply circle A or B. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you are concerned. This is a measure of personal belief; there are no right or wrong answers. Remember, circle A or B; be sure to select the one which is most true for you.

10. A. Children get into trouble because their parents punish them too much.
B. The trouble with most children nowadays is that their parents are too easy with them.

11. A. Many of the unhappy things in people's lives are partly due to bad luck.
B. People's misfortunes result from the mistakes they make.

12. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
B. There will always be wars, no matter how hard people try to prevent them.

See following page for additional items.

13. A. In the long run people get the respect they deserve in this world.
    B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

14. A. The idea that teachers are unfair is nonsense.
    B. Most students don't realize the extent to which their grades are influenced by accidental happenings.

15. A. Without the right breaks one cannot be an effective leader.
    B. Capable people who fail to become leaders have not taken advantage of their opportunities.

16. A. No matter how hard you try some people just don't like you.
    B. People who can't get others to like them don't understand how to get along with others.

17. A. Heredity plays the major role in determining one's personality.
    B. It is one's experiences in life which determine what they are like.

18. A. I have often found that what is going to happen will happen.
    B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

19. A. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
    B. Many times exam questions tend to be so unrelated to course work that studying is really useless.

20. A. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
    B. Getting a good job depends mainly on being in the right place at the right time.

21. A. The average citizen can have an influence in government decisions.
    B. This world is run by the few people in power, and there is not much the little guy can do about it.

22. A. When I make plans, I am almost certain that I can make them work.
    B. It is not always wise to plan too far ahead, because many things turn out to be a matter of good or bad fortune anyhow.

23. A. There are certain people who are just no good.
    B. There is some good in everybody.

24. A. In my case getting what I want has little or nothing to do with luck.
    B. Many times we might just as well decide what to do by flipping a coin.

See following page for additional items.

25. A. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
    B. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

26. A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
    B. By taking an active part in political and social affairs the people can control world affairs.

27. A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
    B. There is really no such thing as luck.

28. A. One should always be willing to admit mistakes.
    B. It is usually best to cover up one's mistakes.

29. A. It is hard to know whether or not a person really likes you.
    B. How many friends you have depends upon how nice a person you are.

30. A. In the long run the bad things that happen to us are balanced by the good ones.
    B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

31. A. With enough effort we can wipe out political corruption.
    B. It is difficult for people to have much control over the things politicians do in office.

32. A. Sometimes I can't understand how teachers arrive at the grades they give.
    B. There is a direct connecton between how hard I study and the grades I get.

33. A. A good leader expects people to decide for themselves what they should do.
    B. A good leader makes it clear to everybody what their jobs are.

34. A. Many times I feel that I have little influence over the things that happen to me.
    B. It is impossible for me to believe that chance or luck plays an important role in my life.

35. A. People are lonely because they don't try to be friendly.
    B. There's not much use in trying too hard to please people, if they like you, they like you.

36. A. There is too much emphasis on athletics in high school.
    B. Team sports are an excellent way to build character.

37. A. What happens to me is my own doing.
    B. Sometimes I feel that I don't have enough control over the direction my life is taking.

See following page for additional items.

38. A. Most of the time I can't understand why politicians behave the way they do.
    B. In the long run people are responsible for bad government.

Please answer items 39-52 by circling the number which indicates the DEGREE to which the statement is not true at all or completely true for you.

Not at all true	0 points
A little true	1 point
Quite true	2 points
Completely true	3 points

39.	Most of life is wasted in meaningless activity.	0	1	2	3
40.	I find it difficult to imagine enthusiasm concerning work.	0	1	2	3
41.	It doesn't matter if people work hard at their jobs; only a few bosses profit.	0	1	2	3
42.	Ordinary work is too boring to be worth doing.	0	1	2	3
43.	The beliefs in individuality are only justifiable to impress others.	0	1	2	3
44.	Unfortunately, people don't seem to know that they are only creatures after all.	0	1	2	3
45.	The young owe the old complete economic security.	0	1	2	3
46.	A retired person should be free from all taxes.	0	1	2	3
47.	New laws should not be passed if they damage one's income.	0	1	2	3
48.	There are no conditions which justify endangering the health, food, and shelter of one's family or of one's self.	0	1	2	3
49.	Pensions large enough to provide for dignified living are the right of all when age or illness prevents one from working.	0	1	2	3
50.	Those who work for a living are manipulated by the bosses.	0	1	2	3
51.	Thinking of yourself as a free person leads to great frustration and difficulty.	0	1	2	3
52.	Often I do not really know my own mind.	0	1	2	3

Thank-you for your time and assistance!

APPENDIX C

Instructions Letter to Cris Stevens

June 28, 1986

Dear Cris,

THANK-YOU so much for aiding in the collection of my data for my dissertation. Your willingness to help saves both time and money!

Enclosed are 75 numbered packets and a list to record the name of the player given each packet. This will serve as a check for you in collecting the questionnaires once they hace been distributed. Of course, the best alternative would be for a player to take 20-30 minutes to fill the questionnaire out and return it to you immediately. Two other alternatives are to return it to you by July 15th, or mail it to me in the enclosed self-addressed/stamped envelope by July 15th.

Your instructions to the players should state that the questionnaire is for a study of attitudes among athletes. There are 52 questions and filling out the questionnaire should take about 20-30 minutes. Instructions for the questionnaire are on the outside of the packet.

I have included 75 packets. Although I have put down a deadline of **July 15th**, questionnaires returned by **July 31st** will be used. The earlier date is to encourage a speedy return.

Again, **thank-you** for your time and willingness to assist me in this project. Call me if you have any questions.

Sincerely,

Terry Lee Paddon
353 N.E. 72nd
Portland, Oregon 97213
(503) 253-8475

APPENDIX D

Player Sign-up Sheet

SPORTS STUDY QUESTIONNAIRE

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APPENDIX E

Follow-Up Letter

July 29, 1986

Dear Player,

Thank-you for your willingness to participate in the **SPORTS STUDY QUESTIONNAIRE** distributed recently by Cris Stevens.

Although the 15th of July has come and gone, please take 20-30 minutes to complete the questionnaire and return it to me in the envelope provided. Your speedy response is needed to complete the study.

Thank-you again! **HAVE A GREAT TOURNAMENT THIS WEEK.** And I look forward to you being here for the Portland Ping.

Sincerely,

Terry Lee Paddon
353 N.E. 72nd
Portland, Oregon 97213
(503) 253-8475

APPENDIX F

Raw Data Table

RAW DATA

Key of Raw Data By Columns

1 = ID Subject
2 = AGE Age Now
3 = MAR Marital Status
4 = EDU Education
5 = FAMI Importance of Family
6 = FAMF Frequency of Family Contact
7 = RELI Importance of Religion
8 = RELF Frequency of Attendance
9 = AGEBEG Age Began Playing Golf
10 = NOYRS Number Years on LPGA Tour
11 = SSP Number of Times Seen a Sports Psychologist
12 = SPNOW Seeing Sports Psychologist Now
13 = MSIM Importance of Mental Strategies
14 = RELAX Use of Relaxation Techiniques
15 = VISUAL Use of Visual Imagery
16 = HYPN Use of Self-Hypnosis
17 = GOAL Use of Goal-Setting
18 = NEURO Use of Neuro-Linguistic Programming
19 = SELFT Use of Self-Talk
20 = OTHR1 Other Mental Strategies One
21 = OTHR2 Other Mental Strategies Two
22 = I10 I-E Scale
23 = I11 I-E Scale
24 = I12 I-E Scale
25 = I13 I-E Scale
25 = I14 I-E Scale
26 = I15 I-E Scale
27 = I16 I-E Scale
28 = I17 I-E Scale
29 = I18 I-E Scale
30 = I19 I-E Scale
31 = I20 I-E Scale
32 = I21 I-E Scale
33 = I22 I-E Scale
34 = I23 I-E Scale
35 = I24 I-E Scale
36 = I25 I-E Scale
37 = I26 I-E Scale
38 = I27 I-E Scale
39 = I28 I-E Scale
40 = I29 I-E Scale
41 = I30 I-E Scale
42 = I31 I-E Scale
43 = I32 I-E Scale
44 = I33 I-E Scale
45 = I34 I-E Scale
46 = I35 I-E Scale
47 = I36 I-E Scale
48 = I37 I-E Scale
49 = I38 I-E Scale
50 = H39 Hardiness
51 = H40 Hardiness
52 = H41 Hardiness
53 = H42 Hardiness
54 = H43 Hardiness
55 = H44 Hardiness
56 = H45 Hardiness
57 = H46 Hardiness
58 = H47 Hardiness
59 = H48 Hardiness
60 = H49 Hardiness
61 = H50 Hardiness
62 = H51 Hardiness
63 = H52 Hardiness
64 = T86 Tournaments Played - 1986
65 = E86 Earnings Through - 1986
66 = AE86 Average Earnings Per Event
67 = AS86 Average Score Per Round

Note: On items 14 - 63, 9 = missing data.

01,27,1,16,5,6,7,6,10,4,1,0,6,4,7,1,6,4,5,9,9,2,2,2,
02,25,1,16,6,7,7,6,8,2.5,1,0,4,2,3,1,3,4,4,6,9,2,2,2,
03,26,1,16,7,7,6,5,10,1,2,1,7,3,4,1,4,1,9,9,9,2,2,2,
04,23,1,16,6,6,7,6,11,1.5,1,0,7,6,7,1,5,1,7,9,9,2,2,2,
05,24,2,16,7,7,7,6,10,1,1,0,7,4,6,1,5,1,5,9,9,2,2,2,
06,28,2,16,7,6,6,6,14,6,3,0,7,4,7,2,5,9,6,9,9,2,2,2,
07,25,2,16,7,4,7,5,8,3,2,0,6,3,5,1,4,9,5,9,9,2,1,2,
08,31,1,16,5,5,7,6,10,10,3,1,6,5,6,2,5,1,6,9,9,2,2,2,
09,26,1,16.5,7,7,6,5,11,1,2,0,5,4,5,1,5,1,4,7,9,2,2,2,
10,27,1,15,7,7,7,5,11,4,2,0,7,1,7,1,7,1,9,9,9,2,1,2,
11,28,1,12.5,7,7,7,6,8,10,2,0,5,5,7,1,6,1,6,7,7,2,2,2,
12,28,1,16,7,6,5,6,12,6.5,3,0,5,6,5,2,3,5,6,6,9,2,1,2,
13,26,1,16,7,7,7,5,14,2,2,0,7,1,7,1,5,1,6,9,9,2,2,2,
14,25,1,17,7,7,4,3,12,3,1,0,6,4,5,1,6,9,6,9,9,2,1,2,
15,37,1,16,6,4,6,5,23,2,3,0,7,7,7,4,7,4,5,9,9,2,2,1,
16,26,2,16,7,4,6,4,14,4,5,1,7,5,5,2,6,1,6,9,9,2,1,1,
17,28,2,16,6,3,7,5,5,6,6,1,7,4,6,3,6,2,5,6,9,1,1,2,
18,26,1,17,7,7,5,5,12,4,5,1,5,4,4,4,5,5,5,9,9,2,2,2,
19,23,1,16,7,7,7,5,10,1,1,0,5,1,4,1,5,1,4,9,9,2,2,2,
20,26,1,16.5,7,7,7,5,13,4,3,1,6,4,7,1,6,1,7,9,9,2,2,2,
21,30,2,16,7,6,6,4,9,10,2,0,7,3,5,3,6,9,7,9,9,2,2,2,
22,30,1,16,7,7,5,3,9,7,3,1,7,7,7,4,7,4,7,9,9,2,2,2,
23,26,2,16,6,5,7,5,6,3,2,9,7,5,4,1,5,1,7,9,9,2,2,2,
24,32,1,16,7,7,6,3,5,4,6,1,7,4,6,1,4,1,7,9,9,2,1,2,
25,36,1,16,7,7,4,3,13,13,1,0,6,3,5,1,6,1,5,9,9,2,2,2,
26,30,1,16,7,6,7,4,13,8,1,0,7,5,7,1,4,1,6,9,9,2,1,2,
27,25,1,16,5,7,4,4,14,3,5,0,6,4,5,4,5,1,6,9,9,2,2,1,
28,26,2,16,7,7,7,6,8,1,1,0,2,1,1,1,7,1,2,9,9,2,2,2,
29,29,6,16,6,6,5,3,4.5,3,4,1,7,3,4,1,4,6,6,9,9,2,2,2,
30,30,1,16,7,7,6,5,6,5,6,1,7,7,7,1,5,1,7,9,9,2,2,2,
31,25,1,16,6,5,7,7,13,3,1,2,1,1,1,1,4,1,3,7,9,2,2,2,
32,43,1,18,7,7,7,4,17,13,6,1,7,3,6,1,3,1,3,7,9,2,2,2,
33,31,3,16,7,7,6,4,5,9,6,1,7,4,6,3,4,1,5,9,9,2,1,2,
34,25,1,15.5,7,7,5,3,12,2,1,0,1,1,1,1,1,1,9,9,9,2,1,2,
35,23,1,16,7,7,7,5,9,1,4,0,7,6,6,1,6,1,6,9,9,2,2,2,
36,26,2,16,7,7,5,4,15,3,1,0,4,2,3,1,2,1,1,9,9,1,2,2,
37,23,1,16,7,7,7,4,5,4,4,1,7,5,3,3,5,4,5,9,9,2,2,2,
38,22,1,16,7,7,4,3,11,1,2,1,6,4,4,1,3,1,7,9,9,1,2,1,
39,38,3,12,6,6,4,3,20,9,3,1,7,5,6,1,6,1,7,9,9,2,2,2,
40,25,2,17,7,7,6,4,9,1,1,0,6,4,6,1,6,1,6,9,9,2,2,2,
41,33,1,12,7,9,7,6,13,12,3,0,7,6,6,6,6,9,6,9,9,2,2,1,
42,26,2,14,6.5,6.5,6.5,3,15,2,1,0,6.5,4,5,1,6,5,6,9,9,2,2,2,
43,28,3,14,7,6,5,1,12,3,3,0,7,6,4,2,3,1,7,9,9,2,1,1,
44,25,1,16,7,7,6,4,15,2,4,1,7,7,7,4,7,2,6,9,9,2,2,2,
45,45,1,16,5,6,6,2,13,22,3,0,6,5,6,5,7,1,5,9,9,2,2,2,
46,32,2,15,7,7,7,2,5,8,6,1,7,7,7,7,7,1,7,5,9,1,2,1,
47,28,1,16,7,7,5,2,7,3.5,3,0,6,6,6,4,4,5,7,9,9,2,2,2,
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35,2,2,2,1,2,1,2,1,1,1,1,2,1,2,2,2,1,2,1,2,2,2,1,2,2,2,
36,2,1,2,1,2,1,1,1,1,1,1,2,2,1,1,2,1,2,2,1,1,1,2,1,
37,2,1,2,2,1,1,2,1,2,1,2,1,2,1,1,1,2,1,2,2,2,2,1,2,1,
38,1,1,2,2,1,2,1,1,1,1,2,1,2,2,1,1,2,1,2,2,2,1,2,2,1,
39,2,1,2,2,1,2,1,1,1,1,2,1,2,2,2,1,2,1,1,2,2,2,1,2,1,
40,2,2,2,1,2,1,1,1,2,1,2,1,2,1,1,1,2,1,2,2,2,2,2,2,1,
41,1,1,2,1,1,2,1,1,1,2,2,1,2,2,9,1,1,1,1,1,2,1,1,2,1,
42,1,1,1,2,2,1,1,9,2,1,2,2,2,1,1,1,9,2,2,2,2,9,1,2,9,
43,1,2,2,1,1,1,2,1,1,1,2,1,2,2,1,1,2,2,1,2,1,1,2,2,2,
44,1,1,9,1,2,9,1,1,1,1,2,1,2,2,1,1,2,9,1,2,2,9,1,2,1,
45,1,1,2,2,2,2,1,1,1,1,2,1,2,2,2,1,2,1,2,2,9,2,1,1,1,
46,1,2,2,1,2,1,1,1,1,1,2,1,2,2,1,1,2,1,1,2,2,9,1,2,1,
47,1,2,2,1,2,2,1,1,1,1,2,1,2,2,1,1,2,1,2,2,1,2,2,2,1,
48,2,9,2,1,2,2,9,1,1,1,1,1,2,1,9,1,2,1,9,2,2,2,1,2,1,

01,2,1,0,0,0,0,1,2,3,1,2,2,2,0,2,21,24979,1189,74.77.
02,2,1,1,0,0,0,0,1,1,1,3,2,1,0,1,19,42856,2256,74.18.
03,2,2,0,0,0,0,0,0,2,1,2,3,1,0,0,21,4241,202,76.71.
04,1,0,0,0,1,0,1,1,0,0,2,2,0,0,1,11,2622,238,76.41.
05,1,1,0,1,1,0,0,2,2,1,3,3,2,0,1,17,1246,73,76.92.
06,1,0,1,0,1,0,1,1,2,2,3,1,1,0,2,17,1478,87,77.57.
07,2,0,0,0,0,0,0,0,0,0,2,1,0,0,0,18,25296,1405,73.90.
08,2,0,0,0,1,0,0,1,0,0,2,2,0,0,0,18,56231,3124,73.42.
09,2,1,0,0,0,0,1,0,2,0,2,1,0,2,1,11,1386,126,77.17.
10,1,0,1,0,1,0,0,3,0,3,3,3,1,0,1,9,210,23,77.33.
11,2,0,0,0,0,0,0,3,2,1,3,2,1,0,0,13,10710,824,74.57.
12,2,1,1,1,1,1,1,1,0,0,1,1,1,1,1,19,11029,580,74.94.
13,1,1,0,0,0,0,0,0,1,1,0,1,1,1,0,1,17,4922,290,75.65.
14,1,0,0,1,0,0,2,3,3,1,3,2,0,0,0,19,36026,1896,73.35.
15,2,1,0,0,0,0,0,0,0,0,1,0,0,0,0,0,18,4850,269,76.16.
16,2,1,0,1,1,0,2,1,3,1,3,3,1,0,2,19,27462,1445,73.84.
17,2,0,0,0,1,0,0,1,1,2,3,1,1,0,0,18,143648,7980,72.34.
18,1,0,0,1,0,1,2,1,1,1,2,2,0,0,0,19,16024,843,74.44.
19,1,2,0,0,0,0,0,1,1,2,3,2,1,0,1,16,73652,4603,72.80.
20,1,0,0,1,1,1,0,2,0,1,3,2,0,0,2,18,4297,239,77.46.
21,2,1,0,0,1,0,2,2,1,0,1,2,1,1,0,15,5703,380,75.84.
22,2,0,1,0,1,0,1,1,0,1,3,2,1,1,1,9,2185,243,75.82.
23,2,0,0,0,1,0,1,1,0,1,2,1,1,1,0,16,9218,576,75.29.
24,1,1,0,1,0,0,2,2,0,0,0,2,0,0,1,12,1350,113,76.47.
25,1,0,0,1,1,0,2,1,2,0,3,2,2,0,0,20,30992,1550,73.68.
26,2,1,0,0,0,0,0,0,0,0,0,0,1,1,0,17,23776,1399,73.84.
27,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,17,32548,1915,73.68.
28,2,0,0,0,0,0,0,0,0,0,0,1,0,1,0,0,13,2805,216,76.48.
29,2,1,0,1,1,1,2,1,2,1,2,1,1,1,1,20,45278,2264,73.72.
30,1,0,0,0,0,0,1,3,3,0,3,3,1,0,0,20,62708,3135,73.06.
31,2,1,0,0,0,0,2,1,1,1,3,1,1,1,0,16,37594,2349,73.17.
32,2,2,0,0,0,0,2,1,3,3,0,2,1,0,1,22,42598,1936,73.77.
33,1,0,0,1,0,0,2,0,0,1,2,1,0,0,0,19,30490,1605,73.87.
34,2,0,0,1,1,0,0,0,1,1,3,3,1,0,0,19,55942,2944,73.54.
35,2,1,1,0,0,0,2,0,3,1,3,2,1,0,1,10,357,36,78.23.
36,9,0,1,0,0,0,0,2,2,2,3,3,0,0,1,17,237924,13996,72.12.
37,2,1,1,0,0,1,1,1,0,1,3,2,1,0,1,20,88098,4405,73.26.
38,2,1,0,0,1,0,0,2,2,1,3,2,2,1,1,20,23771,1189,74.59.
39,2,0,0,0,0,0,0,1,2,2,1,2,2,0,1,0,15,14473,965,74.71.
40,2,1,0,1,0,0,1,2,2,1,2,1,1,0,0,19,2861,151,76.53.
41,1,1,3,1,1,0,3,2,0,0,0,1,1,1,1,19,70278,3699,73.51.
42,1,1,0,0,0,0,1,1,1,1,0,9,2,0,0,0,20,17049,852,74.23.
43,2,0,0,0,0,0,0,2,1,1,1,3,3,1,1,1,18,4442,247,75.57.
44,2,0,0,0,0,0,1,2,1,1,2,9,0,0,0,0,15,7163,478,75.49.
45,2,3,0,0,1,0,1,0,1,0,2,2,1,0,0,21,126466,6022,72.72.
46,2,0,0,0,0,1,0,0,1,0,1,1,1,1,0,0,18,95356,5298,73.33.
47,2,1,0,0,0,1,1,1,1,0,2,2,1,1,0,16,13108,819,74.77.
48,2,0,0,1,0,0,9,2,1,0,1,2,2,0,1,20,61615,3081,73.22.

APPENDIX G

SUMMARY OF PEARSON CORRELATION COEFFICIENTS

	PERFOR	IE	EDU	MAR	AGE
PERFOR	1.0000 p=****	0.0300 p=0.420	-0.0403 p=0.393	0.0674 p=0.325	0.2003 p=0.086
IE		1.0000 p=****	0.2702 p=0.032	0.1600 p=0.139	-0.1273 p=0.194
EDUC			1.0000 p=****	-0.1743 p=0.118	-0.1278 p=0.193
MAR				1.0000 p=****	0.0424 p=0.387
AGE					1.0000 p=****

	AGEBEG	NOYRS	SSP	SPNOW	MSIM
PERFOR	-0.0592 p=0.345	0.3367 p=0.010	0.1282 p=0.193	0.0992 p=0.253	-0.2174 p=0.069
IE	-0.3338 p=0.010	-0.1062 p=0.236	0.2834 p=0.025	0.1663 p=0.132	0.1282 p=0.193
EDU	-0.1261 p=0.197	-0.2043 p=0.082	0.0844 p=0.284	0.1123 p=0.226	-0.0750 p=0.306
MAR	-0.2186 p=0.068	-0.0560 p=0.353	0.1513 p=0.152	0.1999 p=0.089	0.1797 p=0.111
AGE	0.3317 p=0.011	0.8227 p=0.000	0.3152 p=0.015	0.1359 p=0.181	0.2405 p=0.050
AGEBEG	1.0000 p=****	0.1035 p=0.242	-0.2192 p=0.067	-0.2367 p=0.055	-0.0373 p=0.401
NOYRS		1.0000 p=****	0.2443 p=0.047	0.0869 p=0.281	0.1842 p=0.105
SSP			1.0000 p=****	0.6904 p=0.000	0.4278 p=0.001
SPNOW				1.0000 p=****	0.3424 p=0.009
MSIM					1.0000 p=****

APPENDIX H

Response Letter From LPGA

July 18, 1986

Mr. Terry Lee Faddon, M.A., M.Ed.
Doctoral Candidate
Clinical Psychology
353 N.E. 72nd
Portland, OR 97213

Dear Mr. Faddon:

Enclosed as per your recent request are LPGA Player Statistics from 1984, 1985 and 1986 to date.

Concerning your request for average putts per round, the LPGA does not keep those statistics in house. In the past we had another firm give us those statistics up to 10 places. The firm represented the Gold Putter Award Playoff which we no longer have on Tour. Unfortunately, we are unable to get our hands on this information.

If we may be of further assistance, please let us know.

Regards,

Beth M. Burke
Publicity Secretary

/bmb

enclosures

APPENDIX I

Vita

VITA

TERRY LEE PADDON

353 N.E. 72nd Portland, OR 97213 (503) 253-8475

EDUCATION

1982-Present	Doctoral Candidate - Clinical Psychology Western Conservative Baptist Seminary
1982	M.A. - Clinical/Counseling Psychology Western Conservative Baptist Seminary
1973	M.Ed. - Counseling and Guidance Oregon State University
1971	B.S. - Physical Education Oregon State University

OCCUPATIONAL EXPERIENCE

1985-Present	CLACKAMAS COUNTY MENTAL HEALTH, Oregon City, OR **Alcohol Treatment Specialist** - individual and group therapy for voluntary and DUII clients.
1983-1984	CLACKAMAS COUNTY MENTAL HEALTH - Oregon City, OR **Phone Duty** - Phone intake interview, referral, crisis intervention and triage.
1980-1985	STUDENT MINISTRIES, INC., Milwaukie, OR **Ministry Representative** - Speaking, singing and informal counseling for the Christian Fellowship of the Ladies Professional Golf Association, in association with Alternative Ministries, Inc. of Renton, WA.
1980-1985	THE GOOD EARTH, Clackamas, OR **Waitress**
1980-1981	WARNER PACIFIC COLLEGE, Portland, OR Volleyball Coach - Varsity

Terry Lee Paddon

OCCUPATIONAL EXPERIENCE (continued)

1973-1980	CAMPUS CRUSADE FOR CHRIST, San Bernardino, California Campus Representative (1973-1977), National Women's Coordinator, Athletes in Action (1978-1980) - Planning, directing, budgeting, fund raising, counseling, small groups, public relations, singing, and personnel management and development.

INTERNSHIP EXPERIENCE

1984 - 1985	OREGON STATE HOSPITAL, Salem, OR Geropsychiatric Treatment Program Child and Adolescent Treatment Program MAPL - General Psychiatric Program
1984 (6 mos.)	CLACKAMAS COUNTY MENTAL HEALTH, Oregon City, OR Alcohol Treatment Program
1982-1984	WESTERN PSYCHOLOGICAL AND COUNSELING SERVICES, Portland, OR Adult, Marriage, and Adolescent Therapy

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PRACTICUM EXPERIENCE

1981-1982	WESTERN PSYCHOLOGICAL AND COUNSELING SERVICES, Portland, OR Adult, Marriage, and Adolescent Therapy
1973	OREGON STATE UNIVERSITY, Corvallis, OR Lebanon High School, Lebanon, OR
1972-1973	OREGON STATE UNIVERSITY, Corvallis, OR Department of Education

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PROFESSIONAL AFFILIATIONS

American Association for Counseling and Development (AACD)