

Understanding Attributional Motivations, Emotions  
and Sport Type in Male College Athletes

by

William Elliott Barton  
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C.

Advisory Committee:

Professor Stanley Bennett, Chairman/Advisor  
Professor Susan Holloway  
Professor Seppo Iso-Ahola  
Professor Charles Johnson  
Professor Carole Seefeldt

Maryland  
LD  
3231  
M70d  
Barton, W.E.  
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Name of Candidate: William Elliott Barton  
Doctor of Philosophy, 1990

Thesis and Abstract Approved:

  
Dr. Stanley Bennett  
Professor,  
Department of Human  
Development

Date Approved:

6/25/90

## Abstract

Title of Dissertation: Understanding Attributional Motivations, Emotions and Sport Type in Male College Athletes

William Elliott Barton, Doctor of Philosophy, 1990

Dissertation directed by: Stanley Bennett, Professor  
Department of Human Development

Sports and sport type were used as a vehicle for examining attributions for success/failure, pride and anxiety of 111 college-aged athletes. It was shown that both individual-team sport athletes and team sport athletes differ little in their emotional reactions and attributions to outcome.

Internal and external attributions were shown to be two separate factors. Experienced college-aged athletes exhibited both high internality and high externality for success and both low internality and low externality for failure.

As expected, level of pride was found to be greater for success than failure. Greater anxiety occurred after failure than success, but postcompetition anxiety reactions were shown to be attribution independent emotions.

Previous research on self-serving, self-enhancing and self-protecting biases was found to be inadequate in

explaining the intricacies and diversity of attributional responses present in this field study. It is suggested that differences in findings across studies regarding attributional biases may be based on the methodologies and instruments used, limitations on the number of attributions available to subjects, differences between subject populations tested, the way in which researchers conceive of attributional findings and finally the way in which attributions are defined. The findings lend support to the cognition or "information processing" theoretical viewpoint.

## Acknowledgment

I would like to thank my loving wife, Susan, for all of her patience, help and support in the completion of this degree. With the completion of this task it is my plan to spend more time with my wife and my daughter, Lorrin, both of whom I love very much. I would like to thank my parents, Frederick L. Barton and Dorothyanne Haigh and my other family members for their encouragement and support in this and all of my endeavors.

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I.

## Chapter 1

### Introduction

Sports are very much a part of everyday life. They are heavily focused on by television, radio, newspapers and other media. Millions of people participate in sports or have a vicarious association with sports on a daily or seasonal basis. In fact, they are one of the most prominent aspects of society for people in all walks of life. Sports participation often occurs over a lifetime.

Since sports have such a pervasive influence on people it is important to understand the psychological dynamics involved in participation. Sports have been shown to have strong effects on the way people think and feel about themselves. Without a thorough understanding of sport competition, the immediate and long term effects of participation may be overlooked. Research of this nature can also be of tremendous value to coaches in their direction of athletes toward attributions which will help them to better deal with their successes and failures and to help in their understanding of the emotions of athletes.

Aside from the importance of sport in and of itself, sports are also an excellent vehicle for examining and expanding a theoretical framework for motivational

influences relative to attributions and attributional relationships to emotion in other than an achievement or laboratory setting. Sports provide an intense emotional experience through success and failure outcomes. The well-developed literature on sports attribution and anxiety provide a basis for developing and understanding the conditions for arousal of motives to preserve self-worth. The literature also provides enough detail to outline an expanded view of the relationship between affect and attributions. While the model is too large to test in a single study, its well developed nature allows specific questions to be answered.

### 1.1 Statement of the Problem

This study proposes a specific theoretical relationship between emotions and attributions for success and failure outcomes and attempts to measure the likelihood of the sequential nature of this relationship. This study examines the attributions of athletes as whether these affect pride and anxiety. Using the distinction between team and personal outcomes, the study also examines proposed differences between individual-team and team

sport type participants in the way in which they deal with personal event outcomes.

## 1.2 The Nature of Sport Competition

Sport type has been divided into categories based on how a sport is played (Schurr, Ashley and Joy, 1977): "team" sports (e.g., basketball, ice hockey and volleyball) versus "individual/team" sports (e.g., swimming, tennis and wrestling). Attribution and anxiety research has virtually ignored the fact that various sports are played differently.

A few studies have suggested a relationship between sport type and shared responsibility (or team sport outcomes) and personal responsibility (or individual-team sport outcomes) (e.g., Dowd & Innes, 1981; Famaey-Lamon, Hebbelinck, & Cadron, 1979; Peterson, Weber, & Trousdale, 1967). There are only a few researchers who have examined the shared versus personal responsibility relationship (Simons and Martens, 1979; Griffin, 1972; Johnson, 1949). However, the differences between sport types regarding emotions in relationship to sport event outcome has been totally ignored.

Sport competition is an ability-moderated motivational system that is consistent with the self-worth view of motivation (Ames, 1984). Aspects of both the self-

esteem and the self-presentational constructs are contained in the self-worth position (Covington & Beery, 1976).

Although both personal perceived outcomes and team perceived outcomes have application in individual-team sports, they have only been examined together in the context of team sports. Confusion can arise for the researcher and the athlete when the difference between personal and team outcomes is not made explicit.

Differences exist between team and individual-team sport types which lead to divergence in the way in which they make attributions to personal outcomes and team outcomes. While team sport athletes have a single objective outcome, these athletes make both team and personal outcome attributions relative to an objective team outcome. On the other hand, individual-team sport athletes can make personal attributions for their individual event and team attributions for the team outcome. Team sport athletes have but one objective sport outcome, while individual-team sport athletes have two objective outcomes.

In a broader sense, sport competition research is complicated by the question of whether athletes are making personal-causal attributions or team-causal attributions (Bird & Brame, 1978; Forsyth & Schlenker, 1977; Gill, 1980; Iso-Ahola, 1977b; Scanlan & Passer, 1980a, 1980b; Schlenker & Miller, 1977a, 1977b). Asking the participant to distinguish between the two forms of attributions overcomes ambiguity both for the researcher and the athlete.

Research in sports psychology on the attributional biases of athletes is difficult and mixed. Part of the confusion revolves around the lack of a coherent set of definitions for attributional styles as well as a lack of understanding by the researcher and the athlete about the attributions being made (i.e., team versus personal attributions).

Mark, et al. (1984) suggest that an experience-ability factor is the basis for differences in attribution findings between studies on sport outcome. From their point of view, high and low experience-ability sport participants make self-enhancing (internal for success) but not self-protecting (internal for failure) attributions for outcomes, while medium experience-ability participants make self-serving (self-enhancing and self-protecting) attributions. While the present study focuses on high experience-ability college-aged athletes, the majority of sport research may have focused on medium experience-ability participants (since they are more accessible for study). Medium experience-ability subjects may be a plausible explanation for the prevalence of self-serving attributions in sports research. Thus, for the most part, since college athletes are high ability/experience we might expect the findings for them to suggest internal attributions for both success and failure (Rejeski & Brawley, 1983; Mark et al., 1984; Scanlan & Passer, 1980a, 1980b).

Self-enhancing but not self-protecting attributions would be especially likely for individual event outcomes in individual-team sports. Since there is no one else with whom to share a successful or unsuccessful personal outcome and it increases self-worth to do so, the athlete will attribute success or failure to the most self-enhancing source of outcome in an individual event (i.e., personally). Individual-team sport athletes are not constrained to share success with anyone because they are the sole contributors to that success and therefore they naturally attribute that success to themselves. On the other hand, these athletes can not easily attribute failure to anyone but themselves, since it is socially unacceptable and transparent to others to do so. Attributions to individual event outcomes are likely to be self-enhancing but not self-protecting. Attributing success or failure to the team for an individual event outcome would likely be rare since these athletes compete alone in their individual events.

### 1.3 Anxiety Patterns

"State anxiety" is crucial to deciphering the affective patterns between various sport types. It is commonly used to measure the level of "feelings of apprehension and tension" (Scanlan, 1978) which occur after an athletic event. State anxiety is a measure of competitive stress

which occurs when competition is perceived as personally threatening. Stress is thought to generate feelings of inadequacy which is thought to threaten self-esteem (Spielberger, 1971, Scanlan, 1977).

It is likely that all sport participants show an increase in state anxiety under failure and decrease under success, as this is a general finding of the nonsport (Gaudry & Poole, 1972; Hodges & Durham, 1972; Martens & Gill, 1976; Millimet & Gardener, 1972; Scanlan & Passer, 1978) and sport (Martens & Gill, 1976; Scanlan & Passer, 1978) literature. This indicates that it may be a generalizable and diffuse emotional response to success-failure outcome.

#### 1.4 Emotion and Attributions

The framework in which an attribution emotion process was first conceived was the Weiner and associates theoretical framework for the cognitive-emotional process (Weiner, Russell and Lerman, 1979; McAuley, Russell and Gross, 1983). While affective reactions such as pride and shame have been shown to be related to causal attributions (Weiner, Russell, & Lerman, 1978, 1979) the relationship between other affective reactions, such as anxiety, and causal attributions remains unclear. Since anxiety is a generalized, diffuse and intensely experienced positive or negative emotion, similar to happiness, McAuley et al.

(1983, cognitive view) would label anxiety reactions as outcome-dependent, attribution-independent emotion. However, from a motivation-emotion view all emotions are considered attribution dependent and are not attribution-causal. This study will test the motivation emotion viewpoint. From a motivation emotion view, it is important to show whether or not there is a causal relationship between internal and external attributions given for an outcome and postcompetition state anxiety reactions to determine whether anxiety reactions are attribution dependent emotions or attribution independent emotions.

The internal-external causal dimension has been found to be important for the affective reactions which reflect on self-esteem (Elig & Frieze, 1975; McAuley et al., 1983; Weiner, 1983; Weiner et al., 1978, 1979). For attribution dependent emotions, internal attributions stemming from success result in feelings of pride, while internal attributions in failure result in feelings of shame (McAuley et al., 1983; Weiner et al., 1979). If postcompetition anxiety can be shown to have a causal path which is based on attributions then it can be said to be an attribution dependent emotion. Therefore, internal attributions for personal failure outcomes for individual-team sport athletes, should result in very high anxiety. This is because internal attributions for failure enhance saliency (Duval & Hensley, 1976; Storms, 1973) and individual-team sport athletes must bear the blame for failure alone.

If postcompetitive anxiety is not causally related to attributions then there will be no difference between internal attributions and external attributions for failure. Rather, postcompetitive anxiety will increase for failure relative to a decrease for success. A causal path analysis should help define anxiety as an attribution dependent or independent emotion.

The competitive stress-anxiety literature indicates that the basis for apparent differences between team and individual-team sports and between winners and losers is social evaluation (Scanlan & Lewthwaite, 1984). However, it has not specifically indicated whether the social evaluation occurs before the postcompetitive anxiety reaction or not. The motivational theoretical perspective assumes that affective reactions are mediated by ability-effort attributions (Covington & Omelich, 1981). Thus, both pride and postcompetitive anxiety should be mediated by attributions to causality. Pride has been shown to be mediated by attributions, but not in the context of field studies of sport attributions. Postcompetitive anxiety's relationship to attributions are totally unclear from the literature.

This study will field test the motive-emotional theoretical perspective that attributions influence pride and test whether anxiety is influenced by attributions. That is, the study will determine whether anxiety fits an attribution dependent or attribution independent emotion model. According to competitive stress theory, if anxiety

is an attribution independent emotion it would show a direct causal path to outcome. It is not known whether it would necessarily have to show an attributional component.

The basic conception of anxiety, as it has been used in the sport anxiety literature (Martin et al., 1980) can not differentiate between perceived team outcome and perceived personal outcome derived anxiety in team sports. The reason for this is the simultaneous occurrence of the team and personal outcomes for team sports (i.e., the end of the game - which makes two separate anxiety measures impossible). In the interest of linking the self-esteem concepts in the sport attribution literature and the sport anxiety literature, this study will not significantly depart from the most commonly used anxiety measure in sport anxiety research. Otherwise, to try to separate team and personal perceived outcome anxiety could only be accomplished by trying to isolate team outcome anxiety and personal outcome anxiety for team sports.

Because anxiety is based on stress and stress is a generalized feeling of apprehension and tension and a diffuse activation and arousal of the autonomic nervous system, emphasizing differential anxiety between a team outcome and a personal outcome for team sports may be impossible and contrary to the nature of anxiety. That is, state anxiety may have an open, whole quality which loses some basic meaning if the individual must try to determine how much of the anxiety component goes to one aspect of an objective outcome versus another.

In the case of individual team sports, the immediate nature of state anxiety allows the measurement of postcompetitive anxiety for personal outcome at one time and postcompetitive anxiety for the team outcome at another time.

The difference in the nature of the conditions of measurement of anxiety across sport types and what the participant is basing the anxiety reaction on, makes direct cross sport type anxiety comparisons untenable and perhaps statistically meaningless. However, team and personal pride measurements will adequately measure the differences between sport types to answer the cross sport questions raised.

According to the motive-emotional theoretical perspective, internal attributions for failure should lead to lower feelings of pride for individual-team sport athletes than those of team sport athletes. Not self-protecting attributions for failure are more threatening to self-esteem than are self-protecting attributions. Self-enhancing attributions for success are more supportive of increased self-esteem than are external attributions. Thus, if anxiety is an attribution dependent emotion as is pride, not self-protecting attributions for failure should be associated with higher anxiety and lower pride reactions than self-protecting attributions. If anxiety is an attribution independent emotion, then anxiety will be equally high for failure regardless of the attributions. If anxiety is an attribution dependent emotion self-

enhancing attributions for success should be associated with lower anxiety levels and greater pride than external attributions. If postcompetitive anxiety is an attribution independent emotion, anxiety should be equally low for success outcomes regardless of the attributions made. The fact that individual-team sports accept blame and accolade alone and team sports share blame and accolade should accentuate any attribution dependent emotional relationships.

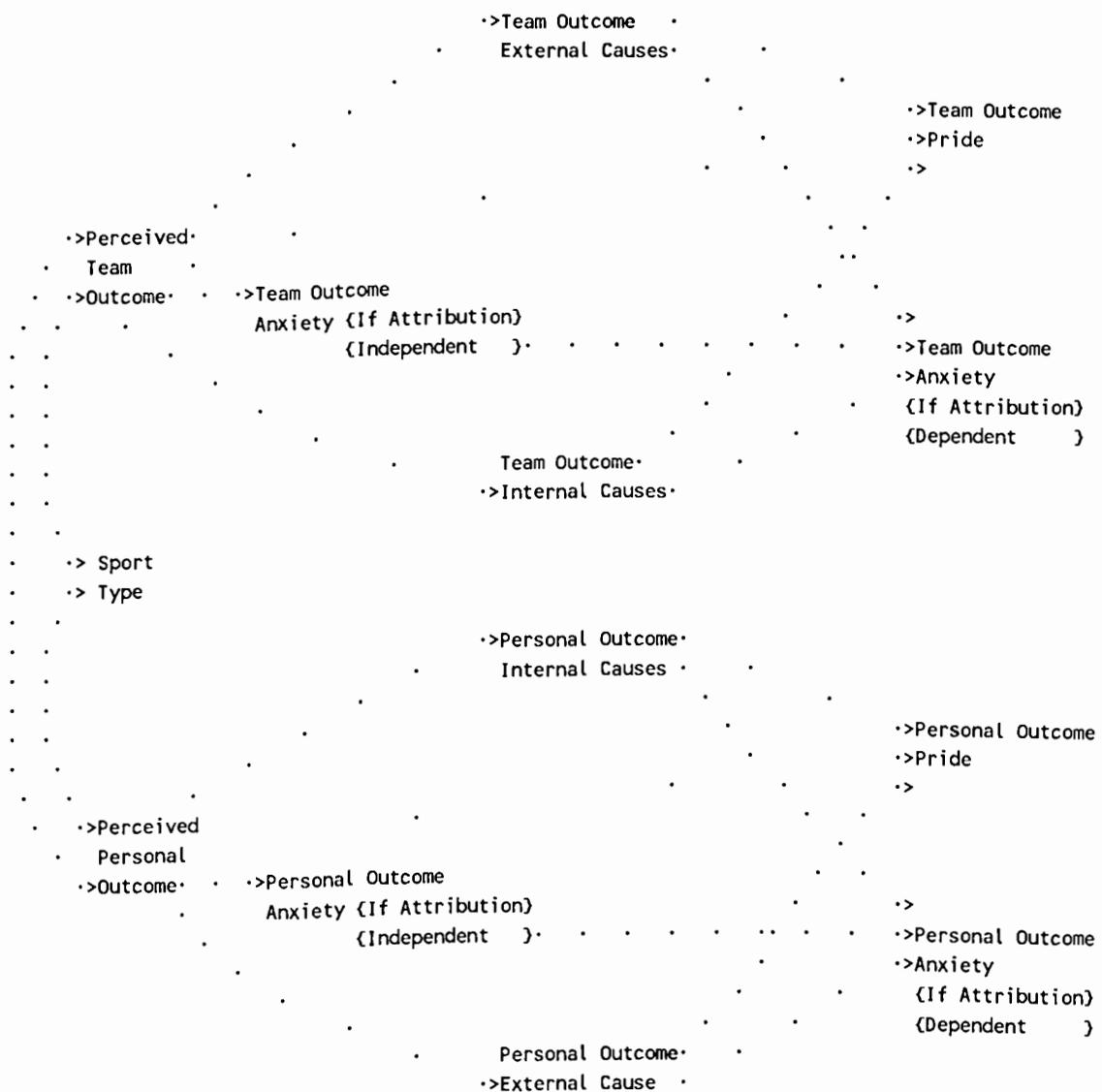
The causal path is presented as: perceived team outcome to team attribution to both postcompetition anxiety and team pride; perceived personal outcome to personal attribution to both personal pride and postcompetition anxiety for both team and individual-team sport types (see Table 1.1). The second causal path hypothesis to be tested will be for postcompetition anxiety as an attribution independent emotion with the causal path presented as: perceived team outcome to both postcompetition anxiety and team attribution, and team attribution to team pride; perceived personal outcome to both postcompetition anxiety and personal attribution, and personal attribution to personal pride for both team and individual-team sport types (See Table 1.2). Table 1.1 shows postcompetitive anxiety as an attribution dependent emotion and Table 1.2 shows postcompetitive anxiety as an attribution independent emotion. In Table 1.1 anxiety is sequenced after attributions; in Table 1.2 anxiety is not sequenced with attributions.

Path models which have the potential to examine these variables together are portrayed in Tables 1.1 & 1.2. Each model shows three independent exogenous variables and seven (individual-team) or eight (team) dependent endogenous variables. Sport type, an exogenous variable, is related to both of the other exogenous variables: team perceived outcome and personal perceived outcome. Sport type is related directly to all of the exogenous variables. Sport type is also indirectly related to team outcome pride and personal outcome pride. With the attribution dependent hypothesis (Table 1.1), sport type is also indirectly related to postcompetition anxiety. With the attribution independent hypothesis (Table 1.2) sport type is only directly related to postcompetition anxiety. Team perceived outcome is directly related to team-causal attributions, and directly and indirectly related to team pride. Personal perceived outcome is related directly or indirectly to postcompetition anxiety, depending on the primacy of hypothesis 1 or 2 and directly to personal-causal attributions, and directly and indirectly to personal outcome pride.

The path models have an obvious bi-polar component, since team perceived outcome is associated with team-causal attributions and team outcome pride, and personal perceived outcome is associated with personal-causal attributions and personal pride. It should also be pointed

out that bi-polar influences also occur for the anxiety variable for individual-team sports.

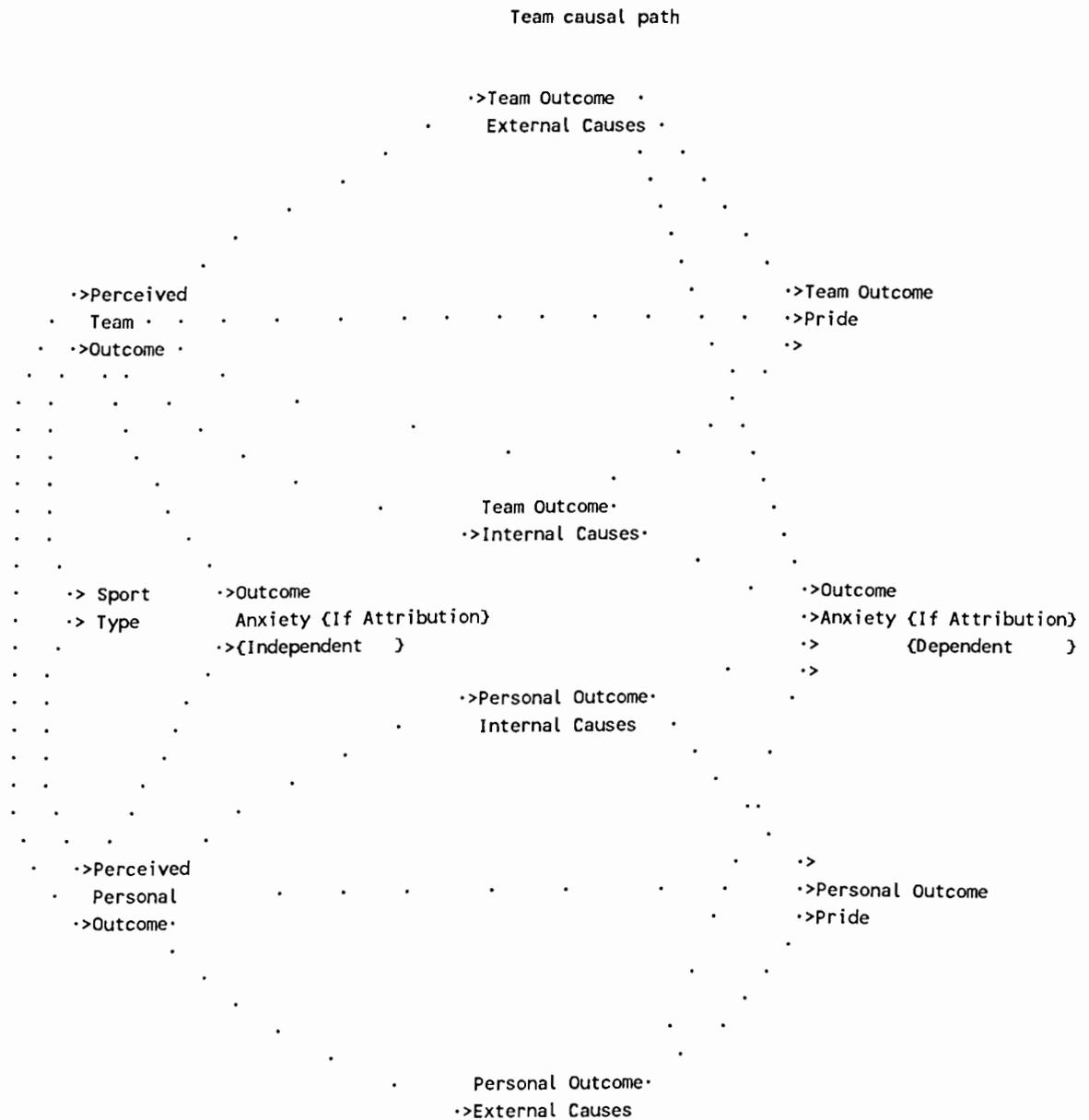
Table 1.1  
Causal Path for the Cognitive-Emotional Process  
Individual-team Sports



3 Independent  
Exogenous  
Variables

8 Dependent Endogenous Variables

Table 1.2  
Causal Path for the Cognitive-Emotional Process  
Team Sports



3 Independent  
Exogenous  
Variables

7 Dependent Endogenous Variables

### 1.5 Importance of the Study

This study utilizes both a nonacademic and field study setting. For the first time this study analyzes the self-esteem concepts used in the sport attribution literature with those used in the sport anxiety literature. Unlike most research this study examines subjects which are subjected to continual wins and loses over a long period of time, the effect of which can not be measured in laboratory settings.

The study shows that there is variation between sport types because of differences in how they are played. That is, it shows what is the relationship between the types of attributions to causality given, postcompetition anxiety level, and feelings of pride, and how they may vary systematically when comparing team and individual-team sport types.

A major contribution of this study is to describe and expand a substantial theoretical framework for motivation and emotional processes by the separation of internality from externality in the analysis and interpretation of attributions. While an integrative stance is taken, the results are distinguished as to their support of the either the information-processing or the motivational view.

Causal path analysis (Pedhazur, 1982; Wolfle, 1980) is used to attempt to analyze the causal relationships in the cognitive-emotional process (Weiner, Russell, Lerman, 1979). The validity of the purported sequential nature of

the relationship between outcomes, attributions and emotions is analyzed. The study examines differences between individual-team and team sport type athletes in the way in which they perceive their feelings toward their personal outcomes. The variables included in the study are perceived team outcome, perceived personal outcome, postcompetitive anxiety, team outcome attributions, personal outcome attributions, team outcome pride, and personal outcome pride.

## 1.6 Hypotheses

### For perceived failure outcomes.

1. Comparison of Internal and External Factors with Personal Pride.
  - a. Personal-causal attributions to high internal factors for perceived personal failure outcomes result in lower personal pride than those to low internal factors.
  - b. Personal-causal attributions to high external factors for perceived personal failure outcomes result in greater personal pride than those to low external factors.
2. Comparison of Internal and External Factors with Anxiety.

The next two hypotheses assume that anxiety is shown to be an attribution dependent emotion:

  - a. Personal-causal attributions to high internal factors for perceived personal failure outcomes result in higher postcompetitive anxiety than those to low internal factors.
  - b. Personal-causal attributions to high external factors for perceived personal failure outcomes result in lower postcompetitive anxiety than those to low external factors.
3. Personal Failure Comparison Across Sport Types for Personal Pride and Attributions.

- a. For perceived personal failure outcomes, individual-team sport athletes show lower personal pride and higher internality than team sport athletes.
  - b. For perceived personal failure outcomes, individual-team sport athletes show lower personal pride and lower externality than team sport athletes.
4. Comparison Within Sports Between Team and Personal Pride.

For both perceived personal and team failure outcomes, personal pride is lower than team pride.

5. Comparison Across Sport Types for Perceived Personal Failure Outcomes and for Degree of Attributions.

Individual-team sport athletes show higher internality and less externality than team sport athletes.

For perceived success outcomes.

1. Comparison of Internal and External Factors with Personal Pride.
  - a. Personal-causal attributions to high internal factors for perceived personal success outcomes result in greater personal pride than those to low internal factors.

- b. Personal-causal attributions to high external factors for perceived personal success outcomes result in lower personal pride than those to low external factors.
2. Comparison of Internal and External Factors with Anxiety.

The next two hypotheses assume that anxiety is shown to be an attribution dependent emotion:

  - a. Personal-causal attributions to high internal factors for perceived personal success outcomes result in lower postcompetitive anxiety than those to low internal factors.
  - b. Personal-causal attributions to high external factors for perceived personal success outcomes result in higher postcompetitive anxiety than those to low external factors.
3. Personal Success comparison Across Sport Types for Personal Pride and Attributions.
  - a. For perceived personal success outcomes, individual-team sport athletes show higher personal pride and higher internality than team sport athletes.
  - b. For perceived personal success outcomes, individual-team sport athletes show higher personal pride and lower externality than team sport athletes.
4. Comparison Within Sports Between Team and Personal Pride.

For both perceived personal and team success outcomes, personal pride is higher than team pride.

5. Comparison Across Sport Types for Perceived Personal Success Outcomes and for Degree of Externality.

Individual-team sport athletes show lower externality and higher internality than team sport athletes.

## 1.7 Definition of Terms

Individual-team sport - a type of sport which consists of an individual performing without the need of teammates for successful performance and whose individual event outcomes contribute toward a team score.

Not self-protecting attribution - a personal causal attribution for an outcome in which the athlete gives internal attributions for failure.

Personal-causal external attribution - an attribution which does not reflect one person's ability or effort, including but not limited to luck, team, coach, judges, equipment.

Personal-causal internal attribution - an attribution which reflects on the person's ability or effort.

Postcompetitive state anxiety - the measured level of anxiety exhibited by an athlete following a personal or team outcome.

Self-enhancing attribution - a personal causal attribution for an outcome where the athlete gives internal attributions for success.

Self-protecting attribution - a personal causal attribution for an outcome where the athlete gives external attributions for failure.

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Self-serving attributions - personal causal attributional pattern for outcomes where the athletes give internal attributions for success and external attributions for failure.

State anxiety - the level of measured anxiety at the moment of instrument administration which varies from testing to testing dependent upon situational factors.

Success-failure - the subjective perception of a win or loss outcome.

Team-causal external attribution - any attribution which does not reflect on the team's ability or effort, including but not limited to luck, teammates, coach, judges, equipment, other teams.

Team-causal internal attribution - any attribution which reflects on the team's ability or effort.

Team depreciating attribution - a team causal attribution for an outcome where the athlete gives an internal (toward the team) attribution for failure.

Team-enhancing attribution - a team causal attribution for an outcome where the athlete gives an internal (toward the team) attribution for success.

Team-protecting attribution - a team causal attribution for an outcome where the athlete gives an external (away from the team) attribution for failure.

Team-serving attribution - a team-causal attributional pattern where the athletes are both team-protecting and team-enhancing.

Team sport - a type of sport where the athletes work together as a unit toward the unified goal of a team score.

Win-loss - the concrete, objective outcomes for a sporting event.

## II.

## Chapter 2

## Review of the Literature

## 2.1 Theoretical Framework

Attribution theory deals with the processes that underlie attempts to explain and draw inferences from behavior (Heider, 1958; Kelly, 1967; Weiner, 1980a, 1980b; Weiner, 1982). Two theoretical perspectives attempt to explain attributional phenomena - cognitive and motivational. The cognitive perspective maintains an 'intuitive-scientist' metaphor where the individual merely collects and analyzes information (i.e., information-processing). On the other hand, the motivational perspective hypothesizes a range of motivational constructs which have influence on attribution; the particular constructs used depend "...more on one's theoretical and aesthetic preferences than on experimental data (Tetlock & Levi, 1982, p. 82)". It should be noted that these theoretical perspectives are based on research in school achievement settings and that these perspectives must be altered somewhat to fit the situational context that exists in sports. The cognition and motivational perspectives do have similarities. For instance, motivational and cogni-

tive perspectives hold that effort and ability are key mediators of affect (Covington & Omelich, 1984). While this study is not formulated to test specifically between the cognitive and motivational perspectives, the basic framework is motivational.

The most important situational constructs for the present theory is a combination of the self-esteem and self-presentation positions (as described by Tetlock & Levi, 1982). The self-esteem position maintains that personal worth and effectiveness must be protected, confirmed and enhanced (Smith, M.B., 1968; Snyder, Stephan & Rosenfield, 1976). The self-presentation position suggests that people communicate attributions designed to consciously or unconsciously gain public approval and avoid embarrassment (Bradley, 1978,; Tetlock, 1980). Thus, it is not just one's ego which must be satisfied but also the way one is viewed by others. Which construct is used by the individual depends on the situational contexts present. The self-worth position contains aspects of both the self-esteem and the self-presentational constructs. Since it is well developed we will use it here as a stepping stone for developing and examining a sport attribution-emotion theoretical framework.

The self-worth construct proposes that athletes attempt to maintain a high ability self-concept (Beery, 1975; Covington & Beery, 1976). The construct basis is a tendency to equate ability with human value (Gardner, 1961), and self-aggrandizement as a human motivating fac-

tor (Epstein, 1973). Individuals act to maximize success and avoid failure to sustain a positive self-perception of high ability. Failure is to be avoided because it leads to lowered ability estimates by others (Kelly, 1967, 1971, 1973; Kun & Weiner, 1973; Covington & Omelich, 1979a).

Personal attributions of ability covary with outcome in competitively structured situations. Competitive situations also involve ego-involving or self-worth motivational biases. Since competition exaggerates the value of winning, with success, self-worth is strengthened through self-perceptions of ability. Failure leads to defensive strategies to protect self-worth; but when impossible, the ego-involvement of the situation produces low ability attributions (Ames, 1984).

Competition is an ability-moderated motivational system that is consistent with the self-worth view of motivation (Ames, 1984). In competitive settings, ability becomes more highly valued (Covington & Omelich, 1981c), as perceived dependency of success on ability increases (Ames, & Felker, 1977). An attribution-dependent affect associated with success in competition is pride, while shame is an affect associated with failure (Ames, 1984).

A combination of expended effort and failure is threatening because it leads to causal attributions to low ability (Heider, 1958; Kun & Weiner, 1973). The self-worth perspective suggests that the degree of effort expended is a salient cue for judging ability level. Trying and failing is evidence of low ability, failing without

significant effort results in ability estimates remaining largely unaffected (Covington & Omelich, 1979a). Unlike academic settings where studying (effort) is largely unseen or unnoticed, sports participants and coaches see teammates practice (effort) on a daily basis, therefore ability and effort cues are pervasive.

There are many more attributions from which to choose in sports than in achievement settings. Attributional choices could have meaning for personal effort and ability self-perceptions even though they are not expressed per se [e.g., teammates didn't try hard enough (i.e. 'it wasn't my ability or effort which caused us to fail'), or the other team was better than us (i.e., 'but that doesn't mean that either the team or I have a good deal of ability anyway'; 'we wouldn't be here in the first place if we weren't good, since we had to compete for a sport on the team'; or 'we're good because we have beaten just about every other team we have played')].

Self-serving tactics allow the individual to avoid the implications of failure. One tactic occurs when striving for unattainable goals since so few are expected to succeed that failure does not imply low ability (Beery, 1975; Covington & Omelich, 1979a). In sports, failure is virtually inevitable from time to time (e.g., the win-loss records of even the best baseball teams).

Sport settings are different from school achievement settings. Failure accepting over a long term would have resulted in dropping out of the sport. Of course, this is

not possible in a school setting where attendance is required. Further, effort is continually being judged by fans, coaches and teammates. Most highly experienced athletes have chosen to participate on a game by game basis. This strategy is not possible in the school setting since school may not be a desired participatory function. In general, a strong sense of trait self-esteem is probable in experienced athletes through general attributions to ability or effort. However, immediate outcomes still result in great variance for state reactions to outcome.

The self-worth construct represents a failure-avoiding dynamic. Because of uncertainty over one's ability, the individual can evade the incompetency-linked aspects of failure by not trying or by having excuses for why trying was futile (Covington & Omelich, 1979b). The cognition perspective elicits a failure-accepting mode. By accepting one's low-ability status, trying hard becomes a major source for offsetting negative affect (Covington & Omelich, 1984). In sports, failures from an objective viewpoint are extremely common. Athletes who have participated for a long time commonly give internal attributions for failure. In this instance, athletes probably are trying but not accepting ability deficits since everyone loses some of the time. In fact, Covington and Omelich (1981; 1984) state that only many failures over the long-term lead to 'trait' self-esteem deficits. It should be noted that the present study is only attempting to examine short-term, immediate self-esteem effects.

When failure is unavoidable, one can often deflect low ability inferences by ascribing failure to external factors (Heider, 1958; Kelly, 1967, 1971, 1973). This implies that negative affect is mediated largely by attributions to inability, which depends on the conditions of failure (Covington & Omelich, 1980). However, attributions to both low ability and high effort have been shown to be related to levels of pride (Covington & Omelich, 1979b). Effort reduces pride because high effort, in failure, is evidence of low ability (Kun & Weiner, 1973), and inferences to inability evoke lower levels of pride (Covington & Omelich, 1979a).

Both effort and ability attributions enhance positive affect (pride) in success (Brown & Weiner, 1984; Weiner & Brown, 1984). It appears that effort and ability may not be entirely compatible in their reinforcing value in failure. As the level of effort needed to achieve success increases attributions to ability decrease as a source of pride. However, acknowledging effort often appears not to be too high a price to pay for success, since estimates of absolute levels of ability tend to remain high, irrespective of effort expenditure (Kun & Weiner, 1973; Covington & Omelich, 1979a).

Subjects' experiences of pride are described as an extremely pleasant state involving very little effort (Smith, C.A. & Ellsworth, 1985). Kelley's (1971) notion of "multiple necessary schema", asserts that to succeed at other than a simple task requires a combination of high

effort and high ability; neither ability nor effort alone is sufficient. Thus, from a self-esteem perspective, successful effort should represent little personal threat, and ability assumptions should continue to mediate pride. Another source of pride is effort expenditure itself. Success attained through effort results in considerable reward and internalized self-praise (Weiner, 1972, 1974; Weiner, Heckhausen, Meyer & Cook, 1972; Weiner & Kukla, 1970; Covington & Omelich, 1979c). Effort enhances pride in success, and successful performances augment ability (Covington & Beery, 1976; Miller, 1976; Covington, 1984).

Failure despite great effort maximizes negative reactions (Covington & Omelich, 1979a, 1979b). It has been shown that greater shame is experienced under a high effort and failure condition when introspecting affective reactions to hypothetical failures than any other condition (Covington & Omelich, 1979b). Negative reactions are sharply reduced when excuses were present to explain why high effort did not pay off. Thus, the threatening effort-ability linkage can be mitigated either by a low effort profile or by excuses that externalize the causes of failure (Covington & Omelich, 1981).

In shame, unlike the other negative emotions, a sense of self-blame is central (Smith, C.A. & Ellsworth, 1985). Failure despite great effort is compelling evidence of low ability (Kelly, 1971, 1973; Kun & Weiner, 1973) and therefore maximizes shame. This and related predictions were verified in a study by Covington and Omelich (1979a). Low

effort and failure were found to lead to the least shame, while high effort and failure elicited the most shame in students (Covington & Omelich 1979c). Competitive environments tend to accentuate prideful reactions to success and shameful reactions to failure (Ames & Felker, 1979). In effect this means that competitive settings breed an atmosphere of exaggeration in which success and failure become psychologically remote from one another (Covington, 1984).

Atkinson (1964) postulated that the incentive values of success and failure are linearly related to the probabilities of success at a difficult task. More specifically, one experiences the greatest pride when succeeding at a difficult task and the least pride following failure at an easy task (Weiner, 1977). Importance or salience of a task appears to influence the magnitude of affective experience, whereas attributions function primarily as vectors influencing the direction of affect (Weiner & Brown, 1984). The self-worth construct assumes that both affective and cognitive reactions to failure are mediated by ability attributions, which depend on amount of effort expended (Covington & Omelich, 1981). Findings for experienced athletes when compared to findings for school achievement settings (the basis for the self-worth perspective) showed external attributions occur less frequently for athletes. This difference has been attributed to the competitive norms in sports. This will become evident as the findings for sports are presented.

The cognitive and motivational perspectives give what appear to be varying views to the same area of concern: outcome, attributions, and affect. The one thing that is agreed upon is that pride is an affective reaction to success and shame to failure. The cognitive perspective utilizes information-processing theory and the motivational perspective invokes self-worth theory to explain attributions and affect.

## 2.2 The Scope of Attributional Dimensions

Many questions have been raised about the attributional dimensions of causality for success and failure. Weiner, et al. (1978) have indicated that the four traditional attributional dimensions explained by the internal-external and stable-unstable dimensions have been focused upon as perceived causes of success and failure while other causal interpretations have been relatively neglected. Ability, effort, mood, personality and knowledge are internal attributions, and task difficulty, other people's help or hindrance and luck are external causes (Elig & Frieze, 1975).

Causal attributions in achievement settings have been expanded to include classifications along five dimensions: internal-external, stable-unstable, intentional-unintentional (Elig & Frieze, 1975), controllable-uncontrollable (Rosenbaum, 1972; Russell, 1982; Weiner,

1979), and global-specific (Abramson, Seligman & Teasdale, 1978). Gill et al. (1982) state that most success-failure attribution research on sports are limited to four attributions: ability, effort, task difficulty and luck (Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum, 1971). Frieze, McHugh and Duquin (1976) state that ability, training and the coach are relatively stable causes, while trying hard at a particular game, mood and luck are changeable over time. They also say that intentional attributions depend on the degree of perceived control. Ability and mood are relatively uncontrollable, while effort is controllable.

Roberts and Pascuzzi (1979) provide support for the applicability of the Weiner (1974) achievement model to sport when the individual elements are carefully diagnosed and placed within their appropriate dimensional category. On the other hand, Frieze (1976) examined Weiner's model (1972) for inclusiveness as a list of explanatory attributions. She used an open-ended format in a laboratory context. While she did find that her results validated the types of causal attributions proposed by Weiner, she also pointed out that luck was very infrequently cited and that mood and other people were suggested frequently enough as causal agents to suggest their inclusion in the attributional model.

A reformulation of the original Weiner work by Abramson et al. (1978) added another potential refinement. The refinement involves a dimension of global-specific attri-

butions. A global attribution is predicted to occur in new situations where a person believes that an outcome will once again be independent of responses. A specific attribution implies helplessness only in the original situation. An example of this would be 'We'll never win because all teams in the league are better than us' or 'This team is more difficult than the rest of the league', respectively.

There are five potential attributional dimensions that can categorize attributions to causality. As outlined above, since pride and shame is primarily impacted by the locus of control attributional dimension, only locus of control will continue to be focused upon in this review. Locus of control is the operative attributional dimension in regards to the team versus individual-team sport type dichotomy as well as affective states. For examples for the potential attributions to causality that could be placed in the locus of control attributional dimension category see Table 2.1. It is important to realize that sport attributions may deviate from those in standard achievement settings. Frieze et al. (1976) state that sports have a greater number of environmental factors which can affect the variety of attributions than non-sport achievement settings. They cite examples such as standards of officiating, caliber of the coach, weather conditions, injuries, amount of teamwork, and so on, each of which have potential effects on

outcome. Therefore, the greater the number of environmental events, the greater the number of potential causes or attributions to the outcome.

The attributional elements of ability, effort, task difficulty, and luck may take on different shades of meaning in sport situations as compared to achievement settings. For instance, ability can be unstable since athletes may become better conditioned as the season progresses (Rejeski & Lowe, 1980). In nonsport environments, task difficulty typically refers to the complexity or age appropriateness of the task for the subject (Frieze et al., 1976). As is often assumed, task difficulty may not be stable and external since in many sports the difficulty or ease of the task depends upon the competence or performance of the opponent. Opponent competence is an external property, but it is also unstable because the opponent changes from game to game. Failure to recognize the dimensional relevance of elements already may have confused the attributional literature in sports and led to inappropriate conclusions.

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Table 2.1  
Personal and Team Attributions  
to the Locus of Causality Dimension

Locus of Causality - where is it located (person or environment)?

Internal Team - effort, ability

Personal - ability, effort, mood

External Team - ability, effort, other people (e.g. officials), task difficulty, luck

Personal - other people, luck, task difficulty

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### 2.3 Problems in Sports Research

*Individual-team Sport and Team Sport Types.* Schurr et al. (1977) believe that the lack of a system for classifying sport type has limited researchers' ability to examine and generate hypotheses. Of concern in previous research is the uneven application of sport classifications, the lack of theory testing and the inability of researchers to consistently confirm hypotheses across different types of sports. Further, a broad understanding of sports dynamics is hindered by results which cannot be uniformly integrated because they have not been generated under a common classification system (Landers, 1983).

Table 2.2 represents a system for classifying sport activities. The two sport types of importance to this study are team and individual-team sports (see Table 2.2). Schurr et al. (1977) and Simons and Martens (1979) use the popular classification terms 'team' versus 'individual' sports in differentiating between team sports (i.e., basketball, ice hockey and volleyball) and individual-team sports (i.e., swimming, tennis and wrestling). Carron and Chelladuria (1981a) used interdependence and independence to describe team and individual-team sport tasks.

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Table 2.2  
Sport Type Classifications

Team	Individual-team
Basketball	Wrestling
Soccer	Handball
Football	Judo
Volleyball	Boxing
Baseball	Karate
Rowing Team	Tennis
	Bowling
	Gymnastics
	Golf
	Swimming
	Cross-country
	Track

Schurr, K.T., Ashley, M.A., and Joy, K.L, 1977.

Individual-team sports involve one-to-one competition, though individual scores can be combined to produce a team score. Also, individuals may engage in both individual and team activities ( e.g., in tennis participants might compete individually or in doubles competition).

Generally, individual-team sports are organized so that a group of individual competitors generate team scores from the cumulation of points which are assigned from their individual wins. However, it is conceivable to play individual-team sports without an organized team structure (e.g., professional tennis).

In some individual-team sports the athletes participate concurrently or coact (Bird, 1977). That is, more than one wrestling match is being conducted at one time or several swimmers from each team go off the block at the same time. In sports such as swimming, there will be some intrateam competition between the athletes who start a race together. Intrateam competition should not be confused with interdependent team sport competition (i.e., basketball) where athletes rely on one another to participate. Individual-team sport athletes who engage in intrateam competition do not cooperate as a unit to gain a team win; rather, they compete solitarily to beat opponent and teammate and contribute as individuals to team success. In sports such as wrestling, where there are separate multiple matches being performed concurrently intrateam competition does not exist. Finally, some events which are generally recognized as belonging to the category of individual-team sports are in reality team sports. Events in this category would include relays in swimming and track (For a detailed categorization of sport, see Cratty, 1981).

*Sport Type Outcomes.* There are many definitions of success in the literature, but contest outcome (winning versus losing) is most commonly used (Roberts & Duda, 1984; Spink & Roberts, 1980). However, this approach has caused some confusion. It is not known, for example, whether the

athletes believe they are a success or failure even though they won or lost the contest, respectively (Roberts & Duda, 1984; Spink & Roberts, 1980). In addition, confusion is compounded when sport type is not accounted for in determining the effects of event outcome. That is, how an athlete perceives a personal event outcome or a team outcome must depend on whether the athlete both perceives a success or failure and what type of sport participation is taking place. Much of the confusion can be avoided if the researcher focuses on perceived success or failure rather than actual win or loss (McAuley, 1985, Roberts & Duda, 1984; Spink & Roberts, 1980) for both the personal outcomes and the team outcomes simultaneously (Bird & Brame, 1978).

One of these outcome issues is further clarified by Spink and Roberts (1980) and Roberts and Duda (1984) who suggest that unless the researcher is aware of whether the athlete refers to an objective (actual) or subjective (perceived) outcome (Maehr & Nicholls, 1980), problems of interpretation can result. In fact, athletes and observers can actually make attributions to both types of outcomes (i.e., the widely recognized win-loss of an organized contest versus the success or failure in achieving more private goals of the individual or team) (Schurr et al., 1977). Whether people perceive success or failure hinges on how well they believe they performed, not necessarily whether they won or lost. For example, Carron (1982) notes that a golfer who breaks 100 for the first

time will feel successful even though placing last in the tournament. Using perceived outcome as the measurement for success-failure alleviates the difficulties associated with using objective outcomes in analysis.

Consider that in a sport such as soccer a good portion of the individual's success or failure is based on the team sport perception of how well the team performed. Much of the participant's ego involvement is derived from the perception of the team's game outcome, not necessarily how well the individual did personally. On the other hand, much of a tennis player's ego involvement comes from his or her perception of the personal game outcome, not necessarily the team's outcome.

In team sports, a star athlete may attribute a team loss to the failure of the team to perform well, thus avoiding the negative aspects of attributing the team outcome to the self. This athlete could achieve this cognitive distinction by attributing greater personal ability to self than team ability to the team. It is obvious, then, that an athlete on a team sport team such as soccer may have two separate attributions, one to the team and how well they played and another to the quality of one's own performance. However, a team sport participant can not wholly separate the perception of the personal outcome from the perception of the team outcome as the final personal outcome is not assured until the team outcome is certain.

Of course, in a slightly different manner, the idea that there are two different potential attributions would also seem to hold true in an individual-team sport. The individual-team sport athlete would likely have a personal attribution for the perception of the personal event outcome and a team attribution for the perception of the team contest outcome. However, the individual-team sport participant's attributions for the perception of the personal event outcome and team outcome are not necessarily tied to one another attributionally, and in addition it is very unlikely they are tied to one another in terms of outcome. This must be stated with some reservation because there are some situations where the team outcome may depend on the outcome of a single personal event, tying the two together in time and intensity.

In fact, Bird and Brame (1978) have shown that looking at team and personal attributions relative to outcome does have importance for understanding the psychological dynamics of team sport participants such as basketball players. In individual-team sports such as tennis it is apparent that team and personal attributions are also important. A specific example where individual-team participants' team and personal attributions might be very different would be a situation where a large portion of the team achieved individual match wins but the team as a whole still lost the tournament.

In team sports, who is at fault in a failure or responsible for success is more difficult to discern because the group determines the win-loss outcome for both the individuals and the team. In individual-team sports the outcome of an event can be assessed more objectively because it is the sole responsibility of the individual alone. The confusion involved in assigning responsibility in team sports is made apparent in a study by Kaiser and Barnett (1979). It was found that observers of a team sport appeared to link the objective win-loss to recent player action, while action of a similar nature occurring earlier in the game merited less ascribed responsibility.

Thus, it would appear that a number of factors are important in developing good research in sport attribution studies. The individual's perception of outcome is very important in dissecting the effect of actual outcome on an individual in a sports activity. The likelihood that an athlete is participating in an individual-team or a team sport can affect the perception of an outcome because of the amount of ego that is involved in one sport type versus the other. Individual-team sport athletes having more at stake because of the singular nature of their sport. Finally, whether the athlete is distinguishing between personal outcomes and team outcomes when responding to questionnaires.

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*Self-esteem in Sports.* DeMan and Blais (1982a, 1982b) conducted a very important study which reflects on the present investigation. They were interested in whether people self-select themselves for specific sports based on level of self-esteem. Of course, this is both theoretically and practically important to understanding, applying and conducting sports research. Unfortunately, the authors did not actually assess this disposition. Instead, they tested a correlation between level of self-esteem and the sport in which the subject participates. Whether the subject actually chose the sport because of their personality can not be discerned with this methodology. Regardless, the findings still have value for this study by interpreting the results relative to the methodology used.

Deman and Blais (1982a, 1982b) showed that participation in individual-team sports is associated with a tendency toward higher levels of self-esteem than participation in team sports. Deman and Blais (1982a, 1982b) note that their research shows a tendency for participants in individual-team sports to show higher levels of self-esteem competitors in team sports. In addition, DeMan and Blais (1982a, 1982b) also found that participation in team sports was related to lower levels of social alienation than individual-team sports.

Robinson and Carron (1982) concluded that dropouts felt weaker involvement, experienced less enjoyment, felt a higher degree of team closeness but personal exclusion, believed winning was more important, felt less personal

success reflecting a belief in unrewarding future participation and had attributional patterns to causality which reflected low sport competence relative to those who participated regularly. Since competitors in individual-team sports tend to have higher self-esteem than those in team sports (Deman & Blais, 1982a, 1982b) and assuming equal distribution of self-esteem levels on entry into sports, those with low self-esteem in individual-team sports may have been dropping out due to many failures (Robinson & Carron, 1982). Thus, the esteem devastating nature of individual-team sports is apparent since this action tends to leave those with higher self-esteem.

Self-blame would be insidious in the context of team versus individual-team sports. Participants in individual-team sports do not have any one with whom to share failure. Those who continually fail must shoulder blame alone. On the other hand, those in team sports would have someone with whom to share the blame for defeat. Sharing the blame would lessen the burden on those with lower self-esteem (who are more likely to be on the bench in team sports) allowing them to continue without suffering severely for a loss.

From a theoretical perspective, the fact that personal outcomes for the individual-team sport athlete is based solely on the individual's performance, and for the team sport athlete is based both on the individual's and the team's performance, there must necessarily be a difference in the ability of these two athletes to

shoulder and share blame and acclaim. It is emphasized in the rest of the paper that this perspective has implications for the self-esteem of these athletes and that theory on attributions to causality and emotion are important in understanding both the divergent and the similar reactions to outcome that these athletes perceive.

#### 2.4 Attributions to Causality in Sports

*Sport and Nonsport Attribution Research.* Attributional research findings are not dispositions, but are situational tendencies to ascribe responsibility for outcomes. This may be one reason for some equivocality across studies. In laboratory studies, people manifest self-enhancing biases (i.e., high ability and effort). They also manifest self-protecting biases by ascribing failure to external or environmental factors (i.e., other people and luck; Scanlan, 1978). Thus, self-serving biases (i.e., self-enhancing and self-protecting) are evidenced when credit is taken for positive outcomes and responsibility is denied for negative outcomes.

Bradley (1978) notes that the tendency to make internal self-attributions for positive personal behaviors and external self-attributions for negative personal behaviors has been repeatedly demonstrated (e.g., Arkin, Gleason & Johnson, 1976; Fitch, 1970; Luginbuhl, Crowe & Kahan, 1975; Miller, 1976; Sicolý & Ross, 1977; Snyder, et al.,

1976; Streufert & Streufert, 1979; Weiner & Kukla, 1970; Weiner, et al., 1971; Wolosin, Sherman & Till, 1973; Wortman, Costano & Witt, 1973). The operation of self-esteem motives, or self-serving biases, has generally been used to explain these results. Specifically, individuals see themselves as more "personally" responsible (i.e., ability, effort) for successes than failures and view less threatening "external" factors (i.e., environmental circumstances, bad luck, the difficulty of the task) as more responsible for failures. Investigators tend to be guided by the concept of ego defense in explaining this phenomenon. Presumably, taking credit for successes and denying responsibility for failures, can bolster and protect ego or self-esteem.

*Self-Enhancing but Not self-protecting Attributions in Sports.* The conventional research paradigm for sport attribution studies involves assessment of postcompetition win-loss attributions. Assessment is most commonly accomplished by asking respondents to rate the importance of ability, effort, luck and task difficulty (Gill et al., 1982). A number of sport studies have found that the causal attributions of winners are more internal than losers (Bird & Brame, 19878; Forsyth & Schlenker, 1977; Iso-Ahola, 1975, 1977; Lau & Russell, 1980; Roberts, 1975, 1978). Similar to most nonsport studies, this trend is generally interpreted as a self-enhancing bias. However,

it is suggested that even losers can give predominantly internal attributions (Lau & Russell, 1980; Scanlan & Passer, 1980a, 1980b). Other investigators report that losers are actually giving more internal attributions than winners (not self-protecting; Gill, 1980; Scanlan, 1977).

Studies by Harvey, Arkin, Gleason and Johnston (1974), Federof and Harvey (1976), and Arkin et al. (1976) all provide results which suggest that people make self-serving attributions under certain conditions (Bradley, 1978). These investigations indicate individuals, generally, accept responsibility for positive outcomes and deny responsibility for negative outcomes.

Bradley (1978) qualified the conditions under which people make particular attributions by noting that "individuals tend to accept responsibility for positive outcomes and, when possible, to deny responsibility for negative outcomes" (pp. 59-60). She stressed that situational variables may limit opportunities to make typical self-serving responses (internal attributions for success and external attributions for failure) and self-enhancing (internal attributions for success) or even produce a lack of decrement in self-protecting and self-enhancing (external attributions for success) attributional reactions. Examination of most psychological research on self-serving biases shows them occurring in laboratory settings which fail to capture characteristics and constraints of more realistic environments (Bradley, 1978). Poteet and Wein-

berg (1980) also emphasize the need for research performed in naturalistic field settings to maximize competitive evaluation potential.

Both laboratory and field research conducted in sport-related contexts show varying degrees of support for the self-serving bias. Both laboratory and sport-related field research often follow a self-enhancing bias pattern for success (Scanlan & Passer, 1980a, 1980b). Sport research sometimes has a different bias for failure outcomes than laboratory research. Laboratory research tends to show external attributions for a loss (self-protecting), while research on sports has shown a degree of internal attributions for a loss (not self-protecting).

While laboratory studies tend to show self-serving attributional styles, Scanlan (1977) has observed individuals attributing failure to the self more than success. Scanlan (Scanlan, 1977; Scanlan & Passer, 1978) interprets such attributions as examples of 'good winner' and 'good loser' norms. What sets the Scanlan (1977) study apart from other laboratory research is that what the opponents said about outcome was apparent to the other. This is similar to the Greenberg, Pyszcybski & Solomon (1982) study where publicity was the factor which necessitated giving self-enhancing but not self-protecting attributions. Thus, good winners do not downgrade their opponents and good losers accept the loss without blaming external factors.

Recent research may have shed some light on the conditions under which sport participants are likely to give attributions which are self-serving versus self-enhancing but not self-protecting. Mark et al. (1984) state that variations in attributions among sport competition studies may be based upon an experience-ability function exhibiting an inverted U-shape.

That is, researchers may be finding differences across studies based on the amount of experience-ability the participants selected for study have in their particular sport. According to the hypothesis, participants with little experience should show self-enhancing but not self-protecting attributional responses. This is because they need not protect self-esteem since they have just begun learning the sport and can not and do not expect to do well. Participants with a moderate amount of experience-ability have some expectation for success, a degree of ego-involvement, and a degree of competence which lend themselves to self-serving attributions. Finally, sport participants with high experience-ability, commitment to the sport, and belief in their competence makes self-protecting attributions improbable. Although they indicate that caution should be used as this hypothesis has not been tested, it does a good job of explaining some inconsistencies across studies.

Based on the above research, one would expect research performed on experienced college or high school athletes to follow a self-enhancing but not self-

protecting attributional bias. Such a bias is accentuated by testing only those in the contest who actually participate, since they have more ability than non-participating team members.

Most investigations which examine self-causal attributions in sport related contexts (Iso-Ahola, 1977c; Roberts, 1975, 1978) focus on attributions to team outcome, rather than personal performances within the team. However, when studying both team and personal attributions, Iso-Ahola (1975) found that team and personal attributions were used in similar ways. Players on team sport teams relied on team outcome to assess personal ability and effort, rather than basing self attributions on estimates of actual personal performance. These findings follow attributional patterns which suggest either a high or low ability-experience function.

Iso-Ahola (1977b) examined the effects of team outcome on self-attributions of Little League baseball players. These findings indicate that team outcome did not affect player judgments of personal ability or effort. However, members of failing teams viewed team ability and effort as less important than did those of successful teams. Thus, players blamed the team and not themselves for failure. These attributions are self-protecting as well as team-depreciating.

Roberts (1975) found players on Little League baseball teams use self-serving biases. Players from unsuccessful teams attributed a loss more to team effort than

players from successful teams; players from successful teams perceived their team to have higher ability than did players from unsuccessful teams. As might be expected of Little League baseball players, these results follow attributional patterns suggesting a medium level experience-ability function. Rejeski and Brawley (1983) state that results of sports attribution research generally support a self-enhancing bias when subjects are successful. Some support is found for self-protecting bias in cases of failure.

In this section, three forms of attributional biases are discussed. The self-serving bias occurs when a person gives internal attributions for success and external attributions for failure. The self-enhancing bias occurs when a person gives internal attributions for success. The self-protecting bias occurs when a person gives external attributions for failure.

*Team versus Self Attributions in Sport Research.* Sport-related research may cause ambiguity in attribution literature because researchers tend to ignore the distinctions between two types of judgments: team versus personal causal attributions (Iso-Ahola, 1977b). Scanlan and Passer (1980a, 1980b) asked soccer players to attribute performance to the four factors derived from Weiner's attributional model of achievement (Weiner et al., 1971), ability, effort, opponent difficulty and luck. The focus of

the team-causal and personal-causal attribution questions represents a significant departure from previous research, which typically had asked the individual to assess the attributions of the entire group or team outcome. Scanlan and Passer (1980a, 1980b) believed that this was an unrealistic demand in soccer where the large number of players on a team and the interactive nature of the sport reduce the impact of any single player on outcome. Thus, personal-attributions in the study focused on personal performance and the team-attributions on the team as a group.

In individual-team sports, personal-attributions allow the athlete to make attributions to perceived personal outcome without confounding perceived team outcome. Without such distinction, researchers would not know whether they are examining findings which represent the athlete's perception of personal success or failure or team success or failure.

Scanlan and Passer (1980a, 1980b) found that when team and personal causal attributions are used, little support is found for the self-protective bias. It appears that the strongest opportunity for self-protection, the attribution of causality to external factors, was not used by losing players (Scanlan & Passer, 1980a, 1980b).

Scanlan and Passer's assertion that the externality bias was not supported depends on whether or not they categorize attributions to the team as external. From a team perspective, attributions to one's own team might be con-

sidered internal because the person is a member of the team. However, from a personal perspective it may seem more appropriate to consider the team an external factor since the person is sharing blame by making attributions to the team and teammates as an organized unit.

Scanlan and Passer (1980a, 1980b) found that winners rated personal ability far below their team. It was suggested that winners abide by the often observed competition norm that it is more appropriate to aggrandize the team than oneself. The need for self-protection would not be very strong if the blame were shared equally by all the team members. Tying and losing teams indicated that personal ability was comparable to winners, and failure was attributed to inferior team ability (Scanlan & Passer, 1980b). This supports the shared blame theory of team sports. If losing players attribute a loss to the team, little or no decrement in personal self-esteem is necessary. That is, players share blame by attributing the loss to the team.

Under certain circumstances esteem needs may be best served by accepting responsibility for negative outcomes (either not self-protecting or reverse egocentric bias depending on whether self-enhancing or not). That is, with reverse egocentric (e.g., team serving) bias the individual might not want to accept undue credit for good outcomes and deny credit for bad outcomes if performance is the major object of the study. The embarrassment resulting from public invalidation would likely threaten the

individual's positive public image and result in disapproval from others. Viewed in this way both self-enhancing but not self-protecting as well as not self-enhancing and not self-protecting (reverse egocentric) attributions could be construed as attempts to gain approval from others and/or avoid public embarrassment.

*Team-serving Attributions.* Gill (1980) noted that previous research suggested egocentric attributions occur within groups and that there are clues as to why such patterns are not observed. Schlenker et al.'s (1976) findings provide the strongest support for egocentric attributions within groups and suggest factors which may reduce egocentric tendencies. They speculate that face to face contact and communication in groups minimizes egocentric differences in accepting credit and blame.

Taylor and Doria (1981) found team-serving effects when success and failure were evaluated relative to the perceptions of the individual. These effects held even when players made a choice between team-serving and self-serving interests. Thus, a normative group reaction appeared to be affecting the attributions made by team members. Although it may be argued that responses made on questionnaires reflect social desirability, the fact that group members commonly strive to respond favorably (for both success and failure) suggests a desire to maintain a

positive group image. One might suggest that such a response illustrates a group effect of public ascription (Bradley, 1978).

Gill (1980) found that team members exhibited an egocentric team causal pattern by attributing responsibility for success to their team and for failure to the opposing team. However, personal causal attributions to self and team demonstrated a reverse-egocentric pattern contrary to previous findings and predictions. Team members consistently gave credit for success to teammates, but assigned responsibility for failure to themselves. Gill (1980) and other attribution researchers have only dealt with team sports.

Bird and Brame (1978) found that losing basketball team members perceived more personal effort than team effort. Although players from winning teams stated they had personally tried hard, they also perceived the average member of their team to have tried as hard. This is similar to Roberts' (1975) findings for baseball players.

In contrast, however, Bird and Brame's (1978) findings indicate winners crediting the team with more ability than they possessed personally. Thus, although the effort-attribution data suggests successful team members take personal as well as team credit for their successes, Bird and Brame's (1978) ability-attribution findings argue for a team-serving bias. Bird, Foster and Maruyama (1980) explain the discrepancy in the findings between Bird and Brame (1978) and Roberts (1975) by noting the difference

in structural demands of basketball, where all players must interact constantly and effectively. The structure of baseball, on the other hand, does not require nearly as much intermember interaction. The structural demand of high player interaction in basketball serve to affect individual player perceptions of both self and team.

*Team Cohesion and Attributions.* Although team cohesion will not be measured in this study it is described here because it is part of the greater theoretical framework proposed. Team cohesiveness is defined as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982, p. 126). Cohesion has been examined as both a dependent and an independent variable in sports research (Carron, 1980; Gill, 1977).

Carron (1982) notes that because of 'contractual responsibility' and 'organizational orientation' all organized sports have some degree of cohesion. Contractual responsibility is exemplified by the fact that you cannot leave the group and continue to compete. An example of organizational orientation is the difference between amateur and professional sports. Professional sports are organized by paid written contractual agreements (i.e., quitting means losing one's source of income), while ama-

teur sports are organized merely through the desires of the participants to compete under the rules of an established sport.

Carron and Chelladurai (1981a) proposed that specific sports be differentiated based on the degree of group performance interdependence. The nature of the task influences the perception of cohesiveness on sports teams (Carron & Chelladuria, 1981b). Team sports need a large amount of team cohesiveness to perform effectively while individual-team sports do not.

Other cohesiveness factors include coach-team relationships (Carron & Chelladurai, 1981a) and length of time the team is together (Carron, 1980; Zander, 1976). Team and individual-team sport team cohesiveness varies across a wide and overlapping range dependent on which cohesiveness factors are important for the particular sport or team.

Schlenker and Miller (1977a, 1977b) suggested two ways in which cohesion affects attributions for self and team. First, a high degree of cohesion, regardless of team outcome, generates an investment in the team similar to self-serving egocentrism and results in attributions which are similar to self-attributions. Instead of blaming the team for failure, as would be done by players low-cohesion teams, players on highly cohesive teams make team attributions corresponding closely to attributions for self. However, Schlenker and Miller argue that high cohesion could also affect self-attributions making them more

objective and therefore less egocentric or self-serving. High cohesion team members give credit for a success to teammates as well as themselves. This appears consistent with the tenant that team sports are more likely to share success than individual-team sports.

Bird et al. (1980) explored the effects of cohesion on attributions by individuals and their basketball teams. It is important to note that these basketball teams were likely to be of high ability-experience since they were of college age. Their results indicated that high cohesion teams demonstrated more similar self and team attributions than low cohesion teams. In addition, highly cohesive, but failing teams tended to be team-serving (e.g., blaming factors external to the team for the loss). Since these participants are of high ability-experience, they believe in their competence and do not want to blame the team for failure. Therefore, external factors other than the team may be the only alternative. By contrast, members of low cohesion groups perceived the team as responsible for failure but denied any personal blame. Successful high cohesion players made more internal personal causal attributions for their personal successes than did successful low cohesion subjects. Failing high cohesion player made fewer internal personal attributions than did successful low cohesion players. The attribution for failing in low cohesion teams reflects team-depreciating and self-enhancing biases.

Both low cohesion and high cohesion athletes appear to show a degree of self-protection: while high cohesion athletes give more self-protecting attributions than low cohesion athletes, low cohesion athletes tend to place the responsibility for failure directly onto the team as a whole. High cohesion athletes are more personally self-enhancing than low cohesion athletes. However, again both low and high cohesion athletes tend to show a degree of self-enhancing attributions. Overall, then, team sport athletes tend to make personal causal attributions which are both self-protecting and self-enhancing.

It is confusing and perhaps inaccurate to use the term "internal" for failing low cohesion teams who place blame on the team. With reference to the team, an internal attribution is based on placing responsibility for an outcome on the team, and therefore technically it is internal to the team, with reference to the individual. An external team attribution is also one in which responsibility for an outcome is placed with the team. Even though the individual is a member of the team and takes some responsibility for the team's outcome, that responsibility is shared and therefore should be considered an external attribution relative to a team causal attribution. Thus, in fact, both a team-causal attribution to the team and a personal-causal attribution to the team may be considered external attributions from the point of view of the individual.

It should be noted that personal attributions to success and failure for high cohesion teams show a self-serving bias, while team attributions to success and failure for high cohesion teams show a team-serving bias. Thus, when given the ability to differentiate between team and personal attributions high cohesion team members may aggrandize and protect the self similar to low cohesion teams for both personal and team attributions, while ensuring continued team cohesion by a team-serving bias for team attributions. However, Bird et al. (1980) state that there were analytical difficulties with their study which make strong conclusions suspect. Thus, the relationships between team and personal attributions and team-serving and self-serving biases remain inconclusive. See Table 2.3 for a synopsis of the various kinds of attributions athletes may make for success and failure outcomes for both personal and team event outcomes.

Table 2.3  
Summary of Attributions to Causality

		Moderate Ability-Experience	High Ability-Experience			
			Team Sport		Individual-team Sport	
			Low Cohesion	High Cohesion	Low Cohesion	High Cohesion
Personal Outcome Causal	Success	Internal Self-enhancing (SE)	Internal (SE)	Internal (SE) or to the Team (TE)	Internal (SE)	Internal (SE)
	Failure	External Self-protecting (SP)	Internal (NP) or to the Team (TD)	Internal Not self-Protecting and Team (NP) Protecting or External (SP)	Internal (NP)	Internal (NP)
Team Outcome Causal	Success	Internal Self-enhancing (SE)	To the Team (TE)	To the Team (TE)	To the Team (TE)	To the Team (TE)
	Failure	To the Team Team-depreciating (TD)	To the Team (TD)	Internal (NP)/(TP)	To the Team (TD)	Internal (TE/NP)

*Sport Type and its Relationship to Attributions and Self-Blame.* Team and individual-team sport types exhibit differences which have consequences for affect and attributions under success and failure outcomes. Carron states that "If we wish to understand behavior in sport and physical activity, it is necessary to know a great deal about the nature of sport groups" (1980, p. 175). Famaey-Lamon et al. (1979) in a study which differentiated between team sports and individual sports (e.g., team sports and individual-team sports, respectively) found that

...the aspect of co-operation on which the distinction between team-sports and individual sports is based, is a factor of collaboration and aiming at achieving a common goal. This underlying driving power in the team-sport is more likely to generate friendly relations than the practice of an individual sport, more [centered] on self-interest.

(p. 47)

Others have classified sport teams as either coacting (Bird, 1977) or interacting (Fiedler, 1967). Members of coacting (individual-team sport) teams or 'unitary' groups (Steiner, 1966) ordinarily perform independently during goal pursuit. Interacting sport teams coordinate player efforts during goal pursuit in order to achieve success. Goal attainment is achieved through the mutually dependent

interactions of all players (Fiedler, 1967). In team sports, the action of one member may either facilitate or hinder the goal-seeking efforts of all.

Martin (1976) reports that competitors in individual-team sports suffer a loss more keenly than competitors in team sports. He suggests that this may be due to the fact there is no one else with whom to share blame for the defeat. This concept suggests that some sports are more threatening to self-esteem than other sports. Thus, a personal loss in an individual-team sport such as tennis, swimming or wrestling may be more threatening than a team loss in a team sport such as volleyball, rugby or ice hockey.

Success-failure outcomes in sport situations prompt a wider range of causal explanations than success-failure in other achievement settings (Gill, et al., 1982). A team sport athlete's team and personal attributions for perceived outcome are generally tied to the team's outcome, whereas the individual-team sport athlete's team and personal attributions are generally tied to attributions to the team for team outcomes and to the self for personal outcomes.

Team sport competition elicits even more diverse attributions than individual-team sport competition. The team sport athlete's teammates are a significant factor in team perceived outcome. Therefore, teammates can affect the athlete's team attributions to perceived outcome.

On the other hand, based on social norms an individual-team sport athlete may reasonably under most circumstances only attribute perceived personal outcomes to self and perceived team outcomes to the team. An athlete's relationship to teammates and the interplay of personal and team goals and responsibilities may prompt complex attributional patterns. Research on group sports indicates some differences between team and personal attributions (Scanlan and Passer, 1980a, 1980b), even though this research seldom strays from the assessment of ability, effort, luck, and task difficulty (Gill et al., 1982; Lau & Russell, 1980).

Often the team sport findings have indicated that team sport attributions for team success-failure are team-centered rather than self-centered. This means that team sport athletes generally tend to direct blame away from themselves and onto the team. For instance, Iso-Ahola (1977) reported that team sport team failure decreased attributions to team ability and effort but personal attributions to ability and effort remained the same. Thus, in a sense, the team is receiving the blame for defeat, while the athletes are not taking any personal responsibility for the defeat (they believe their effort and ability is still high). That is, the team as a whole is sharing that blame. Miller (1976) found that individuals in an experimental setting take more personal responsibility for successful outcomes than for failing outcomes. This differs from team sports, in that under conditions where

the subject in experimental settings is directing blame away from the self, the blame is directed externally onto parts of the environment other than the group (Bukowski & Moore, 1980).

## 2.5 Anxiety in Sports

*Competitive Stress.* Stress is defined as "the subjective consciously perceived feelings of apprehension and tension, accompanied by and associated with activation and arousal of the autonomic nervous system" (Spielberger, 1971, 265-279). When an activity produces stress, feelings of competence and control are supplanted by feelings of inadequacy, which threaten self-esteem.

One way to measure the potential threat to self-esteem is through the notion of competitive stress. Competitive stress is negative emotion or anxiety that is experienced when it is perceived that the competition is personally threatening. The occurrence of stress results from the feeling of being unable to successfully match the performance demands of the competitive situation. This perceived mismatch between response capabilities and performance demands results in feelings of incompetence and failure which are threatening to self-esteem (Scanlan, 1977, 1978; Scanlan & Passer, 1978, 1979).

Gergen and Marecek (1976) note that self-esteem data can be explained by the principle of cognitive consistency. Individuals, Gergen and Maracek believe, are most comfortable with outcomes that are consistent with their expectations and self-evaluations and uncomfortable with outcomes that are inconsistent with their expectations and self-evaluations. However, they also note that there are instances where needs for consistency clearly take a second place to objective information or group pressures.

*State Anxiety and Competitive Stress.* Scanlan (1978) defines "State anxiety" as consciously perceived feelings of apprehension and tension associated with activation of the autonomic nervous system (Spielberger, 1966). An athletic event may be anxiety and stress producing (Gerson & Deshaies, 1978). Realizing this, Martens, Gill, Simon, and Scanlan (1975) proposed a theory of competitive stress. The theory relates stress producing stimuli in a competitive situation to psychological anxiety experienced by the athlete in the actual situation.

Martens and Gill (1976) found an inverse relationship between state anxiety levels and games won. It was also found that the athletes increased in state anxiety when they failed and remained relatively calm when they succeeded. Scanlan (1977, 1978) found that success and fail-

ure in a manipulated win situation are important variables affecting the perception of threat to self when winning or losing in a competitive situation.

Scanlan and Lewthwaite (1984) and Scanlan and Passer (1978, 1979) found perception of threat to have important effects on anxiety levels in sport competition when winning versus losing. Individuals achieving success are minimally threatened by the information received from an outcome since they expect positive social evaluation. In a negative outcome situation individuals are often threatened by the failure. Further, Scanlan and Passer (1978) and Martens and Gill (1976) note that results from the general anxiety research have indicated consistently that state anxiety decreases with success and increases with failure (Gaudry & Poole, 1972; Hodges & Durham, 1972; Milimet & Gardener, 1972).

Scanlan and Lewthwaite (1984) note that team sports show less stress than individual-team sports since individual-team sport athletes focus more strongly on their personal performance thereby leading to greater social evaluation potential. However, it is revealing to look at it from the team sport perspective and say the relationship is due to the fact that the team sport athlete can share blame for defeat and must share elation for a win. In a sport, such as swimming, tennis or wrestling, a loser must bear the blame for personal defeat alone and a winner accepts the accolades for a personal win alone, while in a sport such as volleyball, rugby or ice hockey

blame and acclaim, both personal and team is shared. In fact, Scanlan and Lewthwaite (1984) note that Griffin (1972) and Simon and Martens (1979) have demonstrated team sports are less stressful than individual sports.

Both individual-team sports and team sports have been examined in the context of outcome. In studying a team sport (soccer), Scanlan and Passer (1978, 1979) found that losing players experience greater postgame competitive stress than winning players. Scanlan and Lewthwaite (1984) found that individual-team sport athletes (wrestlers) who won their match showed less postmatch state anxiety than those who lost. In addition, they found that baseline anxiety and prematch anxiety were not significant predictors of postmatch stress. A loss in a prior round does not affect the prematch stress in the next round which is suggested to mean that virtually none of its effects carry over to an ensuing match (Scanlan & Lewthwaite, 1984). The conclusions drawn from the above findings for the present research should be tempered by the fact that nearly all the research which has recently been done on sport anxiety has dealt with children in the 9 to 14 year age group and used objective outcomes as the basis for defining the outcome. As a result, the generalizability of these findings need to be examined in adult populations (high experience-ability athletes) with perceived outcomes.

## 2.6 Emotion and Ability-Effort Attributions

The internal-external causal dimension is particularly important for affective reactions and self-esteem (Elig & Frieze, 1975; McAuley, et al., 1983; Weiner, 1983; Weiner, et al., 1978). Weiner (1983) states that:

Attributions to internal factors for success . . . increase self-worth, whereas self-ascriptions for failure decrease self-esteem. For example, failure because of low ability results in a greater loss of self-esteem than does attribution of failure to bad luck or to hindrance from others. (p. 531)

A study in an academic achievement setting by Forsyth and McMillan (1981) found that the locus of causality dimension was an important determinant of affective reactions. Weiner et al. (1978) note that the relationships between causal attributions and affect appear to be stronger for success relationships.

Research by Weiner et al. (Weiner, 1980; Weiner, et al., 1978, 1979) has clearly shown that causal attributions made for performance have a relationship to affective reactions to outcome. These authors suggest the existence of two types of achievement-related emotions. Outcome-dependent emotions are intensely experienced positive or negative reactions. For example, one feels happy

when one succeeds and displeased when one fails (McAuley, et al., 1983). Attribution-dependent emotions are a product of specific causal attributions made for outcome.

Weiner et al. (1979) found that the affect pride for success is associated with personal esteem and internal attributions. They suggested a theoretical cognition perspective which has an order of occurrence: outcome, outcome-dependent affect, attribution, attribution-dependent affect, and finally the person classifies attribution into causal dimensions. While this perspective will not be specifically tested, it is important as a contrast to the motivation theoretical perspective.

Weiner's (1976) earlier work, has value for the present study in that it suggested a relationship between pride and attributions. Pride and interpersonal evaluation are maximized when outcomes are attributed to internal causes and are minimized when outcomes are attributed to external causes (Weiner, 1976). In any case, it is a tenant of this study that there is indeed a relationship between attributions and emotional reactions to perceived outcomes.

Pride is reported by people who make internal rather than external attributions for success. Attributions to internal factors rather than external factors for failures lead to shame (Weiner, Heckhausen, Meyer & Cook, 1972; Weiner, 1972). Frieze et al. (1976) state that successes attributed to really wanting to win and trying hard would result in pride. Attributions to high ability or low or

high effort lead to maximal pride in success while other attributions (external) contribute little to pride. Failures attributed to low ability or high effort produce shame (Covington & Omelich, 1979b). It has also been noted that anxiety increases with failure and decreases with success. Keeping in mind that social evaluation is a factor here, it might be suggested that internal attributions for success, pride, and decreased anxiety are related. Further, internal attributions for failure, decreased pride, and increased anxiety might be related. Increased anxiety for failure could easily be a function of not self-protecting attributions (i.e., internal for effort or ability). Decreased state anxiety for a win might be easily understood relative to self-enhancing attributions (i.e., internal for effort or ability) for a win. If this were true, this fact would make postcompetitive anxiety an attribution dependent emotion. However, since anxiety is a diffuse, but intensely experienced emotion much like happiness, Weiner et al. (1979) might consider anxiety an outcome dependent attribution independent emotion.

Snyder, Stephan, and Rosenfield (1978) state that internal attributions for outcome may have greater impact on self-esteem than external attributions. As we have seen, alteration of self-esteem has been hypothesized to depend on exposure to changes in affect. They hypothesize that threat or enhancement of self-esteem depends on two necessary factors. One is that the outcome must be attributed to the athlete. The other is that the attribu-

tion made must be relevant to the athlete's self-esteem. If either factor is absent, there is not threat or enhancement.

If both are present to some degree, the threat or enhancement to self-esteem depends on the strength of each factor. Both of these factors are the basis for a tenant of this study that personal causal attributions for perceived personal outcomes have more of an impact on emotion than team causal attributions to perceived team outcome. Perceived personal outcomes are more able to be attributed to the athlete and personal attributions for perceived personal outcomes are more salient to the athlete than are perceived team outcomes or team causal attributions.

Aside from the evaluative value of sport, the fact that college-aged athletes have invested a lot of time and effort into their sport would suggest that the sport would be important for ego. Further, internal attributions would seem to be very important to affect since they would appear to make the self salient (Duval & Hensley, 1976; Storms, 1973). Thus, it is suggested that college-aged athletes meet the criteria of Snyder et al. (1978) when making personal causal internal attributions for outcome.

External personal causal attributions for success or failure decrease the saliency of the self and therefore lessen the intensity of attribution dependent emotional reactions. That is, pride for success does not increase as much as if the attribution had been internal (of course, attributions to external factors for success are

uncommon for high-ability, experienced athletes). If external personal-causal attributions for failure were socially acceptable, they would allow a lessening of the impact of the failure relative to the saliency of the self. Individual-team sports appear to make the self more salient than team sports since the individual-team sport athlete has greater exposure to the effects of outcome than the team sport athlete. This is, of course, due to the individual-team member shouldering blame or accolade alone. Both individual-team and team sport athletes who attribute a loss to internal factors are prone to lower pride levels for personal failure than those who are able to attribute failure to external factors. Individual-team sport athletes have lower pride for attributions for a loss to internal factors than team sport athletes.

There could be instances where attributions and affect would unexpectedly not be related to one another. These occasions might be most common when the person is deceiving self or others. If there is no coincidence between a person's attributions and their affect it may be because the person is engaging in a sham. A sham, in this case, would be defined as the deceitful use of attributions to causality as a means of merely following social evaluation norms (see Table 2.4). This would only be a pretense to deter others from negatively evaluating the person based on the fact that they do not really believe that they are at fault. For example, an athlete may lose an event and openly attribute the loss to self, but not

have the negative emotional reaction which should be associated with the attribution of a loss to self. Thus, the social presentation of self would fulfill the needs of the individual by allowing others to perceive the individual as a "good loser." On the other hand, private personal attributions could be deceiving in that they allow the individual to attribute the loss externally without anyone else knowing. This could explain why a person might have stated internal attributions for a loss, yet have an emotional reaction congruent with an external attribution. A word of caution is advisable, since the picture may even be more complicated by the person recognizing the inconsistency between emotion and attribution, which may result in apparent congruency on paper and pencil tests for public presentation sake alone.

In any case, inconsistent attributional sequences like this over time might be considered as a basis for neuroticism. If not neurotic, one would have to consider them behaviorally dysfunctional since the athletes would not be learning that they erred from failures. Another possibility is that they do not really care about participation in the sport [i.e., bored with the sport (more likely to occur with longtime athletes) or disinterested (more likely to occur with recent inductees)].

Greenberg et al. (1982) and Tetlock and Levi (1982) note that attributions for public outcomes may be different from those that are truly believed (Miller, 1978). Intrapsychic perception of causality may differ from self-

presentational description of causality. Tetlock and Levi (1982) state that the potential difference between perception and description is a serious drawback to motivational bias research. However, if one assumes that emotion does not vary depending on whether the emotion is expressed publicly, then the use of emotion should be an adequate check for determining whether a person is sincere about their attributions.

The team versus individual-team dichotomy is an important variable affecting outcome dependent emotions based on the apparent differences between individual-team and team sports and the relationship between emotion and perceived success-failure. In individual-team sports, taking sole responsibility for success facilitates self-esteem, as exhibited by low state anxiety and high pride. Further, it follows that individual-team sport athletes taking sole responsibility for failure have self-esteem undermined, as exhibited by high state anxiety and lower pride. Winning team sport teams must share positive and negative self-esteem outcomes.

In fact, Gill et al. (1980) found that members of winning sport teams assigned primary responsibility for their win to their teammates. Thus, decreased pride and perhaps anxiety is not as severe for a loss when compared to an individual-team sport team, nor is there as much pride and perhaps anxiety is not as low when they win. Whether anxiety will follow a similar attribution-dependent emotional pattern as pride depends on whether it

is an outcome dependent or attribution independent emotion. The motivation theoretical perspective would suggest that anxiety should be an attribution dependent emotion. If it is an outcome dependent and attribution independent emotion, the athletes will show increased anxiety when failure occurs, no matter what attributions are given. If it is an attribution dependent emotion it will follow pride reactions to outcome and attributions, as outlined above. Thus it is important to examine the relationship between emotional reactions and attributions in a sport type context.

From a theoretical standpoint, locus of causality and particularly self-attributions for success and failure impact affect and self-esteem. The types of emotional responses that occur due to an outcome appear to depend on the temporal proximity of the response to the actual outcome. The conditions under which a particular response appears depends on the individual's propensity toward a response, the expectancy for success, the ability of the individual to hide their response from others, the interpretation of the outcome by the individual and others and the history of prior outcomes that the individual has experienced.

Table 2.4  
Interaction between Emotion and  
Locus of Causality for High  
Experience-Ability Athletes

		Public Attributions	
		Internal Attributions	External Attributions
Low Pride for Failure	Expected or Attribution Congruent Emotional Reaction		Unexpected Attribution (Low Cohesion) Attribution to the team
High Pride for Failure	Unexpected Emotional Reaction Sham-social evaluation cheat		Unexpected Emotional Reaction and Attribution social outcast social norm buster
Low Pride for Success	Unexpected Emotional Reaction undeserved success		Unexpected Attribution and Emotion Reaction Team performed well but poorly personally
High Pride for Success	Expected Attribution and Emotional Reaction		Unexpected Attribution (High cohesion) Attribution to the team

## III.

## Chapter 3

## Method

## 3.1 Subjects

Subjects utilized in this study included male college-aged athletes (18-22 years of age). The sports that were examined in this study are usually classified as winter-spring sports and include swimming, wrestling and tennis (individual-team sports) and volleyball, rugby and ice hockey (team sports).

Swimming, tennis and wrestling are all varsity sports. Rugby, volleyball and ice hockey are all club sports. Club sports are specifically sanctioned by the University but do not get the level of financial support nor the designation that varsity sports do. However, it appears that club sports are equally competitive, if not more so.

Five of the teams tested involved athletes from the University of Maryland, College Park. One team was from University of Maryland, Baltimore (swimming). In every case except one the team Maryland opposed was measured at a University or University-sanctioned facility and sporting event. The opposing teams were from other major uni-

versities or colleges. In the one case where the opposing team was not measured when playing the University of Maryland that same team was tested when playing a different team at a later date. See Appendix C, (pp. 228- 237) for more information on the specific teams tested, the specific competition outcomes, time, place and testing conditions, directions given, situational conditions and other procedures not described here.

One hundred out of approximately 120 athletes filled out their questionnaires correctly and fully. Because of substitutions in games and the difficulty of keeping track of all of the players the actual number of athletes who could have filled out questionnaires and did not is difficult to determine. However, it is believed that these individuals number roughly a half dozen. Thus, 111 athletes were entered into analysis. The breakdown of the participants used and tested is outlined in Appendix C (Table C.1). Reasons for not using an athlete included: not answering both the personal success-failure and the team success-failure questions, answering both sides of both of the attribution questionnaires and not answering either of the success-failure questions and a tie in one of the wrestling matches.

## 3.2 Instruments

### 3.2.1 Competitive State Anxiety Inventory

The advantages of the State Anxiety Inventory (SAI, Spielberger, Gorsuch, & Lustine, 1970) are that it is administered and scored quickly and easily; it presents no difficulties in group administration (Martens, 1977). It is also widely used in sport research. Martens (1977) states that the psychometric qualities of this inventory and its intended function are appropriate for A-state sport psychology research purposes.

Martens (1977) shortened and modified the SAI to adapt it more completely to competitive sport situations (i.e., regretful and joyful were removed since they had little relevance to anticipatory competitive A-states). After factor analysis a 10-item modified A-state scale was devised. Martens, Burton, Rivkin, and Simon (1980) have named this instrument the Competitive State Anxiety Inventory (CSAI, see Appendix D, Table D.4). Martens et al. (1980) showed the CSAI to have good reliability and validity, with KR-20 reliability coefficients ranging from .76 to .97. They also suggest that the CSAI shows strong construct validity.

In addition, it has been widely used in the A-state anxiety literature for postcompetitive anxiety measurements. The author states that because it is an abbreviated form of the SAI, it has the support of the validation

research completed by Spielberger et al. (1970). It has also been used for both individual-team and team sports, albeit not in a field study for postcompetitive outcome research. The ten items include I feel . . . or I am . . . at ease, nervous, comfortable, tense, secure, anxious, relaxed, jittery, calm, over-excited and rattled.

### 3.2.2 Perceived Outcome Measures

There are two perceived outcome measures: one for Perceived Personal Outcomes (PPO) and one for Perceived Team Outcomes (PTO) (See Appendix D, Table D.2). These measures are based on suggestions in the literature and previous research which have used similar measures. The layout for the questions is similar to the Competitive State Anxiety Inventory (CSAI). For team sports, both questions were given at the end of the team event. For individual-team sports, the perceived team outcome question was given at the end of the team event and the perceived personal outcome question was given at the end of the individual event.

### 3.2.3 Attribution Instruments

*Personal Outcome Attribution Questionnaire (POAQ)*. The original POAQ is composed of two sets of fifteen 4-point items which are designed for sport settings in which the investigator is assessing the respondent's causal explanation for the perception of the personal outcome. The questionnaire is designed with one set of fifteen negatively phrased questions and one set of fifteen positively phrased questions. The POAQ is used in concert with a single question called Perceived Personal Outcome (PPO) which determines how successful the athlete believed he was (See Appendix D, Table D.2a). The athlete answers either one of the two sets of questions on the POAQ depending on how he responded to the question from the PPO which indicated how successful he believed he was. If he responded by answering the PPO question with "I was extremely successful" or "I was quite successful" the athlete was instructed to answer the positively phrased POAQ questions. If he responded by answering the PPO question with "I was somewhat unsuccessful" or "I was not very successful" the athlete was instructed to answer the negatively phrased POAQ questions. The POAQ questionnaire focuses on the internal-external attributional dimension since this is of greatest concern in this study. The POAQ assesses the respondent's perceptions of the causes of personal outcome and is highly specific to sports. Other existing instruments measure attributions in a generalized

manner and therefore are not suitable for this study. The layout of the questionnaire is similar to the CSAI, except that the athlete chose from one of two sets of answers from which to respond.

The instrument is designed to test for internal-external locus of causality. The questions all have face validity for testing internal-external causal attributions in relation to personal outcomes in sports. The questions are based on suggestions relating to testing for sport causal attributions throughout the sport attribution literature (see Chapter 2, Review of the Literature for details).

*Team Outcome Attribution Questionnaire (TOAQ)*. The TOAQ is composed of two sets of fourteen 4-point items which is designed for sport settings in which the investigator is assessing the respondent's causal explanation for the perception of the team outcome. The questionnaire is designed with one set of 14 negatively phrased questions and one set of 14 positively phrased questions. The TOAQ is used in concert with a single question called Perceived Team Outcome (PTO) which determines how successful the athlete believed he was (See Appendix D, Table D.2b). The athlete answered either one of the two sets of questions on the TOAQ depending on how he responded to the question from the PTO which indicated how successful he believed he was. If he responded by answering the PTO question with

"We were extremely successful" or "We were quite successful" the athlete was instructed to answer the positively phrased TOAQ questions. If he responded by answering the PTO question with "We were somewhat unsuccessful" or "We were not very successful" the athlete was instructed to answer the negatively phrased TOAQ questions.

The TOAQ questionnaire focuses on the internal-external attributional dimension since this is of greatest concern in this study. The TOAQ assesses the respondent's perceptions of the causes of team outcome and is highly specific to sports. Other existing instruments measure attributions in a generalized manner and therefore were not suitable for this study. The layout of the questionnaire is similar to the CSAI, except that the athlete chose from one of two sets of answers from which to respond.

The instrument is designed to test for internal-external locus of causality. The questions all have face validity for testing internal-external causal attributions in relation to team outcomes in sports. The questions are based on suggestions relating to testing for sport causal attributions throughout the sport attribution literature (see Chapter 2, Review of the Literature for details).

#### 3.2.4 Outcome Pride Measures

The pride measures are a variation on the Likert-type scale used by Covington & Omelich (1979b). Ratings for the Personal Outcome Pride Questionnaire and the Team Outcome Pride Questionnaire were made on a 10 question 4-point pride scale from Not at All to Very Much So. (See Appendix D, Table D.3). The athlete indicated how much pride he was feeling at the moment of measurement. The layout is similar to the CSAI.

#### 3.3 Pilot Study

It was necessary to conduct a pilot study. Approximately twenty rugby players were tested and several swimmers were consulted during the pilot study. These athletes were not used in the analyses that took place in the study. The pilot study was beneficial to test for any needed alterations of the instruments to meet the unique aspects of the study. While generally no procedural difficulties arose and there was a little difficulty in understanding directions given, the pilot study was successful in pointing out some problems in interpretation in the attribution questionnaires. These problems were solved with further modification of these questionnaires.

It also became apparent during the pilot study that because of the way individual-team sports are scored that two of the questions in the team outcome attribution questionnaire may be confusing and perhaps misleading to these athletes. Each athlete in individual-team sports contributes equally to the team score for the same level of success or failure (e.g., first gets x points and second gets y points). It makes little sense for an individual-team athlete to attribute success or failure another teammate's outcome. This is because the team's outcome is based on a total score made up of many individual personal outcomes. Under these conditions the individual's personal outcome is a very small percentage of the total team score.

It would be a rare case where the team's win or loss hangs in the balance of a single individual's personal event outcome since it would have to occur on the last event of the day when the team scores are tied. In the case of swimming, the last event of the day contains aspects of a team event since it is a relay. Thus, because of its confounding nature it is not being measured in this study. So that the questionnaire would be clear for individual-team athletes, questions in the Team Outcome Attribution Questionnaire were dropped which pertain to attributions to "certain athletes" affecting the outcome of the team event.

### 3.4 Procedure

*Obtaining subjects.* The process of getting the necessary subjects for the study took nearly two years to complete. The assistant athletic directors contacted were helpful and supportive. While the athletic directors contacted the coaches, the ultimate initial decision to participate was left up to the coach.

Many of the contacted coaches did not cooperate in the study because they believed that the study might influence their athletes' performance; most coaches were at least reluctant. Those who were willing to participate often had scheduling problems. In addition, there was a general lack of individual-team sports which met the necessary criteria for the study (e.g., competing against only one other team rather than multi-team round robin or elimination competitions).

Once a coach decided to participate, getting the athletes to participate was not a problem. No athletes overtly refused to participate. In fact, as far as is known all but three or four potential participants in the study actually filled out questionnaires. In only one case did it appear that the potential reason for not filling out the questionnaire was due to a negative event outcome. The remainder were in fact on a winning team and merely left without caring to take the time to fill out the questionnaire.

Participation was, of course, optional, based on the athletes' willingness to be included in the study. The athletes were informed that they were being asked to participate in research which examines the relationship between competition in sports and attitudes and feelings. Athletes were asked to fill out a consent form prior to filling out the questionnaires (see Appendix D, Table D.1 for a copy of the consent form). To reduce bias towards the questionnaire each instrument was designated by its title initials.

At each individual-team sport contest the researcher administered eight different measures for each contestant both at the end of the athlete's personal event outcome and the team event outcome -

- 1) two perceived outcome questions (one for the individual event outcome and one for the team event outcome)
- 2) two Competitive State Anxiety Inventories (one at the end of the individual event outcome and one at the end of the team event outcome)
- 3) two attribution measures (one for the team event outcome and one for the individual event outcome)
- 4) two measures pertaining to the athlete's pride (one at the end of the individual event outcome and one at the end of the team event outcome).

At each team sport contest the researcher administered seven different measures for each contestant at the end of the contest -

- 1) two perceived outcome questions (one for personal outcome and one for team outcome)
- 2) a single Competitive State Anxiety Inventory
- 3) the team and personal attribution measures (one for the team outcome and one for the personal outcome)
- 4) the pride measures (one for the team outcome and one for the personal outcome)

In the case of contest outcome for team sports and individual-team sports, only those individuals who actually participated in the contest were used in analysis or allowed to participate in the study. Each contestant was only used on a single occasion.

Since all the questionnaires are self-administered the directions given orally to the athletes were kept to a minimum (see Appendix C, section 2 for a instructions given to the athletes).

Testing was performed on an as the team was available basis. As a consequence, when a team was tested during the season was random based on their availability. This resulted in some teams being tested either near the beginning, middle or end of their season.

*Anonymity Procedure.* The individual-team athletes were told to memorize a code written in the upper left hand corner of their questionnaire when filling it out after their individual event. At the end of the match or meet the individual-team athlete gave the code number to the

investigator and the investigator gave the athlete the corresponding numbered team outcome questionnaire. This approach was very successful, out of three individual-team sports tested only two athletes were not able to remember their code. Because each athlete who forgot his number was on a different team and in different sports it was merely a matter of a process of elimination to match the team outcome questionnaire to the personal outcome questionnaire. Had this not been the case the questionnaire's which did not have matches would not have been used in analysis. The process of codification appeared not to be of concern to the athletes.

To keep conditions approximately equal between individual-team sports and team sports it was pointed out to the team sport athletes that the questionnaires were coded in case the different sections were separated.

### 3.5 Data Coding and Modification

*Care Used in Coding.* The collected responses were very carefully entered into the computer. The process involved checking each respondent's questionnaire for completeness. Any respondent who had unusable data, including extensively missed questions or pages, was not included in the analysis. Each entry was checked for miscoding until

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no errors were found. Any further changes to the data were made by recoding using the computer to reduce the chance of errors.

*Questionnaire Recoding Prior to Initial Validation.* Initially, internal attribution questions were changed from internal scale questions to external scale questions. The shame questions were recoded to pride scale questions. Low anxiety questions were recoded to anxiety scale questions per the instructions given by the scale author. Recoding all the variables mentioned above was accomplished using the following scale conversion: 1=4, 2=3, 3=2, 4=1. Anxiety can be viewed as a negative psychological perspective (that is, those individuals with the least 'favorable attitudes' have the highest scores and those with the most 'favorable attitudes' have the lowest scores). This perspective was retained due to instructions given by the author of the Competitive State Anxiety Inventory. The pride-shame measures were given a positive perspective on the basis of a recommendation by McIver and Carmen (1988) that all measures be coded in a positive perspective. The attribution questions were scaled externally since this is a convention of the attributional literature.

Then two new variables were computed - team and personal success versus failure as listed below:

If the personal or team event outcome response was equal to 'NOT VERY' or 'SOMEWHAT' the new variables Personal Outcome success-failure and Team Outcome success-failure were recoded to a 0. If the personal or team event outcome response was equal to 'QUITE' or 'EXTREMELY' the new variables Personal Outcome success-failure and Team Outcome success-failure responses were recoded to a 1. The fact that this recoding was necessary became apparent shortly after analysis actually began; with four event outcome responses the number of cells that needed to be filled for many analyses was too large for the size N.

Then scale scores listed as means were computed as new variables. The Personal Outcome Attribution Score was computed by adding all of the personal attribution questionnaire responses for each individual and dividing by 15. The Team Outcome Attribution Score was computed by adding all of the team attribution questionnaire responses for each individual and dividing by 14. The Personal Outcome Pride Score was computed by adding all of the personal pride-shame questionnaire responses for each individual and dividing by 10. The Team Outcome Pride Score was computed by adding all of the team pride-shame questionnaire responses for each individual and dividing by 10. The Personal Outcome Competitive State Anxiety Inventory was computed by adding all of the anxiety questionnaire responses for each individual and dividing by 10.

The Team Outcome Competitive State Anxiety Inventory was computed by adding all of the anxiety questionnaire responses for each individual and dividing by 10.

In addition, response score frequency rate and the quarter percentile scores (25%, 50%, 75%) for each scale, Personal Attribution Questionnaire, Team Attribution Questionnaire, Personal Pride Questionnaire, Team Pride Questionnaire, Personal Anxiety Questionnaire, Team Anxiety Questionnaire were determined by computer analysis. The quarter percentile scores were then used to compute six new variables: Personal Attribution Score Quartiles, Team Attribution Score Quartiles, Personal Score Pride Quartiles, Team Score Pride Quartiles, Personal Score Anxiety Quartiles and Team Score Anxiety Quartiles.

Any score less than or equal to the 1st quarter percentile score ( $\leq 25\%$ ) resulted in the corresponding quartile score being assigned a 1. Any score greater than the 1st quarter percentile score and less than the 4th quarter percentile score ( $>25\%$  and  $<75\%$ ) resulted in the corresponding quartile score being assigned a 2. Any score greater than or equal to the 4th quarter percentile score ( $\geq 75\%$ ) resulted in the corresponding quartile score being assigned a 3. These new scores are used in further analysis for test item analysis.

*Questionnaire Recoding.* Some problems with certain items were observed which made it necessary to alter the originally conceived attribution questionnaires by deleting items which did not meet the fundamental criteria of item analysis. The scale score means for the attribution questionnaires were recomputed as new variables with the poor items excluded.

The basis for eliminating the items goes back to the concept and assumptions of Likert-type scaling and scale development procedures. Each item is expected to be monotonically related to the underlying attitude continuum and the items as a group should only measure a single common factor. In addition, items which are responded to in the same way by an entire group are irrelevant. Undifferentiating, nondiscriminating or unrelated items should not be retained in the final form of an instrument (McIver and Carmines, 1988; Kim and Mueller, 1988; Carmines and Zeller, 1979). Thus, the items which showed a lack of consistency with the fundamental assumptions of the scale were dropped from the questionnaire.

For the Personal Outcome Attribution Questionnaire the items 2, luck, 3, opponent difficulty and 15, officials were excluded from the analyses and for the Team Outcome Attribution Questionnaire the items 1 weather, 9 luck, 11 officials and 13 opponent difficulty were excluded.

The results of the reliability analyses for both the Personal Outcome Attribution Questionnaire and the Team Outcome Questionnaire indicate that reverse recoding of the internal questions to external questions results in very low reliabilities due to the negative correlation of these items with the external items of the scale. This means that before recoding those individuals who scored high on the external questions also scored high on the internal questions. Previous researchers have tested attributions from a general attributional perspective, that is, what the attribution to success or failure is over time. The questionnaires in this study measure athlete response to a specific outcome condition at a specific time and may be responsible for the differences between this study and earlier studies. The present questionnaires are not properly devised to measure overall externality using both internal and external questions simultaneously. The explanation for all of the item and factor analyses follows directly after the of the Analysis of Data section (see Section 3.5).

The item analyses of the external questions and internal questions separately shows high reliability and single factor measures. To use the responses as separate external and internal questionnaires the hypotheses needed to be altered somewhat to accommodate these findings.

The Personal Outcome Pride Score, the Team Outcome Pride Score, the Personal Outcome Anxiety Score and the Team Outcome Anxiety Score remained the same as in the previous section.

In addition, response score frequency rate and the quarter percentile scores (25%, 50%, 75%) for the rescaled questionnaires were again determined by computer analysis. The quarter percentile scores were then used to compute the new Personal Outcome Internality Score Quartiles, the Personal Outcome Externality Score Quartiles, the Team Outcome Internality Score Quartiles and the Team Outcome Externality Score Quartiles.

As in the original attribution questionnaire validation, any score less than or equal to the 1st quarter percentile score ( $\leq 25\%$ ) resulted in the corresponding quartile score being assigned a 1. Any score greater than the 1st quarter percentile score and less than the 4th quarter percentile score ( $>25\%$  and  $<75\%$ ) resulted in the corresponding quartile score being assigned a 2. Any score greater than or equal to the 4th quarter percentile score ( $\geq 75\%$ ) resulted in the corresponding quartile score being assigned a 3. These new scores are used in further analysis for test item analyses of the rescaled attribution scales.

*Analysis of Data.* Only athletes who actually participated in competition were used in analyses and all potential participants were used. See Appendix C, section 3 for a description of the situational conditions and the outcomes of each of the athletic events which were measured.

A criterion level of  $p < .05$  was considered acceptable for statistical analyses. Although power analysis is not exact for path analysis, examination of a range of potential  $R^2$  values indicates that the number of subjects tested should be approximately 100. Thus, an average of 17 subjects was tested from each of the six sports mentioned above. Just over 50 from each sport type were measured and used in the analysis. Specific hypotheses were tested using correlation, regression, multiple regression and MANOVA.

The design form for the causal path hypothesis is two separate recursive path analyses. Each causal path analysis focuses on anxiety as an attribution dependent versus an attribution independent emotion. The separate path analyses for team sports and individual-team sports use three exogenous variables and five or six endogenous variables, respectively. Path analysis allows for all determining factors as specified by a causal model to be incorporated into an overall predictive analysis, thereby permitting an estimation of the relative contribution (both indirect and direct) of each determinant to variations in the dependent variable(s). Path analysis is not a procedure for demonstrating causality. Rather it is a

method for tracing out the implications of a set of causal assumptions that the theoretician is willing to impose on a system of relationships. The overall question "Does the model fit the data adequately?" is answered by comparing the observed relationships among variables with the expected relationships (Covington & Omelich, 1979b).

Item and factor analyses in this chapter will refer to statistical tables which are documented in Appendix B.

## IV.

## Chapter 4

## Results

## 4.1 Introduction

The overall finding of the research conducted with this study population indicates that level of success and attributions are highly correlated. In testing the stated hypotheses the explanation of the variation in pride due to level of success is so high that little variation is left for the attributions to explain. Thus, level of success is sufficient in and of itself to explain most of the variation in the hypotheses. It is therefore not surprising that nearly all the hypotheses were found not to be significant. Because of the high correlation of level of success with the attributions to causality, attributions can also explain a large amount of variation in pride when level of success is not included in the regression equation.

While attributions and level of success are explanations of the variation which are different in kind, level of success is nonetheless both a temporally antecedent and a statistically sufficient independent variable to explain the variation in pride. The athletes' causal at-

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tributions for outcome are important from a heuristic standpoint in that they give insight into the reasons that they believe led to the outcome. Supplemental analyses were performed to aid in the understanding of what these athletes attributed to their outcomes and how their attributions relate to previous literature.

Shown in Tables 4.1a and 4.1b is a compilation of all of the statistical analyses for all study hypotheses. It should be pointed out that to minimize the number of tables necessary, the tables are organized with the results of more than one hypothesis on a page. Each line is a separate equation. The independent variables listed across the page are entered into the equation sequentially. Those variables which were left blank were not used in the present equation. Only those variables in which values appear are entered into that equation.

Table 4.1a  
Summary of Statistical Analysis Results

Summary Analyses

Independent variable(s) entered sequentially

All Variables - Personal Outcome

	<u>Dependent</u>	<u>N</u>		<u>Level of Success</u>	<u>Internal</u>	<u>External</u>	<u>Internal External</u>	<u>Internal X Success</u>	<u>External X Success</u>	<u>Ext X Succ</u>	<u>Int X Succ</u>
<b>Hypothesis Number 1</b> All Athletes	Pride	110	R <sup>2</sup>	.4869	.4872			.5045			
			F Change	(P<.01)	(P=.80)			(P=.06)			
	Pride	110	R <sup>2</sup>	.4869		.5027			.5039		
			F Change	(P<.01)		(P=.07)			(P=.61)		
	Pride	110	R <sup>2</sup>	.4869			.5051			.5313	
			F Change	(P<.01)			(P=.15)			(P=.06)	
<b>Hypothesis Number 2</b> Individual/ team athletes	Anxiety	48	R <sup>2</sup>	.1851	.2335						
			F Change	(P<.01)	(P=.10)						
	Anxiety	48	R <sup>2</sup>	.1851		.1945					
			F Change	(P<.01)		(P=.47)					
	Anxiety	48	R <sup>2</sup>	.1851			.2335				
			F Change	(P<.01)			(P=.26)				

The listed independent variables have been entered into the equation -

those listings which have been left blank have not been entered into the equation

F change = the significance test for the increase in R<sup>2</sup> that occurred between the previous and the presently entered variable

Table 4.1b

Summary of Statistical Analysis Results

Summary Analyses

Independent variable(s) entered sequentially

All Variables - Personal Outcome

	<u>Dependent</u>	<u>N</u>		<u>Individual vs. team</u>	<u>Level of Success</u>	<u>Internal</u>	<u>External</u>	<u>Internal External</u>	<u>Ind vs tm X Success</u>
<b>Hypothesis Number 3</b> All Athletes	Pride	110	R <sup>2</sup>	.0070	.4869	.4872			.5107
			F Change	(P=.40)	(P<.01)	(P=.80)			(P<.03)
	Pride	110	R <sup>2</sup>	.0070	.4869		.5037		.5264
			F Change	(P=.40)	(P<.01)		(P=.06)		(P<.03)
	Pride	110	R <sup>2</sup>	.0070	.4869			.5066	.5289
			F Change	(P=.40)	(P<.01)			(P=.12)	(P<.03)
<b>Hypothesis Number 4</b>	Team Pride Personal Pride								
				T-tests	All Athletes			All tests - nonsignificant	
<b>Hypothesis Number 5</b> All Athletes	Internality	110	R <sup>2</sup>	.0042	.5706				
			F Change	(.5014)	(P<.01)				
	Externality	110	R <sup>2</sup>	.0584	.5640				
			F Change	(.0110)	(P<.01)				

The listed independent variables have been entered into the equation -

those listings which have been left blank have not been entered into the equation

F change = the significance test for the increase in R<sup>2</sup> that occurred between the previous and the presently entered variable

#### 4.2 Hypothesis 1 - Personal Pride, Attributions and Successfulness

Personal-causal attributions to high internal factors for perceived personal success outcomes result in greater personal pride than those to low internal factors.

Personal-causal attributions to high internal factors for perceived personal failure outcomes result in lower personal pride than those to low internal factors.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, internality and dependent variable: pride). The  $R^2$  (coefficient of determination) is equal to .4869 ( $F/p < .01$ ) and  $\beta$  is .698 ( $T/p < .01$ ). This indicates that as level of success increases personal pride increases.

The level of internality was the second variable entered in the multiple regression. The  $R^2$  is equal to .4872.  $F$  change was not significant. The addition of level of internality to the equation is not an improvement in explanation of variance over level of success alone. When the cross-products of level of internality and level of success are added to the equation  $F$  change is again not

significant. The fact that the cross-products variable is not significant when entered indicates that the hypotheses are not significant.

Personal-causal attributions to high external factors for perceived personal success outcomes result in lower personal pride than those to low external factors.

Personal-causal attributions to high external factors for perceived personal failure outcomes result in greater personal pride than those to low external factors.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, externality and dependent variable: pride). The  $R^2$  (coefficient of determination) is equal to .4869 ( $F/p < .01$ ) and  $\beta$  is .698 ( $T/p < .01$ ). This indicates that as level of success increases personal pride increases.

The level of externality was the second variable entered in the multiple regression. The  $R^2$  is equal to .5027.  $F$  change was not significant. The addition of level of externality to the equation is not an improvement in explanation of variance over level of success alone. When the cross-products of level of externality and level

of success are added to the equation, F change is again not significant. The fact that the cross-products variable is not significant when entered indicates that the hypotheses are not significant.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, internality and externality and dependent variable: pride). The  $R^2$  (coefficient of determination is equal to .4869 ( $F/p < .01$ ) and  $\beta$  is .698 ( $T/p < .01$ ). This indicates that as level of success increases personal pride increases.

The level of externality and internality were entered simultaneously as the second variables in the multiple regression. The  $R^2$  is equal to .5051. F change was not significant. The addition of level of externality and internality to the equation is not an improvement in explanation of variance over level of success alone. When the cross-products of level of internality and level of success and externality and level of success are added to the equation, F change is again not significant. The fact that the cross-products variables are not significant when entered indicates that the hypotheses are not significant.

Ultimately, these findings indicate that level of success explains a very large portion of the variability in pride. This large portion of explanatory power in the success variable leaves little for attributions to explain

over and above what success can explain. The lack of significance in the explanatory value of the attribution variables over and above level of success is likely to be due to the high correlations between level of pride and level of success (see Table 4.2).

Table 4.2  
Bivariate Correlations

All Athletes	Personal Outcome Success	Personal Outcome Internality	Personal Outcome Externality	Personal Outcome Pride	Personal Outcome Anxiety
Personal Outcome Success	1.000 N ( 110)	.755 ( 110) P= .000	.735 ( 110) P= .000	.698 ( 110) P= .000	-.430 ( 48) P= .001
Personal Outcome Internality		1.000 N ( 110)	.766 ( 110) P= .000	.538 ( 110) P= .000	-.464 ( 48) P= .000
Personal Outcome Externality			1.000 N ( 110)	.598 ( 110) P= .000	-.386 ( 48) P= .003
Personal Outcome Pride				1.000 N ( 110)	-.284 ( 48) P= .025
Personal Outcome Anxiety					1.000 N ( 48)

Personal Outcome Anxiety correlations are for individual/team sports only

#### 4.3 Hypothesis 2 - Anxiety, Attributions and Successfulness

The next two hypotheses assume that anxiety is shown to be an attribution dependent emotion:

Personal-causal attributions to high internal factors for perceived personal success outcomes result in lower postcompetitive anxiety than those to low internal factors.

Personal-causal attributions to high internal factors for perceived personal failure outcomes result in higher postcompetitive anxiety than those to low internal factors.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, internality and dependent variable: anxiety). The  $R^2$  (coefficient of determination) is equal to .1851 ( $F/p < .01$ ) and  $\beta$  is  $-.430$  ( $T/p < .01$ ). This indicates that as level of success increases personal outcome anxiety decreases.

The level of internality was the second variable entered in the multiple regression. The  $R^2$  is equal to .2335. F change was not significant. The addition of level of internality to the equation is not an improvement in explanation of variance over level of success alone.

Personal-causal attributions to high external factors for perceived personal success outcomes result in higher postcompetitive anxiety than those to low external factors.

Personal-causal attributions to high external factors for perceived personal failure outcomes result in lower personal postcompetitive anxiety than those to low external factors.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, externality and dependent variable: anxiety). The  $R^2$  (coefficient of determination) is equal to .1851 ( $F/p < .01$ ) and  $\beta$  is  $-.430$  ( $T/p < .01$ ). This indicates that as level of success increases personal outcome anxiety decreases.

The level of externality was the second variable entered in the multiple regression. The  $R^2$  is equal to .1945. F change was not significant. The addition of level of externality to the equation is not an improvement in explanation of variance over level of success alone.

The measures used in this analysis are all Personal Outcome responses. The level of success was the first variable entered in the multiple regression analysis (level of success, externality and internality and dependent variable: anxiety). The  $R^2$  (coefficient of determination) is equal to .1851 ( $F/p < .01$ ) and  $\beta$  is  $-.430$  ( $T/p < .01$ ). This indicates that as level of success increases personal outcome anxiety decreases.

The level of internality and externality were the second variables entered in the multiple regression. The  $R^2$  is equal to .2335. F change was not significant. The addition of level of internality and externality to the equation is not an improvement in explanation of variance over level of success alone.

#### 4.4 Hypothesis 3 - Attributions and Pride Across Sport Types.

For perceived personal success outcomes, individual-team sport athletes show higher personal pride and higher internality than team sport athletes.

For perceived personal failure outcomes, individual-team sport athletes show lower personal pride and higher internality than team sport athletes.

The measures used in this analysis are all Personal Outcome responses. Sport type was the first variable entered in the multiple regression analysis (sport type, level of success, level of internality, cross-product sport type X level of success and dependent variable: pride). The  $R^2$  for sport type was not significant. This indicates that there is no direct influence of sport type on the variability of level of pride.

The level of success was the second variable entered in the multiple regression. The  $R^2$  was equal to .4869 ( $F/p < .01$ ) and  $\beta$  is .698 ( $T/p < .01$ ). As was found in hypothesis 1, the bulk of the explanation of the variance is found in the level of success variable. The addition of level of internality to the equation is not an improvement in explanation of variance over that of level of success alone ( $R^2 = .4872$ ). When the cross-products of sport type and level of success are added to the equation  $R^2$  becomes .5107 ( $F/p < .03$ ) and  $\beta$  is  $-.530$  ( $T/p < .03$ ). The fact that the cross-products variables are significant when entered indicates that they further improve the explanation of variation over that of level of success alone.

For perceived personal success outcomes, individual-team sport athletes show higher personal pride and lower externality than team sport athletes.

For perceived personal failure outcomes, individual-team sport athletes show lower personal pride and lower externality than team sport athletes.

The measures used in this analysis are all Personal Outcome responses. Sport type was the first variable entered in the multiple regression analysis (sport type, level of success, level of externality, cross-product sport type X level of success and dependent variable: pride). The  $R^2$  is equal for sport type was not significant. As was found in the analysis with internality this indicates that there is no difference in variability between individual/team sports and team sports on level of pride.

The level of success was the second variable entered in the multiple regression. The  $R^2$  equal to .4869 ( $F/p < .01$ ) and  $\beta$  is .698 ( $T/p < .01$ ). As was found in hypothesis 1 the bulk of the explanation of the variance is found in the level of success variable. The addition of level of externality to the equation is not a significant improvement in explanation of variance over that of level of success alone ( $R^2 = .5037$ ). When the cross-products of sport type and level of success are added to the equation,  $R^2$  becomes .5264 ( $F/p < .03$ ) and  $\beta$  is

-.521 (T/p<.03). The fact that the cross-products variable sport type X level of success is significant when entered indicates that it further improves the explanation of variation over that of level of success alone.

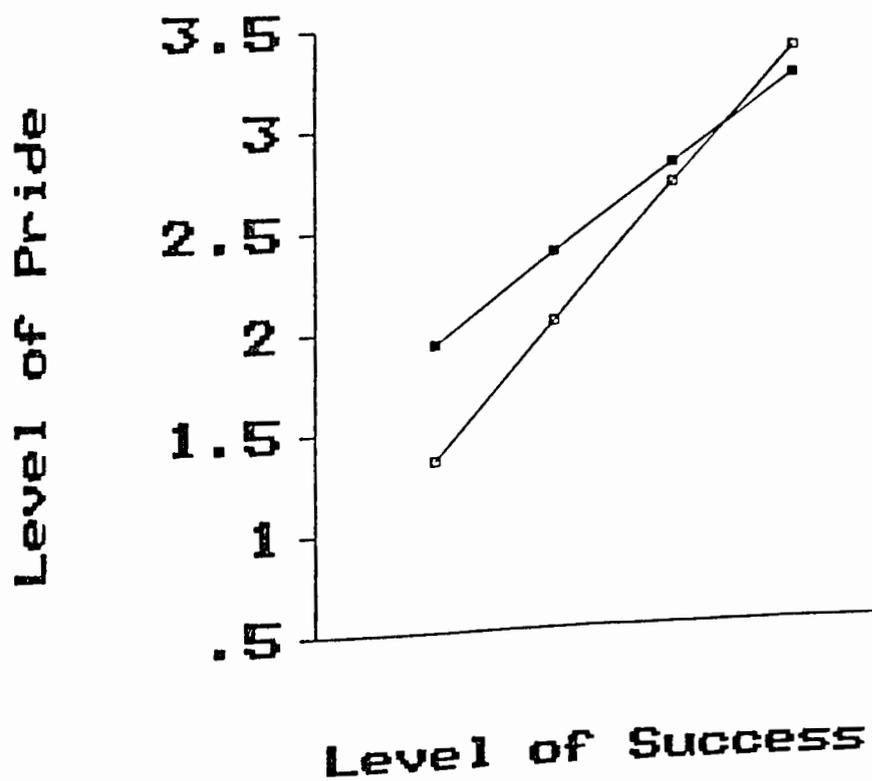
The measures used in this final analysis are all Personal Outcome responses. Sport type was the first variable entered in the multiple regression analysis (sport type, level of success, level of externality and internality, cross-product sport type and dependent variable: pride). The  $R^2$  is equal for sport type was not significant. As was found in the analysis with internality, this indicates that there is no difference in variability between individual/team sports and team sports on level of pride.

The level of success was the second variable entered in the multiple regression. The  $R^2$  is equal to .4869 (F/p<.01) and  $\beta$  is .698 (T/p<.01). As was found in hypothesis 1 the bulk of the explanation of the variance is found in the level of success variable. The addition of level of externality and internality to the equation is not a significant improvement in explanation of variance over that of level of success alone ( $R^2 = .5066$ ). When the cross-products of sport type and level of success are added to the equation  $R^2$  becomes .5289 (F/p<.03) and  $\beta$  is -.529 (T/p<.03). The fact that the cross-products variable sport type X level of success is significant when entered indicates that it further improves the explanation of variation over that of level of success alone.

The relationship between level of success and pride across sport types is pictured graphically in Figure 4.1.

Figure 4.1

Level of Pride: Level of Success X Sport Type Interaction



Key:

□ = Individual-team sports

■ = Team Sports

4.5 Hypothesis 4 - Comparison Within Sports  
Between Team and Personal Pride

For both perceived personal and team success outcomes, personal pride is higher than team pride.

For both perceived personal and team failure outcomes, personal pride is lower than team pride.

Neither of these hypotheses was supported by t-test comparisons. The personal outcome pride and team outcome pride scores for combined sport types were correlated for both success ( $r=.530$ ,  $p=.001$ ) and failure ( $r=.454$ ,  $p=.004$ ), as were individual-team sport ( $r=.719$ ,  $p=.001$ ) pride scores for failure and the team sport ( $r=.658$ ,  $p=.003$ ) pride scores for success. However, there was no correlation between personal outcome and team outcome pride scores for the team sport pride scores in the failure condition and individual-team sport pride scores in the success condition. See Appendix A, Tables A.4 for more statistical data on the analysis of hypothesis 4.

4.6 Hypothesis 5 - Comparison Across Sport  
Types for Perceived Personal Failure  
Outcomes and Attribution Level

Individual-team sport athletes show higher internal-  
ity than team sport athletes.

Analysis indicates that there is no difference in the  
of level of internality between sport types. Sport type  
was the first variable entered in the multiple regression  
analysis (sport type, level of success and dependent vari-  
able: internality). The  $R^2$  for sport type was not signif-  
icant. This indicates that there is no difference in  
variability between individual/team sports and team sports  
on level of internality.

Individual-team sport athletes show less externality  
than team sport athletes.

Further analysis indicates that there is a differen-  
tiation of level of externality between sport types.  
Sport type was the first variable entered in the multiple  
regression analysis (sport type, level of success and de-  
pendent variable: externality). The  $R^2$  is .0584 for sport  
type which was significant ( $F/p=.011$ ) and  $\beta$  is .242  
( $T/p=.011$ ). This indicates that there is a difference in  
variability between individual/team sports and team sports

on level of externality. Individual/team sport athletes (mean = 1.85) exhibit less externality than team sport athletes (mean = 2.29).

#### 4.7 Summary of Hypotheses Findings

These findings for the hypotheses achieved significance:

1. the higher the level of success the greater the pride.
2. team sports exhibit greater externality than individual/team sports.
3. individual/team sport athletes are for the most part less proud of their outcome than team sports athletes with individual/team athletes becoming more proud the greater their success at a steeper rate than team sport athletes until parity is reached at the level of being "extremely successful".

#### 4.8 Additional Analyses

The potential for multicollinearity is present in the regression analyses presented earlier. It was also shown that a large amount of variance in pride is explained by outcome. It is therefore instructive to provide some additional analyses using analysis of variance to gain an understanding of the meaning of the findings generated from the regression analyses. The additional analyses are provided as an aid to the reader in visualizing the categorization of athletes into various attributional groupings. The N's for these groupings are particularly revealing. See Tables 4.3, 4.4 and 4.5 which describe the results of the additional analyses performed. Tables 4.4 and 4.5 are especially valuable in developing the rationale for many of the attributional theoretical perspectives presented in the discussion section.

##### 4.8.1 Hypothesis 1 - ANOVA

The measures used in this analysis are all Personal Outcome responses. The multivariate [low ( $<$  mean of 2.49) versus high ( $\geq$  mean of 2.49) internality by success versus failure] pride result for this ANOVA was significant ( $p < .01$ ). See Table 4.7, Table 4.8 and Appendix A, Tables A.1, A.2, A.3 for more statistical data on the analyses for hypothesis 1. Athletes that gave

above average internal attributions and were successful (pride mean= 3.36, SD= .38, N= 54) exhibited more pride than those that gave below average internal attributions and were failures (pride mean= 2.56, SD= .54, N= 51). N equals only 4 for those athletes that exhibited both low internality and a belief that they were successful (mean= 3.23). In addition, N equals 1 for those athletes that had both a belief that they were a failure and had high internality (mean= 1.20). The univariate pride result for success versus failure was significant ( $p < .01$ ). Successes exhibited more pride than failures. The pride result for low versus high internality was significant ( $p < .03$ ). Those that indicated above average internality exhibited more pride than those that exhibited low internality.

Examining the above ANOVA means with the Personal Outcome Success Question in its original (uncollapsed) form shows that two-thirds of those athletes that responded with low internality believed that they were "somewhat unsuccessful" and 85% of those athletes that responded with high internality believed that they were "quite successful". Note that all these relationships indicate that nearly all high ability-experience athletes give internal attributions for failure less frequently than for success. The athletes also exhibit less pride for failure than for success and that low internality is related to failure, while high internality is related to success.

The multivariate [low (< mean of 2.09) versus high (>= mean of 2.09) externality by success versus failure] pride result for this ANOVA was not significant. Athletes that gave above average external attributions and were successful (pride mean= 3.40, SD= .36, N= 48) exhibited more pride than those that gave below average external attributions and were failures (pride mean= 2.52, SD= .57, N= 50). N equals 10 for those athletes that exhibited both low internality and a belief that they were successful (mean= 3.10). In addition, N equals 2 for those athletes that had both a belief that they were a failure and had high internality (mean= 2.80). The univariate pride result for success versus failure was significant ( $p < .01$ ). Successes exhibited more pride than failures. In this univariate test, those that indicated above average externality did not necessarily exhibit more pride than those that exhibited low externality.

Examining the above ANOVA means with the Personal Outcome Success Question in its original (uncollapsed) form shows that 57% of those athletes that responded with low externality believed that they were "somewhat unsuccessful" and 82% of those athletes that responded with high externality believed that they were "quite successful". Note that all these relationships indicate that nearly all high ability-experience athletes give external attributions for failure less frequently than for success.

Table 4.3  
Summary of Additional Analysis Results

<u>Significant Analyses</u>		Overall ANOVA	Individual tests
<u>All Variables - Personal Outcome</u>		<u>Signif.</u>	<u>Signif.</u>
Variables -	<u>Dependent</u>	<u>Independent</u>	
Hypothesis Number 1 - All Athletes ANOVA	Pride	Internality Success	<.01 <.03 <.01
Hypothesis Number 5 ANOVA	Externality	Sport type	.011

#### 4.8.2 Hypothesis 5

Hypothesis 5 states that individual-team sport athletes show less externality than team sport athletes. An ANOVA indicates that individual-team sport athletes (mean= 1.85) do, in fact, show less externality than team sport athletes (mean= 2.29,  $p = .011$ ). See Appendix A, Table A.5 for more statistical data on this analysis.

#### 4.8.3 Levels of Internality versus Externality

A series of ANOVAs were performed to collect the data generated in Table 4.4. All of the results listed are for Personal Outcome responses. The dependent variable was attributional levels and the independent variables were success or failure. The results are listed by all athletes, individual-team athletes and team athletes. The table also shows data based on the traditional definition of externality [luck and task (opponent) difficulty, in bold] and the definition of externality used in this study (others and situational attributions).

In looking at the results for others and situational attributions among all athletes, individual-team and team sport athletes are more internal for success (mean= 3.27) than for failure (mean= 1.63) and more external for success (mean= 2.77) than for failure (mean= 1.34). When using luck and opponent difficulty for the definition of externality for these athletes there is not a significant difference in externality between those succeeded and those who failed.

All athletes, individual-team athletes and team athletes showed substantially higher internality for success than externality. Individual-team athletes showed higher internality for both failure (means: 1.62 versus 1.15) and success (means: 3.30 versus 2.62) than externality ( $T/p < .01$ ) and team sports showed no difference for internality and externality in failure, but showed greater

internality (mean= 3.24) than externality (mean= 2.88) for success ( $T/p < .01$ ). These relationships make logical sense. Other analyses have indicated that team sport athletes (mean= 1.53) exhibit significantly greater externality for failure than individual-team athletes (mean= 1.15,  $F/p < .01$ ), while there is no difference in internality for success or failure nor externality for success.

Table 4.4

## Internality and Externality Effects on Pride for Personal Outcomes

		Overall Internal Mean	Overall External Mean	Overall Internal vs External	Attributional Levels				Success vs. Failure Internal	External		Success vs. Failure External
					Internal		Failure	Success		Failure	Success	
					Failure	Success						
All athletes	N	110	110		52	58		52	58			
	Mean	2.49	2.09	p>.01	1.63	3.27	p>.01	1.34	2.77	p>.01		
	Std. Dev.	.965	.914		.484	.532		.375	.697			
Luck Opp Diff	N	110	110		52	58		52	58			
	Mean	2.49	1.71	p>.01	1.63	3.27	p>.01	1.79	1.65	n.s.		
	Std. Dev.				.484	.532		.696	.592			
Individual-team Athletes	N	50	50		26	24		26	24			
	Mean	2.43	1.85	p>.01	1.62	3.30	p>.01	1.15	2.62	p>.01		
	Std. Dev.	.997	.894		.540	.505		.215	.697			
Luck Opp Diff	N	50	50		26	24		26	24			
	Mean	2.43	1.82	p>.01	1.62	3.30	p>.01	1.89	1.75	n.s.		
	Std. Dev.				.540	.505		.752	.766			
Team Athletes	N	60	60		26	34		26	34			
	Mean	2.55	2.29	p>.01	1.64	3.24	p>.01	1.53	2.88	p>.01		
	Std. Dev.	.943	.888		.431	.556		.407	.686			
Luck Opp Diff	N	60	60		26	34		26	34			
	Mean	2.55	1.62	p>.01	1.64	3.24	p>.01	1.69	1.57	n.s.		
	Std. Dev.				.431	.556		.634	.429			

Luck and Opponent Difficulty above are combined into a single score

#### 4.8.4 Internality, Externality and Pride

A series of ANOVAs were performed to collect the data generated in Table 4.5. All of the results listed are for Personal Outcome responses. The dependent variable was pride levels and the independent variables were success or failure and 4 categories of internality-externality. The 4 categories were high internality and externality, low internality and externality, high externality and low internality, and low externality and high internality. Those who were above the mean for internality (mean= 2.49, N= 110) and externality (mean= 2.09, N= 110) were considered high in those categories and those who were below the mean were considered low. The results are listed by all athletes, individual-team athletes and team athletes. Table 4.5 also shows data based on the traditional definition of externality [both luck and task (opponent) difficulty, in bold (these two items are combined into a single score)] and the definition of externality used in this study (others and situational attributions).

In looking at the results for others and situational attributions among all athletes 86% of the athletes fell into two categories - high externality and high internality category for success and low externality and low internality category for failure. Those who fell into the high externality and internality or high externality and low externality had mean pride levels of 3.40. The eight

athletes exhibiting high internality and low externality for success had mean pride levels of 3.11. The lowest pride level was exhibited by those athletes with low externality and low internality for success (mean= 3.05).

In an ANOVA comparison, those who fell into the high internality and high externality (successful, mean= 3.40) category showed significantly higher pride than those who fell into the low externality and low internality (unsuccessful, mean= 2.55) category ( $F/p < .01$ ). Those who fell into the high externality and low internality category for failure had mean pride levels of 2.80. Those who exhibited low externality and low internality for failure had mean pride levels of 2.55. The one athlete that exhibited high internality and low externality had the lowest pride level of 1.20.

The results for externality defined as opponent difficulty and luck will not be explicated. However, it is important to point out that when externality is so defined the high externality and low internality category for failure and the low externality and high internality category for success become important categories in comparison to the definition of externality used in this study.

Table 4.5

## Levels of Internality versus Externality for Personal Outcomes

		Overall Internal Mean	Overall External Mean	Pride Levels								
				↑External		↑Internal		↓External		↓Internal		
				Failure	Success	Failure	Success	Failure	Success	Failure	Success	
All athletes	N	110	110	-	46	49	2	2	2	2	1	8
	Mean	2.49	2.09	-	3.40	2.55	3.05	2.80	3.40	1.20	3.11	
	Std. Dev.	.965	.914		.354	.544	.212	.566	.566	.000	.461	
	Luck Opp Diff Std. Dev.	110 2.49	110 1.71	- -	- -	27 2.56 .486	3 3.30 .458	24 2.55 .609	1 3.00 .000	1 1.20 .000	34 3.23 .386	
Individual-team Athletes	N	50	50	-	19	25	-	-	2	1	3	
	Mean	2.43	1.85	-	3.38	2.51	-	-	3.40	1.20	3.40	
	Std. Dev.	.997	.894		.388	.625			.566	.000	.300	
	Luck Opp Diff Std. Dev.	50 2.49	50 1.82	- -	9 3.49 .276	12 2.44 .587	1 3.80 .000	13 2.58 .675	1 3.00 .000	1 1.20 .000	13 3.31 .419	
Team Athletes	N	60	60	-	24	25	3	1	-	-	7	
	Mean	2.55	2.29	-	3.38	2.57	3.17	3.20	-	-	3.17	
	Std. Dev.	.943	.888		.378	.449	.252	.000			.454	
	Luck Opp Diff Std. Dev.	60 2.49	60 1.62	- -	10 3.67 .221	15 2.65 .383	2 3.05 .212	11 2.51 .551	1 3.40 .000	- -	21 3.18 .366	

#### 4.9 Path Analysis

For this study analyses are determined to be significant if  $F/p < .05$  and meaningful if Beta is greater than .05 (these levels are suggestions made in Pedhazur, 1982). Tables 4.6 and 4.8 show postcompetitive anxiety as an attribution dependent emotion, and Tables 4.7 and 4.9 show postcompetitive anxiety as an attribution independent emotion. In Tables 4.6 and 4.8 anxiety is sequenced after attributions; in Tables 4.7 and 4.9 anxiety is not sequenced with attributions.

On the whole, interpretation of the path analyses is questionable for two main reasons: 1) the likely presence of multicollinearity, and 2) as noted earlier, the high amount of explanation of pride provided by outcome alone. In Tables 4.6 - 4.9 the direct effect path coefficient is equivalent to a bivariate correlation. As can be noted in Tables 4.6 and 4.7 these correlations range as high as .851. While only a few of the bivariate correlations are above .8, nearly half of the correlations are above .7. A correlation among the independent variables greater than or equal to .8 is generally considered diagnostic of multicollinearity. In addition, if outcome is sufficient for explaining pride the need for other variables in the path comes into question.

The anxiety path coefficients for team sports in Tables 4.8 and 4.9 indicate that there is little relationship between outcome and anxiety. As has been noted be-

fore this makes a great deal logical sense since the anxiety measured for the team sport athlete has two components - both the personal and the team outcome. On the other hand, the direct effect anxiety path coefficients for the individual-team sports show, as expected, moderate negative correlations ( $-.490$  and  $-.430$ ) with the outcomes.

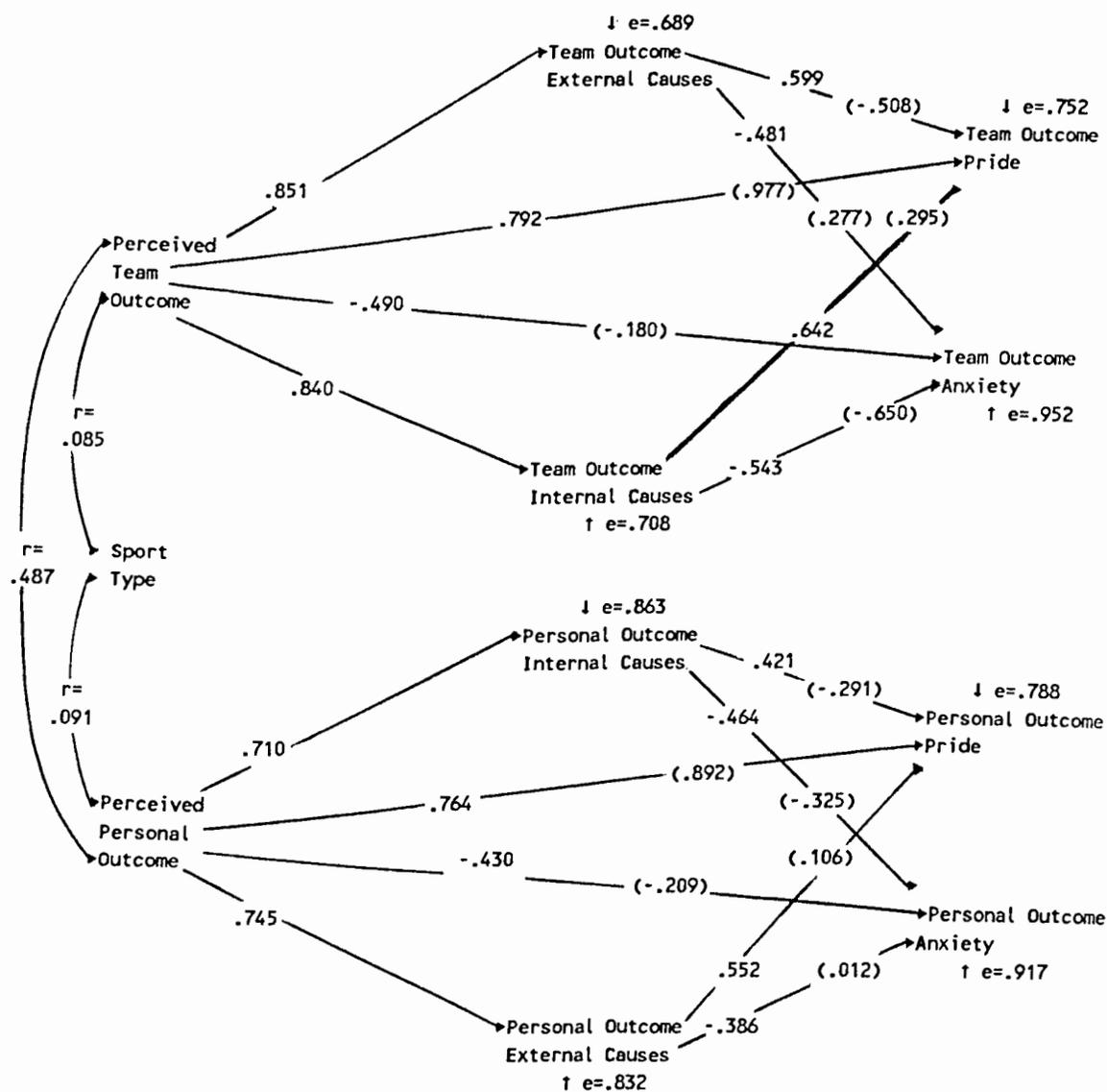
The difference in the path results for the two sport types is explained in the fact that individual-team sports were measured for personal outcome and anxiety, and team outcome and anxiety at two separate points and team sports were not. In Table 4.6, the addition of the indirect effects of the attributional paths to the causal analysis results in an unexpected reduction in the relationship of the outcome and anxiety for both team and personal outcome. In addition, inspection of the path coefficients for the direct versus indirect effects between attributions and anxiety suggest no interpretable pattern. While no strong statement can be made about the anxiety causal paths for individual-team sports these results appear to be indicative of a lack of support for an attribution dependent anxiety (Table 4.6) but are rather supportive of an attribution independent anxiety pattern exhibited in Table 4.7.

Unlike the path for anxiety described above, the outcome to pride direct effect path coefficients for both team and individual-team sports indicate very high correlations, ranging between  $.629$  and  $.792$ , with three out of four over  $.728$ . This degree of relationship is not

surprising given the amount of explanation that outcome has in pride. This fact was born out in the regression analyses for the specific hypotheses. In addition, the direct path coefficients between outcome and attributions for individual-team and team sports are very high, .618 and .851. Because of these high correlations multicollinearity is sure to make interpretation of the paths tenuous if not impossible.

An inspection of the indirect effects in comparison to the direct effects between attributions and pride, and outcome and pride bears this out. Many of the factors which lead to the suspicion of multicollinearity are found in these results. For instance, it can be seen in Table 4.6 that some of the indirect effects between attributions and pride have positive coefficients and some have negative coefficients when one would expect all of them to have positive signs. Coefficients with the "wrong" sign is indicative of multicollinearity.

Table 4.6  
Causal Path for the Cognitive-Emotional Process  
Individual-team Sports  
Attribution Dependent Anxiety



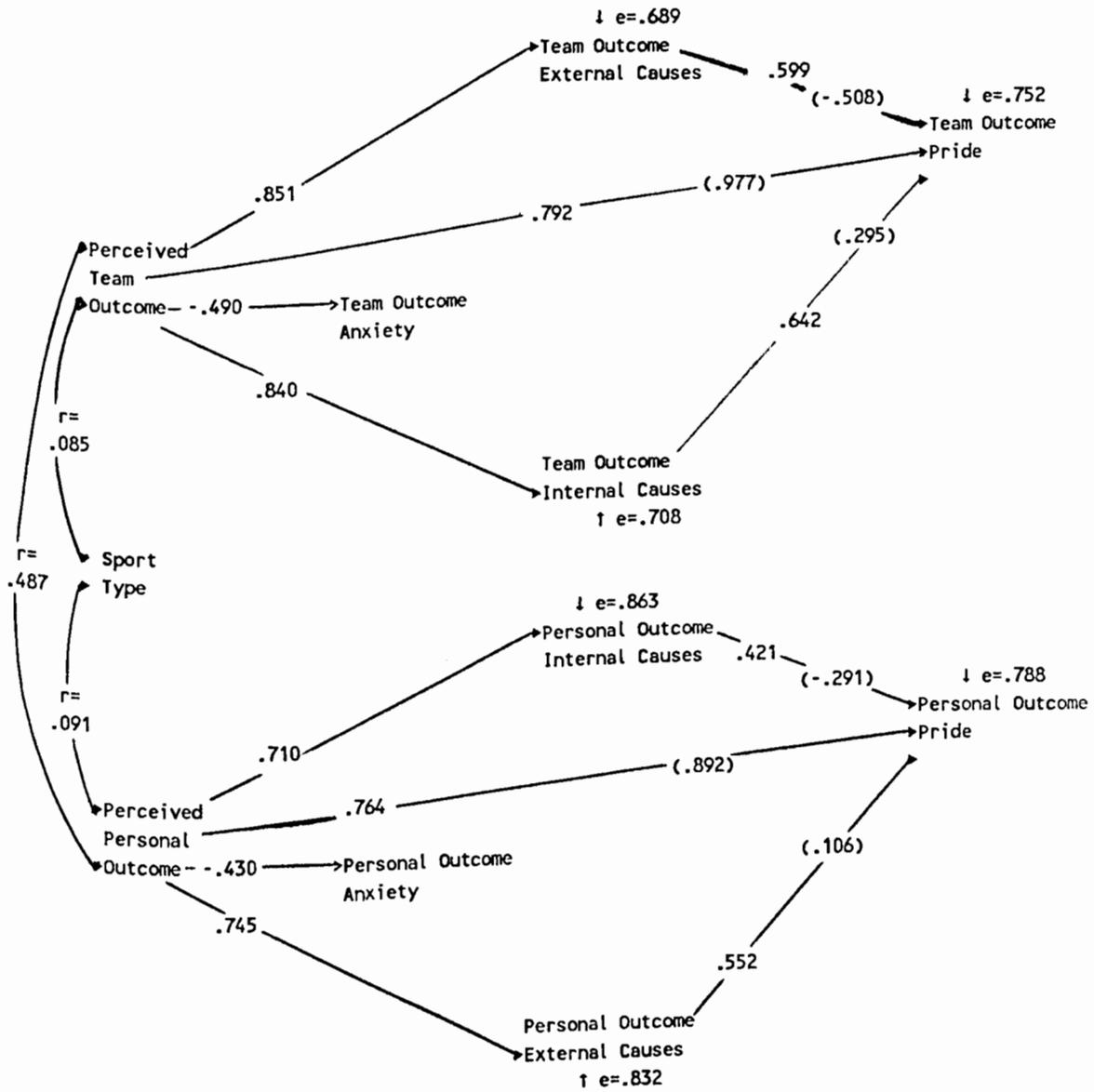
3 Independent Exogenous Variables

8 Dependent Endogenous Variables

Path coefficient (without parentheses) - direct effect of the first variable on the second  
 Path coefficient (with parentheses) - the effect of first variable on the second taking into consideration the effects of the other variable(s) impinging upon the second variable

e - residual path coefficient

Table 4.7  
 Causal Path for the Cognitive-Emotional Process  
 Individual-team Sports  
 Attribution Independent Anxiety



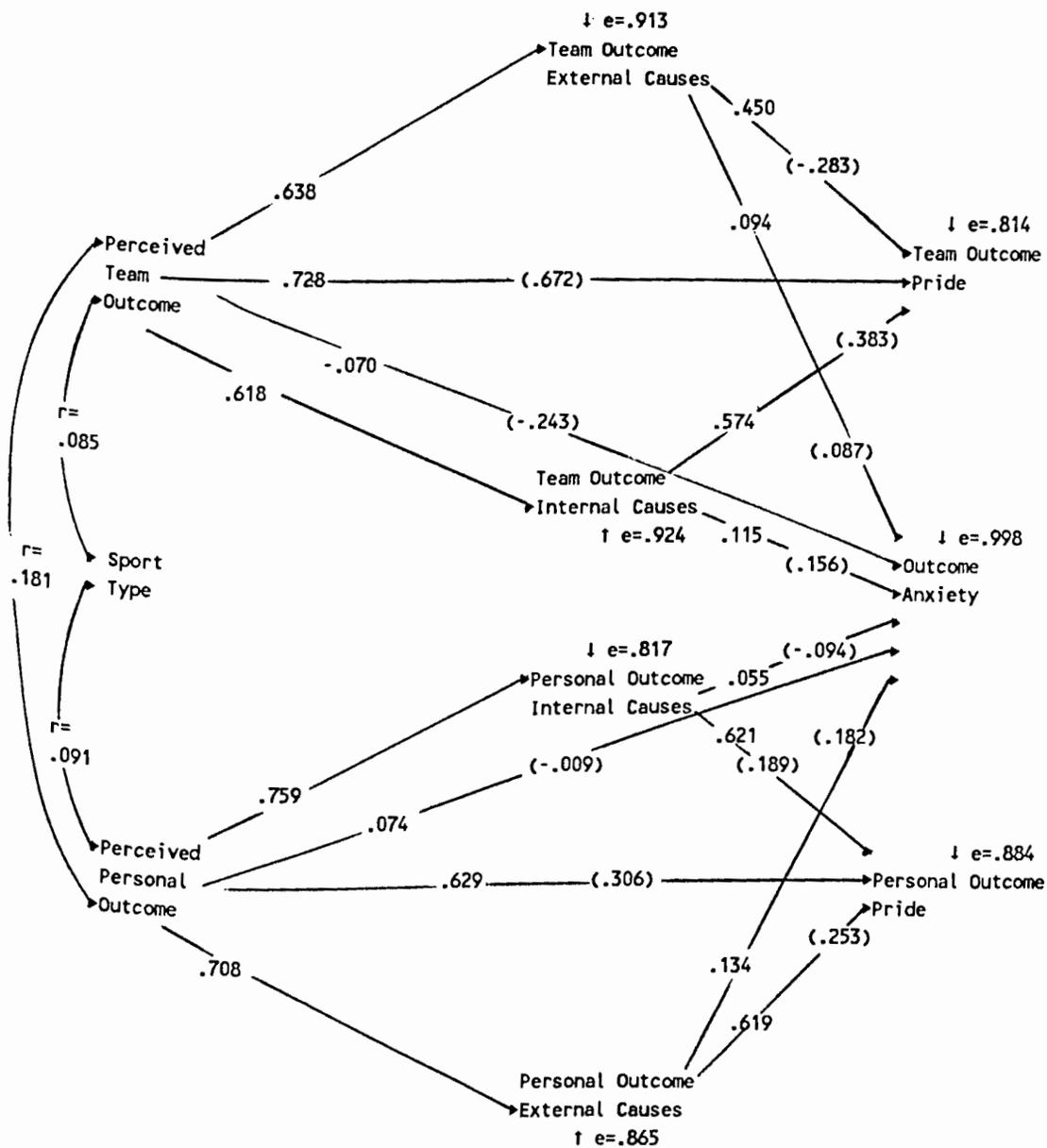
3 Independent Exogenous Variables

8 Dependent Endogenous Variables

Path coefficient (without parentheses) - direct effect of the first variable on the second  
 Path coefficient (with parentheses) - the effect of first variable on the second taking into consideration the effects of the other variable(s) impinging upon the second variable

e - residual path coefficient

Table 4.8  
Causal Path for the Cognitive-Emotional Process  
Team Sports  
Attribution Dependent Anxiety



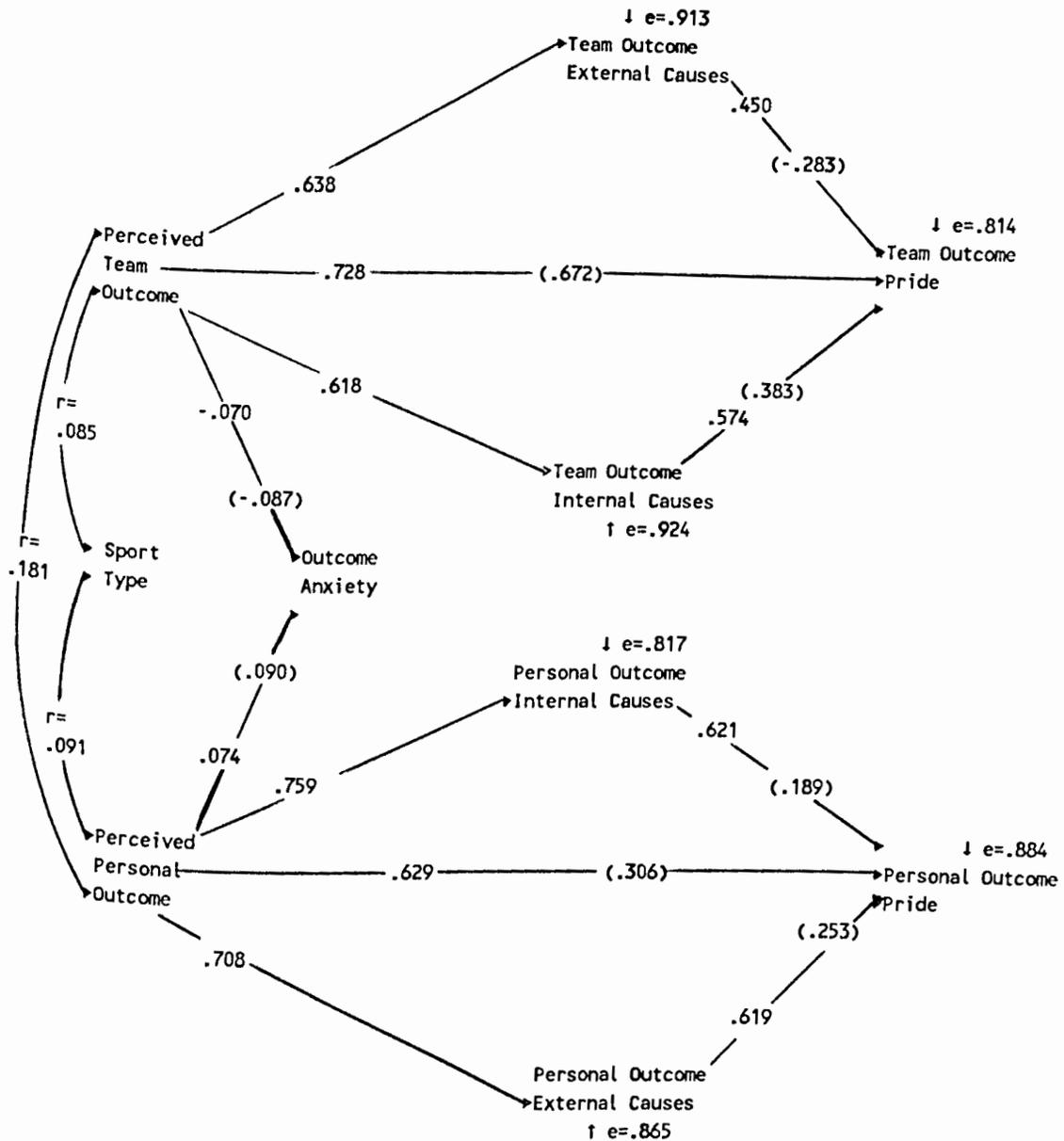
3 Independent Exogenous Variables

7 Dependent Endogenous Variables

Path coefficient (without parentheses) - direct effect of the first variable on the second  
 Path coefficient (with parentheses) - the effect of first variable on the second taking into consideration the effects of the other variable(s) impinging upon the second variable

e - residual path coefficient

Table 4.9  
 Causal Path for the Cognitive-Emotional Process  
 Team Sports  
 Attribution Independent Anxiety



3 Independent Exogenous Variables

7 Dependent Endogenous Variables

Path coefficient (without parentheses) - direct effect of the first variable on the second  
 Path coefficient (with parentheses) - the effect of first variable on the second taking into consideration the effects of the other variable(s) impinging upon the second variable

e - residual path coefficient

As noted above, an attempt was made at analyzing the sequential nature of the relationship between emotions and attributions for success and failure outcomes. The variables included in the study were perceived team outcome, perceived personal outcome, postcompetitive anxiety, team outcome internal and external attributions, personal outcome internal and external attributions, team outcome pride, and personal outcome pride. The paths which were germane to the study or interesting were discussed. Because of the analytical difficulties in the use of regression with this data, in general, the results of the path analyses make little logical sense.

v.

## Chapter 5 Discussion

### 5.1 Introduction

That internality, externality and pride - all were found to increase with success and decrease with failure is of fundamental importance to the understanding of the findings in this study. From an information processing view this action might be explained as an enhancement of perceptual stimuli for success outcome and an elevation of recognition thresholds of stimuli for failures. To continue participation in sports both winning and losing are nearly inevitable from time to time, yet the athlete must preserve the unity of his conceptual system. The athlete must seek out experiences that contribute to the unity of the conceptual system and avoid experiences that threaten that unity (Lecky, 1961). If perceptual defense and vigilance (Erdelyi, 1974) is indeed occurring the price that is paid for using this as a defensive maneuver is the loss of ability to correct faulty hypotheses about oneself. Ultimately sports are more rewarding than threatening or participation would cease. This defense may be a means of getting more out of long term

participation in sports than would otherwise be possible. While this study was conceived in the motivational perspective and yet appears to give strong credence to some aspects of the cognitive perspective, with the view expounded here it is truly integrative.

## 5.2 Internality and Externality - Separate Identities Differentiated

Traditionally, internality and externality have been viewed as a single dimension (Rotter, 1966; Weiner, 1974), and recently the locus of causality dimension has been devised and scaled as a continuum (Russell, 1982). However, the present research indicates that locus of causality can not be conceived as a unitary causal dimension in sport competition studies. In fact, it has been determined that internality and externality are wholly separate factors.

This suggestion is a departure from classical internality-externality research. By instituting the use of this finding in future studies it will give theoreticians the opportunity to better define their positions in more succinct, concrete and testable terms - a position which has been espoused by Tetlock and Levi (1980). Incomprehensible and inconsistent findings may arise in research which does not address this potential confound. In addition, examining the differences between the cognitive

and the motivational views is very difficult without differentiating and elaborating both internal and external findings. Further research is needed to confirm the observations presented here.

While factor analyses have shown that externality and internality are separate dimensions (Iso-Ahola, 1977c), some researchers have made statements which may add to confusion regarding internality and externality (e.g., Kimiecik and Duda, 1985). For example, if winners are making attributions to internal causes more than losers, this cannot necessarily be interpreted as a self-serving attributional bias. Most researchers define the self-serving bias as making more internal attributions for winners and external attributions for losers. In sports, the findings for the self-serving bias are equivocal, with more favoring this bias. Some researchers differentiate the self-serving bias from the internality bias which they define as making more internal attributions for success than for failure (Bukowski & Moore, 1980; Tillman & Carver, 1980). Most researchers who have found an internality bias have used open-ended response questionnaires in which the researcher tabulates the number of responses categorized as internal for success or failure. Most researchers who have tested the self-serving bias and the few that have tested the externality bias have used task or opponent difficulty and luck as their operational definitions for externality. However, the evidence for the externality bias is conflicting (Bukowski & Moore, 1980).

According to the cognitive perspective, selective exposure and retrieval of information are fundamental influences on attributions made to outcomes (Rejeski and Brawley, 1983; Ross, 1977). From a cognitive view, it would seem plausible that influences on attributions and their interpretations not only come from those with whom we associate and share opinions, but also the researcher's choice of questionnaire material. It appears essential that the choices given the subject in questionnaires not arbitrarily limit the information available for selection (selective exposure to attributional choices). If a potential selection is not available to the subject, the retrieval processes for the attributions chosen are being selectively biased by the questionnaire given - away from the selections not available and toward the selections available. The question arises: What if the subject is making both internal and external attributions for outcome and these attributions are not available to the subject for retrieval? If the subject is not given the ability to make simultaneous internal and external attributions for a particular outcome, this information is lost and bias is the only alternative.

Forcing a choice between the attributional elements of externality and internality (e.g., Kimiecik and Duda, 1985; Mark et al., 1984; Russell, 1982) is forcing a choice between elements which are different in kind. Performing subsequent analyses which differentiate between those who were forced to choose internal elements and

those who were forced to choose external elements compounds the problems inherent in the methodology. Interpretation of the results becomes nearly impossible. Other arguments have been given for broader attributional choices by other researchers (Roberts & Duda, 1984).

To allay confusion it is recommended that internality and externality be separated. As an example, using these recommendations, individuals might be said to demonstrate a self-serving bias when winners attribute success to high internality and low externality and losers attribute failure to low internality and high externality. However, in using this definition, the self-serving bias would be a rare occurrence in reference to the findings in this study when comparing it to the number of other studies which have found it to be the case. In sports activities, there is conflicting evidence for the self-serving bias. The fact that the present study is based on sports may make it hard to generalize to academic achievement and laboratory studies where the self-serving bias is prevalent.

Before proceeding, it should be pointed out that opponent difficulty and luck have been reported as common external causal determinants (e.g., Scanlan and Passer, 1980). The results of this study suggest that their use should be limited and findings using them held suspect, at least in sport related studies, until further research and theoretical positions can be elaborated regarding their place in attributional research. In this study, factor analysis revealed that, for personal outcome attributions,

luck and opponent difficulty were two distinct factors. It was also found that they are distinct from all of the other external attribution causal determinants.

It should be pointed out that difficulties in interpreting their meaning and using these concepts in analysis are not unique to this paper. Snyder et al. (1976; 1978) indicated that the role of luck and task difficulty as plausible causes in producing outcomes may be ambiguous. In this instance, luck and task difficulty may not be a stable attributional selection across success and failure outcomes. Presumably, this is caused by individuals' attributional history. The interpretation of luck and task difficulty as plausible attributions may vary depending on the number of prior athletic events and successes. Other researchers have found that luck and/or task difficulty were unimportant or problematic, especially in sport attribution studies (Bukowski & Moore, 1980; Gill, Ruder & Gross, 1982; Lau & Russell, 1980; Rejeski & Lowe, 1980; Scanlan & Passer, 1980). How the athlete views or interprets the attributional factors at any moment in time may result in unreliable variation in responses to these items. Thus, the benefit of including task difficulty and luck is questionable.

The analyses in this study showed that the use of opponent difficulty and luck were precluded by their statistical nature. In other studies, the externality bias has been viewed, at best, as equivocal. Not using the

standard of external selections may reduce the generalizability of this study, but the implications of this study may contribute to more stable findings in the future.

A fuller interpretation of the motivational literature requires returning to the basic definition of a self-serving bias. The self-serving bias is based on the "motive to protect and/or enhance one's private self-image ... (e.g., Adler, 1956; Allport, 1937; Heider, 1958)" (Greenberg et al., 1982). Basing the interpretation on this definition, winners who attribute success to high internality regardless of the level of externality are presumably enhancing their self-image. Losers who attribute failure to low internality regardless of the level of externality are presumably protecting their self-image. As noted before, this is not the typical definition of the self-serving bias in the attributional literature.

For the most part, successful athletes attributed outcomes to both high internality and high externality. These athletes are being self-enhancing by attributing success to high internality, but their success is not fully in their control since they are attributing success also to high externality. Seventy-five percent of all successes fell into the high internality and externality category. Another 17% fell into the high internality and low externality category. Thus, relative to failures, 92% of all successes were self-enhancing. In addition, 85% of

those athletes that responded with high internality believed that they were "quite successful" rather than "extremely successful".

Relative to the successful athletes, those who perceived unsuccessful personal outcomes attributed failure to low internality and low externality. These athletes appear to be having difficulty pinning the cause of the failure on anything in particular. However, these individuals are presumably protecting their self image to a degree by not blaming themselves. Their loss is also neither in their control nor out of their control. Thus, relative to successes, 96% of all failures were self-protecting. In addition, 2/3's of those athletes that responded with low internality believed that they were "somewhat unsuccessful" rather than "not very successful".

On first glance, the self-serving bias would appear to be in full force here. If one interprets the data based on a definition of self-serving bias which only includes internality as the operative criteria, it would appear to be so. However, if one interprets the data using both internality and externality one cannot be so sure. An overwhelming majority of the athletes fall into two categories high externality and high internality (successes) or low internality and low externality (failures).

Presumably, a person who is most intent on self-protection would prefer to choose low internality and high externality and a person who is most intent on self-enhancement would prefer to choose high internality and

low externality, yet these were relatively unlikely occurrences. In addition, 17% of the successes who fell into the high internality and low externality category actually had pride response levels less than or equal to those in the high externality and high internality category. Thus, it would appear that these findings do not fully support the motivational theoretical view of the self-serving bias without some refinements.

These athletes compete regularly against a wide variety of skilled individuals that makes both successes and failures common experiences. In addition, the fact that these athletes participate voluntarily and are highly experienced may be important differences which has led to the lack of differentiation in internality and externality found in this study. For the most part, these athletes must sincerely believe that they are successful as a rule otherwise they would have left the sport. Because they do experience failure and yet they continue to have enough of a positive outlook to stick it out indicates that they must, generally, perceive failure in such a way that its impact is minimized on their egos. The high esteem levels of these athletes in the face of expectations that some events will be lost, indicates that their arousal level is not high upon losing. The difference between the emotional impact for success and failure is not as great as if the failure had more impact on esteem. It may be that reducing their levels of internality and externality upon failing is a form of perceptual defense (Erdelyi, 1974) in

that it allows them to avoid perceiving the unpleasant aspects of the outcome. Rather than merely denying the loss (low internality) or blaming other people and situations (high externality) alone these highly successful athletes may be trying to avoid the negative aspects of information altogether by not dwelling upon it. Rejecting a particular negative experience which is incongruent with their self-concept, by minimizing associations with it, gives these athletes the ability to keep from having to alter their entire conceptual system (Lecky, 1961) due to a failure which they believe is not representative of their ability.

### 5.3 Hypothesis 1 - Personal Pride, Attributions and Successfulness

How to interpret the findings in this study in light of other researchers' work is impacted to a strong degree by which researcher's work is being consulted, what operational definitions are being used by the researcher and what methodology is used in their research. Contrast and comparisons between the findings in this study and the findings and statements of other researchers are made.

Previous researchers indicate that internal attributions for success result in feelings of pride, while internal attributions for failure result in feelings of shame (McAuley et al., 1983; Weiner et al., 1979). Those

that are successful will have greater pride than those who are unsuccessful. It was shown that as the perception of personal outcome success increases, pride increases. This finding supports the expectations and findings of other researchers. However, level of success is able to explain such a large portion of the variation in pride that there is little variance left over for attributions to explain. The high correlation between level of success and both internality and externality also influences the likelihood of achieving a significant finding for the influence of attributions on pride. Due to the correlational nature of success and attributions it is possible to say that, as noted earlier, both internality and externality increase with success. By inference both internality and pride increase with success. However, the degree of externality also increases with pride and level of success and does not decrease as might be expected.

Thus, the present research indicates that most of the athletes that perceived successful personal outcomes exhibited both high externality and high internality. Most of the athletes that perceived unsuccessful personal outcomes exhibited both low externality and low internality. These findings make comparisons across studies somewhat more complicated.

Where low externality occurs after failure, the relative lack of external attributions is a poor means of gaining "the strongest opportunity for self-protection . . . by losing players" (Scanlan & Passer, 1980a,

1980b). Thus, from this perspective, it would appear that the self-serving bias is not in play here (Scanlan & Passer, 1980a, 1980b).

From the viewpoint of motivational theory, the successful athletes in this study should feel pride due to high internality, yet the level of pride should be diminished somewhat by the high levels of externality. Similarly, the unsuccessful athletes should feel lower pride than the successful athletes, since, while they exhibit relatively low internality, they do exhibit some degree of internality. In addition, over all athletes and in general, they have not resorted to blaming external factors which would reduce the degradation of prideful feelings. However, the level of pride is not diminished to an exceptional degree since they show only a modest amount of blame.

Substantial support for these notions, by the comparison of the relative pride levels across categories, are not strong in this data since only a few athletes fall into high externality and low internality or low externality and high internality categories. The few athletes that do fall into these categories give an impression of mixed support. In support of this theory, when looking at all athletes, the only individual who exhibited high internality and low externality for failure also exhibited the lowest pride level of all categories. In addition,

the two individuals who exhibited high externality and low internality rated their pride levels the highest among those who fell into the failure categories.

Schlenker et al. (1976) speculate that face to face contact and communication in groups minimizes egocentric differences in accepting credit and blame. This conception could be a factor in this study. Athletes practice together, compete together and presumably are constantly exchanging perceptions of the causes of outcomes from event to event. It is suggested that an explanation of the results found in this study is that an as yet undescribed form of minimization of egocentric differences might be occurring.

By attributing failure to low internality, unsuccessful athletes are exhibiting substantial egocentric tendencies, but by not exhibiting high externality the degree of egocentric tendency evident from the low internality attribution is reduced. Thus, the unsuccessful athletes while not accepting blame are not blaming others or other external factors - a self-protecting but not "other" depreciating bias.

Presumably egocentrism played a role in the fact that 2/3's of the failing athletes responded that they were only "somewhat unsuccessful", which, perhaps, is in correspondence with the low levels of internality. By not blaming themselves and not blaming "others" believing that one is not a total failure becomes psychologically and socially acceptable. In fact, believing one is not a to-

tal failure would fit a highly experienced athlete's schema since both success and failure over time are common experiences. Believing that one was a total failure too often is likely to lead to a level of self-depreciation that would result in the athlete leaving the sport.

Pride and shame, and interpersonal evaluation, are maximized when outcomes are attributed to internal causes and are minimized when outcomes are attributed to external causes (Weiner, 1976). Pride is reported by people who make internal rather than external attributions for success; for failure attributions to internal factors rather than external factors lead to shame (Weiner, Heckhausen, Meyer & Cook, 1972; Weiner, 1972).

By attributing success to high internality, successful athletes are also exhibiting substantial egocentric tendencies, but by exhibiting high externality the degree of egocentric tendency evident from the high internality attribution is reduced. While successful athletes accept credit for the successful personal outcomes, they also give credit to other people and circumstances. This amounts to a not self-enhancing, externality bias and a self-enhancing internality bias.

Presumably, a relative lack of egocentrism played a role in the fact that 85% of the successful athletes responded that they were "quite successful". This suggests high externality attributions. Both accepting credit themselves and crediting "others" is psychologically and socially acceptable. Believing that one is not in com-

plete control of success would fit a highly experienced athlete's schema, since both success and failure over time are common experiences. Too much self-enhancement could lead to ridicule when failure does occur.

For both successes and failures a self-serving bias is inherent in the athletes' internal attributions but is "minimized" by their external attributions; this produces diminution of egocentric differences. Such mixed responses from subjects could be a major source of misunderstanding in the interpretation of results in the literature. Depending on the emphasis placed on internality and/or externality in other studies, these results could have been viewed as supporting either self-serving (if stressing an internality bias) or not self-serving biases.

Presumably, based on the remarks of other researchers, pride is maximized when outcomes are attributed to internal causes and is minimized when outcomes are attributed to external causes. Internal attributions for success lead to high pride and for failure lead to low pride (Weiner, Heckhausen, Meyer & Cook, 1972; Weiner, 1972; Weiner, 1976). Based on the theoretical interpretation of the data given for this study, high pride should be somewhat ameliorated by high externality in the face of high internality for successful outcomes. Low pride should be ameliorated by low internality, while the athlete receives no additional psychological relief by using external attributions. The mean pride level for successful athletes (high internality and externality) was 3.40 and for unsuc-

cessful athletes (low internality and externality) was 2.55. The differences between these two pride levels is significant ( $p > .000$ ). While these means cannot be interpreted in absolute terms the mean difference is not great and the athletes appear to have relative levels which are in keeping with the stated theory.

It should be pointed out that minimization of egocentric differences and maximization of egocentricity would, theoretically, occur under circumstances which were not prevalent in this study. Egocentricity would be maximized in success when attributions are made to high internality and low externality and in failure when attributions are made to low internality and high externality. Egocentric differences would be maximally minimized in success when attributions are made to low internality and high externality and in failure when attributions are made to high internality and low externality. Theory should be refined to differentiate if and when these conditions occur and why they are so uncommon in this study.

A lack of support for the suggested theory is found in the success categories. The athletes who fell into the high externality and high internality category or the high externality and low internality category for success had the highest pride levels among success categories. Presumably, athletes who exhibited high externality and low internality should have had lower pride levels than those athletes that exhibited both high externality and internality. The athletes who exhibited both low externality

and internality should have had higher pride levels than those athletes that exhibited high externality and low internality. Comparisons with the categories of low externality and internality as well as high externality and low internality are very tentative due to the low numbers of athletes which fall into these categories.

In examining all athletes as a group, the eight athletes that fell into the high internality and low externality category should have had the highest level of pride. In comparison to the 46 athletes that fell into the high externality and internality category (3.40), the athletes who exhibited high internality and low externality enjoyed a relatively moderate amount of pride (3.05). An explanation for this finding, which is at variance with the stated theory, may have its roots in other emotions, such as guilt which may modulate prideful feelings. The athletes that take sole responsibility (high internality and low externality) for their successful outcome may feel a degree of guilt, for not sharing their success with "others" when compared to those who are sharing (high externality and high internality) their success. This may result in having their prideful feelings for their success become less satisfying.

Combining externality and internality factors but emphasizing externality factors more than other researchers may have helped Gill (1980) to detect reverse-egocentric attributional patterns. In this case, personal causal attributions to self and team demonstrated that

team members consistently gave credit for success to teammates (i.e., external factors), but assigned responsibility for failure to themselves (i.e., internal factors). However, stressing external factors in a questionnaire is not enough since it does not sufficiently differentiate internality and externality as two separate factors.

Schlenker and Miller (1977a, 1977b) also argue that high cohesion could affect self-attributions, making them more objective and therefore less egocentric or self-serving. On the other hand, Bird et al. (1980) state that when high cohesion team members were given the opportunity to differentiate between team and personal attributions, they were found to use self-serving attributions, but ensured continued team cohesion by utilizing a team-serving bias for team attributions. However, Bird et al. (1980) state that there were analytical difficulties with their study which make these conclusions suspect. Thus, there are conflicting opinions and evidence regarding yet another area of attribution theory. The effects of cohesion, and the suspicion of analytical difficulties limits interpretation.

The ultimate finding of this study is that competitive environments do not appear to accentuate prideful reactions to success and shameful reactions to failure to the degree that other researchers have implied. Thus, in the context of high experience/ability athletes, perhaps

success and failure are not as psychologically remote from one another as previous motivational perspectives have held (Ames & Felker, 1979; Covington, 1984).

#### 5.4 Hypothesis 2 - Anxiety, Attributions and Successfulness

Initially, anxiety was examined separately for both individual-team and team sports. The results indicate that for team sports, the residual when compared to the explained is of such magnitude for the anxiety measure that none of the analyses were significant. It would appear that measuring team sport athletes with a single anxiety measure at the end of the event incorporates the feelings of both the perceptions of the team's outcome and their personal outcome. The author knows of no previous studies which can be used to contrast the postcompetitive anxiety team sport findings of this study with those of other team sport studies in naturalistic field settings. Thus, in this case, anxiety is not differentiated solely on the basis of personal outcome. To further elucidate this notion, further analyses were performed.

The anxiety of team sport athletes was analyzed by the use of multivariate analysis with perceived team outcome and personal outcome as the dependent variables. It was shown that there are significant differences in levels of anxiety across the outcome conditions. That is, there

are differences in anxiety when the variations in perception of success and failure are accounted for relative to the perception of team and personal outcome. While the personal failure and team failure dimension showed higher anxiety than the personal success and team success dimension, the hybrid success-failure dimensions (personal success and team failure, and personal failure and team success) showed much lower anxiety than the both personal and team success or failure dimensions. Future research and theory should address these interesting and perhaps controversial findings.

The results for individual-team sports indicate that, as level of success increases, personal postcompetitive anxiety decreases. Attributions were not of value in explaining any additional variance in anxiety even though the correlations between attribution and anxiety are much less than those between pride and attributions, and the amount of variance in anxiety explained by success is substantially less than that for pride. Thus, it would appear that there is no relationship between attributions and anxiety. This indicates that anxiety may be an attribution independent emotion.

It should be pointed out that the fact that individual-team sport athletes show a decrease in state anxiety with increasing success is supportive of this as a general finding of the nonsport and sport literature (Gaudry & Poole, 1972; Hodges & Durham, 1972; Martens & Gill, 1976; Millimet & Gardener, 1972; Scanlan & Passer,

1978). It does not appear that previous sport studies have examined team sport anxiety in a naturalistic field setting and therefore the findings of this study can not be corroborated. The results of this study mean that for the most part attributions do not appear to play a role in mediating anxiety.

For the most part, the motivation theoretical perspective assumes that affective reactions are mediated by attributions (Covington & Omelich, 1981). Thus, postcompetitive anxiety, as an affective reaction, would theoretically be mediated by attributions to causality, but it appears that this may not to be the case.

The likely reason for a relatively low correlation between level of success and the level of anxiety measured is that these athletes do not feel threatened regarding their esteem in failure situations because of the length of time that they have participated in the sport (Dowd & Innes, 1981; Fameay-Lamon et al., 1979). Because of the high ability-experience and relatively high esteem levels of these athletes their expectations are that some events will be lost, therefore their arousal level when losing is not high. The difference between the emotional impact for success and failure is not as great as if the failure had more impact on esteem. Future research may be needed which focuses on levels of expectation relative to anxiety producing outcomes.

It appears that anxiety may be a diffuse, but intensely experienced emotion much like happiness. Such a finding lends support to the notion that anxiety is an outcome dependent attribution independent emotion (Weiner et al., 1979) and, as such, supports a cognitive perspective.

#### 5.5 Hypotheses 3 & 5 - Attributions and Pride Across Sport Types

The major finding for the differences between individual/team sports and teams sports is based on an interaction effect for sport type by level of success. It was shown that individual/team sport athletes are for the most part less proud of their outcome than team sports athletes with individual/team athletes becoming more proud the greater their success at a steeper rate than team sport athletes until parity is reached at the level of being "extremely successful". That is, the least successful athletes showed the greatest variation in pride between sport types. For perceived personal failure outcomes, individual-team sport athletes also showed lower externality than team sport athletes. There was no difference in the level of internality between sport types.

According to the motive-emotional theoretical perspective, if team sport athletes exhibit higher internality than individual-team sport athletes, then their pride

would be higher for success and lower for failure. The basis for the supposition that there is a differentiation across sport types in the internality bias is that because of the singular nature of individual-team sports it was expected that they accept blame and accolade alone. However, this study failed to find a differentiation in the level of internality between sport types. Without accounting for the effects of externality, under these conditions one would expect that there would be no difference in the levels of pride felt. It would appear that ability, effort and being psyched up are not more salient to individual-team athletes than team athletes even though it would seem that their personal performance and the incumbent impact on internal factors should be more highlighted because of its singular nature.

It appears that there is a differentiation between sport types for the external factors used in this study. The difference in the level of externality is concentrated toward the failure end of level of success. It is not totally clear from the analysis that externality is necessarily the causal agent in the pride differences found between the sport types. However, it does have substantial explanatory value from a theoretical viewpoint.

One of the strongest arguments for the differences between sport types came in a statement by Scanlan and Lewthwaite (1984) that individual-team sport athletes focus more strongly on their personal performance, thereby leading to greater social evaluation potential than team

sports. Scanlan and Lewthwaite (1984) noted and Griffin (1972) and Simon and Martens (1979) have demonstrated that team sports are less stressful than individual-team sports. These were key studies which led to the hypothesis that there are differences in affect between individual-team sports and team sports.

This study found that both individual-team and team sports were self-enhancing by showing significantly higher internality than externality for success and are nearly equally self-enhancing when comparing means across sport types. Individual-team sports showed significantly higher internality than externality for failure. Team sports showed no difference in internality versus externality for failure. This indicates that while both individual-team sports and team sports are not self-protecting, team sports are less not self-protecting. This smaller degree of not self-protection found for team sports is due to the fact that team sport athletes are significantly more external for failure than individual-team sport athletes. That is, team sport athletes are more likely to blame situational factors and others for their failure.

The effect of sole responsibility (individual-team athletes) versus shared responsibility (team athletes) in denying blame or accepting accolade does not have, as expected, any polarizing effect across sport types with regard to internality. Both individual-team and team sport athletes accept an equally high amount of credit for personal success (high internality), but place an equally low

amount of blame for personal failure (low internality). Ability, effort and being psyched up are the reasons for their success but not their failure. Thus, sole responsibility in terms of differences in levels of internality does not appear to be a factor in this study. However, the team sport athlete's ability to reasonably share responsibility for less than an optimal performance may play an important role in the differential pride levels between sport types.

Both individual-team and team sport athletes equally "share" with other persons and circumstances a high amount of credit for personal success (high externality). Relative to success both individual-team and team sports share a low amount of blame for personal failure (low externality). Across sport types, team sport participants are willing to blame situational factors and others for failure more than are individual-team sport athletes. Thus, it would appear that the way in which a sport is played affects team sport athletes in the way in which they are able to share responsibility for a negative outcome or perhaps the way in which individual/team sport athletes are not able to share this personal outcome.

Similarly, if team sport athletes exhibit higher externality than individual-team sport athletes, then their pride would be lower for success and higher for failure. This is based on the presumption that team sports share blame and accolade and that external attributions for failure are self-protecting and for success are "other"

appreciating. This study found that, in fact, team sport athletes do give greater external attributions for failure, but not success, than individual-team sport athletes.

Presumably team sport athletes should have, theoretically, exhibited higher pride levels for failure than individual-team sport athletes if higher externality is of a self-protecting nature, which is exactly what occurred. Thus, it would appear that externality may be having an effect on emotion. This is somewhat supportive of the motivation-emotion theory. It is not clear whether this is contrary to a prediction by Weiner (1976) that externality would not be a strong influence on emotion like internality since this was not able to be tested because there was no difference in internality between sport types.

That cohesion, the coach, and perhaps other affective reactions may have an effect on attributions and affect as it applies to this study is suggested by an examination of the differences in attribution and pride levels between individual-team and team sports. Individual-team sport athletes can, for the most part, credibly take sole responsibility for their personal outcome since they compete in their personal event alone. Team sport athletes must, to be credible, share their personal outcome success with their teammates, as they had a substantial part in their success. Thus, that individual-team sports exhibit great-

er internality than externality and team sports exhibit greater externality than individual-team sports makes sense.

DeMan and Blais (1982a, 1982b) correlated level of self-esteem and the sport in which the subject participates. They showed that participation in individual-team sports is associated with a tendency toward higher levels of self-esteem than participation in team sports. Those of low self-esteem in individual-team sports may have dropped out due to many failures (Robinson & Carron, 1982) since this action would tend to leave those with higher self-esteem. The individual-team athlete may need a higher degree of "trait" self-esteem to cope with the lower levels of "state" pride felt under the transitory conditions of failure.

The support for the "guilt theory" mentioned earlier is founded in the fact that individual-team sports show no difference in pride levels between those who fall into the high externality and internality or the low externality and high internality categories, while team sport athletes show similar pride levels to those found with all athletes combined.

This suggests that the contribution to the difference between these two categories found among all athletes may be due to team sport athletes. That is, team sport athletes may feel greater guilt when they exhibit low externality and high internality rather than high externality

and high internality which mitigates against the low externality and high internality group's feelings of pride which they are due.

Individual-team sport athletes should not feel guilty for their attributions to high internality and low externality since in reality they are sole contributors to their success. This is supported by the lack of difference between those who exhibited high externality and internality, and low externality and high internality. One of the reasons that most athletes fall into the high externality and high internality for personal outcome success category may be a tribute to the coaches' success at instilling the concept of a team cohesion in their athletes. It is especially true for individual-team sport coaches that their team's record is the sum total of all of their athletes individual performances. Success as a coach is reflected in large part, star athletes aside, by the performance of the team as a whole.

Perhaps, the individual-team sport athlete is willing to "share" (i.e., high externality) for the benefit of meeting the coach's goals through team cohesion as long as the natural need to attribute to internal factors is met. For team sports, while it is natural to believe in team cohesion, athletes in a key position or a high scorer may believe that their skills carried the team to success. But the fact that it is a team sport by the nature in which it is played makes the belief somewhat doubtful. These ideas are mere theories which can not be relied upon

due to the few number of athletes who fell into the categories necessary to make more definitive statements. Future research should include other types of emotions to ferret out their impact on mitigating pride, as well as increasing the number of subjects tested.

One of the most surprising findings in this study is the extreme prevalence of coincident internality-externality ratios and the relative lack of discordant ratios. Finding that there are few athletes who fall into the low internality-high externality and high internality-low externality categories is based on an artifact of an emphasis placed on task difficulty and luck as external factors in other studies. Successful athletes in both sport types were high in both externality and internality, while unsuccessful athletes were low in both externality and internality. The fact that cells in certain categories were unfilled or sparse is interesting as an indicator of the way people think, but for the most part made analysis and interpretation quite difficult. Many potentially fascinating views of the data have become meaningless or statistically insignificant because of the lack of differentiation in the way these athletes attribute causes and perceive outcomes.

An attempt was made to determine if using luck and task difficulty as the external factors would have made a difference in the findings of this study. It was found that in using attributions to luck and task difficulty that personal outcome pride and external factors do not

significantly differ between sport types. However, it does appear that stressing task difficulty and luck may have resulted in some biases in the literature. It may be that the word bias is warranted here since Weiner (1979) has stated that there are other important external factors aside from task difficulty and luck. In this context, it must be remembered that opponent difficulty and luck were found to be unreliable and not members of the bulk of the external factors in factorial analysis.

The definitional differences for externality between this study and others is an important fact in the sense that high externality-low internality for failure and low externality-high internality for success both became additional important categories when externality was defined as task difficulty and luck. Thus, the definition of externality is crucial to the understanding and the interpretation of the way the vast majority of people categorize their attributions. More research on the basis of the current conception of externality is crucial to future understanding in attributional research.

Using externality in the sense employed in this study, the motivational theoretical perspective would predict that successful athletes would see themselves as both self-enhancing (high internality) and not self-enhancing (high externality) and that unsuccessful athletes saw themselves as self-protecting (low internality) and not self-protecting (low externality). This is obviously confusing. Clearly, more precise terminology needs to be

developed to handle the complexity of attributional findings. The unsuccessful athletes are being good losers by not blaming external factors, but are at the same time protecting their egos by not blaming themselves either. Successful athletes are being self-enhancing by ascribing success to themselves, but are also willing to give credit to external factors (Scanlan and Passer, 1980a; Greenberg, Pyszcybski & Solomon, 1982). The fact that these experienced college athletes followed a self-enhancing (internal for success) but not self-protecting (external for failure) attributional bias may be accurate, but it hardly fits the true complexity of the results.

It should be pointed out that the results of this study did concur with many findings in the literature. Winners were more internal than losers (Bird & Brame, 1978; Forsyth & Schlenker, 1977; Iso-Ahola, 1975, 1977; Lau & Russell, 1980; Roberts, 1975, 1978). Losers did not use externality (Gill et al., 1982). An externality bias was not found if task difficulty and luck were used as the definition of external factors (Fontaine, 1975; Iso-Ahola, 1977c; Iso-Ahola & Roberts, 1977; Scanlan & Passer, 1980). An externality bias was found using situational and "other" factors as externality was defined in this study. However, the literature on the externality bias is conflicting in any case (Bukowski & Moore, 1980).

When studying both team and personal attributions, Iso-Ahola (1975) found that team and personal attributions were used in similar ways. However, players on team sport

teams relied on team outcome to assess personal ability and effort, rather than basing self attributions on estimates of actual personal performance. Future research may want to focus on team outcome for team sports and personal outcome for individual-team sports to determine if the team outcome is crucial to differences across sport types.

#### 5.6 Hypothesis 4 - Comparison Within Sports Between Team and Personal Pride

For both perceived personal and team success outcomes, personal pride was found not to be higher than team pride. For both perceived personal and team failure outcomes, personal pride was found not to be lower than team pride. The reason for the hypothesized relationship between team outcome pride and personal outcome pride followed a similar line of reasoning for the individual-team versus team sport hypotheses. The effect of sole responsibility (personal outcome) versus shared responsibility (team outcome) in denying blame or accepting accolade was expected to have a polarizing effect with regard to attributions and thereby an effect on affect. However, this hypothesis appears not to have taken into account the complexity of outcomes with respect to their effect on attributions. Whether the line of reasoning used for this hy-

pothesis would have found support when taking into account the actual complexity is not a question that can be answered within the constraints of this study.

The complexity of the results is obvious in an additional set of analyses that were performed. When athletes believe that they are a personal failure regardless of the team outcome, attributions are given to low externality for their personal outcome. If they believed that they were a personal success but the team was a failure they gave attributions to high externality. However, if they believed that they were a personal success and the team was a success they were most external of the four conditions. A similar finding was shown for personal outcome internality.

If the athlete believed that the team was a success regardless of whether they believed that they were a success or not, attributions to high team outcome externality were made. Similarly, if the athlete believed that the team was a failure, regardless of whether they believed that they were a success or not, attributions to low team outcome externality were made. Similar findings were shown for team outcome internality. Thus, if we are to assume that differences in the level of pride found between conditions is a function of the amount of internality and perhaps externality exhibited after outcome, then the simplified hypothesis above could not have been expected to find significance because it did not reflect the complexity of the situation. An ex post facto analysis is

also not possible since the sample size is not large enough to answer the question. Future research on sport attribution and affect should take into consideration this unexpected complexity when evaluating team outcomes and personal outcomes.

## 5.7 Study Limitations

### 5.7.1 Attribution Questionnaire

The attribution questionnaires utilized in this study differ from those used in previous research, thus limiting the generalizability of the present study. The definitions of the attributions are based upon the particular circumstances which exist in sports.

This study made a substantial departure from classical attribution research when it removed luck and task difficulty from the items in the attribution questionnaires. The reasons for doing so are well documented in the methodology section. The implications of taking this approach when comparing this research to others who use luck and task difficulty are elaborated in the discussion section. Generalizability to other studies has certainly been affected.

The items in the attribution questionnaires were used as a scale to generate a mean attributional response level. While it was noted that other researchers have at-

tempted to formulate attributional scales, this is the first use of this particular measure. The scales' uniqueness may make generalizability more difficult. In addition, the scalar approach to attributions is sufficiently different from previous research done where attributions are analyzed in their tabular form that generalizability to these studies must also be questioned.

It should also be pointed out that the level of success question is an integral part of the attribution questionnaire (the athletes are asked to choose the positively phrased side of the questionnaire if it is believed that they succeeded and the negatively phrased side if they failed). This questionnaire format is certainly a unique one and may have important implications for generalizability.

#### 5.7.2 Pride Questionnaire

The pride questionnaire was newly devised for this study. Other researchers have included pride questions in their research, but none has provided the subject with a multiple item questionnaire as was included in the pride questionnaire utilized in the present study. The lack of available research with which to equate the pride questionnaire may reduce its comparability to other research which has used single question measures. On the other hand, the pride questionnaire appears to have desirable

test characteristics (e.g., high reliability, the ability to measure the desired pride dimension as established by factor analysis, high correlation with level of success). Further research is needed to confirm that these characteristics are exhibited in other testing conditions and uses.

### 5.7.3 Athletes

Since individual/team and team sport athletes were administered their questionnaires at different points and under different conditions in their athletic event, the athletes are subject to the possible effects that these differences might incur. One specific effect that was documented resulted in the responses of team sport athletes not being usable in the anxiety analyses. The anxiety questionnaire does not differentiate between personal and team outcomes. Therefore, when testing the team sport athletes at the end of the athletic event, confounding information was entered into the questionnaire.

There may also have been effects from different sports being tested at different points in their season. Certainly a winning or losing season is likely to have an effect on expectancy for success as well as the athletes' general esteem levels.

It is most probable that these athletes are a select population with regard to the attributional literature. Little attributional research has been done with high ability/experience college-aged athletes. Relative to other sports research it is likely that the way in which they view outcome is different than younger or less experienced athletes.

These athletes were tested in a naturalistic rather than a laboratory setting. This study gives a sense of how people think and react to real situational outcomes. Because these athletes have been participating in sports for many years, it may be that they have developed coping strategies for outcomes which are not measurable within the time limitations of a laboratory study. The findings here may not be generalizable to laboratory research.

Academics and sports differ in many respects. One important difference lies in the fact that sports are voluntary and to one degree or another academics are not. For most elementary and secondary students, dropping out of school is not a reasonable option. While a college student may quit school, these students must usually overcome substantial proscriptions and negative consequences for their future. It is less likely that, for most athletes, that quitting their sport will have long term consequences. In addition, the implications of failing in academics is likely to have long term consequences. Thus, there may be higher stress with regard to outcomes in academics than in sports. These may

account for some of the differences between the findings of this study and others. The results of this study may therefore not be generalizable to achievement attribution studies.

It is important to note that the participants in this study decided of their own volition to play sports and in which sport to participate. Therefore it can be said that they selected themselves into the sample tested (i.e., university or college level athletes). This may limit the generalizability to the sample population. Self-selection also occurred within the comparison groups. However, there is a very large number of athletes in the collegiate athletic arena. These findings are important since they are presumably generalizable to this population of athletes.

#### 5.8 Future Research

The results of this study may have a basis in the fact that these athletes are subjected to the long term effects of winning and losing. The findings certainly have some unique aspects when they are compared to the attributional literature as a whole. Much research has been done on expectancy for success in laboratory settings. However, this population of subjects is likely to have mind set with regard to expectancy for success which may be somewhat at odds with the findings in laboratory

studies. In a general way, they must tend to believe that they are relatively successful to continue participation. Yet these athletes often know their opponent's capabilities and when a loss is probable. The way in which these athletes deal with their perception of self and an outcome which may not be in keeping with the way they view themselves may help get at the root of an understanding of the information-processing that is going on that generates a perceptual defense.

Another important factor that should be examined is the effects of testing directly after an outcome versus some extended period of time after the outcome. The results of this study indicate that in testing immediately after the outcome that the effect of the outcome has a most pervasive influence on affect. It may be that after some time for digesting (information-processing) and interpreting the outcome that attributions become more differentiated. That is, the original attributions of high internality and externality for a success and low internality and externality for failure may gain in complexity as time and others change the athlete's understanding for the basis of the outcome. Once this information has been processed, then emotions which are more attribution dependent may arise.

Finally, an important aspect of the study which was measured because of its influence on determining to what the athlete is making attributions and feeling emotions is the team outcome. However, in terms of analyzing this

data the team outcomes were beyond the scope of this study. The interaction of the perception of personal and team outcomes and of team outcomes in and of themselves are other important areas of research in the context of the theory and research presented here.

Appendix A  
Statistics Tables  
Results using Attribution Questionnaire  
with Doubtful Items Deleted

Table A.1  
Hypothesis 1 - ANOVA A  
Pride by Internality/Externality  
Level of Success

ANOVA Personal Outcome Pride Score  
by Personal Outcome Internality versus Externality (0,1)  
Personal Outcome Level of Success (1,4)

Variable	PERSONAL OUTCOME PRIDE		
	Mean	Std. Dev.	N
EXTERNAL			
SOMEWHAT UNSUCCESSFUL	3.200	.000	1
QUITE SUCCESSFUL	3.331	.334	48
EXTREMELY SUCCESSFUL	3.629	.364	7
INTERNAL			
NOT VERY SUCCESSFUL	2.206	.618	16
SOMEWHAT SUCCESSFUL	2.657	.486	35
QUITE SUCCESSFUL	2.933	.751	3
For entire sample	2.960	.628	110

Redundancies in Design Matrix

Column	Effect
6	Personal Outcome Internality versus Externality by Personal Outcome Level of Success
8	(SAME)

\* W A R N I N G \* UNIQUE sums-of-squares are obtained assuming the redundant effects (possibly caused by missing cells) are actually null. The hypotheses tested may not be the hypotheses of interest. Different reordering of the model or data, or different contrasts may result in different UNIQUE sums-of-squares.

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	20.94	104	.20		
CONSTANT	93.09	1	93.09	462.36	.000
Internality versus Externality	.45	1	.45	2.22	.139
Level of Success Internality versus Externality by Level of Success	1.38	3	.46	2.28	.084
	.02	1	.02	.08	.784

Table A.2  
Hypothesis 1 - ANOVA B  
Pride by Internality/Externality  
Success/failure

Cell Means and Standard Deviations

Variable FACTOR	PERSONAL OUTCOME Mean	PRIDE SCORE Std. Dev.	N
EXTERNAL			
PERSONAL FAILURE	3.200	.000	1
PERSONAL SUCCESS	3.369	.349	55
INTERNAL			
PERSONAL FAILURE	2.516	.566	51
PERSONAL SUCCESS	2.933	.751	3
For entire sample	2.960	.628	110

Tests of Significance for Personal Outcome Pride Score

Source of Variation	SS	DF	MS	F	Sig of F
WITHIN CELLS	23.71	106	.22		
CONSTANT	105.34	1	105.34	470.91	.000
Internality versus Externality	.91	1	.91	4.09	.046
Success vs Failure	.25	1	.25	1.12	.292
Internality versus Externality by Success vs Failure	.05	1	.05	.20	.654

Table A.3  
Hypothesis 1 - ANOVA C  
Level of Success, Pride by  
Internality/Externality

MANOVA Level of Personal Success  
Personal Outcome Pride Score  
by Personal Outcome Internality versus Externality (0,1)

Cell Means and Standard Deviations

Variable FACTOR	PERSONAL OUTCOME LEVEL OF SUCCESS		
	Mean	Std. Dev.	N
EXTERNAL	3.107	.366	56
INTERNAL	2.445	.819	54
For entire sample	2.445	.819	110

Variable FACTOR	PERSONAL OUTCOME PRIDE SCORE		
	Mean	Std. Dev.	N
EXTERNAL	3.366	.347	56
INTERNAL	2.960	.628	54
For entire sample	2.960	.628	110

EFFECT .. PERSONAL OUTCOME INTERNALITY VERSUS EXTERNALITY  
Adjusted Hypothesis Sum-of-Squares and Cross-Products

	Level of Success	Pride Score
Level of Success	49.945	
Pride Score	30.651	18.810

Multivariate Tests of Significance  
(S = 1, M = 0, N = 52 1-2)

Test Name	Value	Approx. F	Hyp. DF	Error DF	Sig. of F
Pillais	.69651	122.78094	2.00	107.00	.000
Hotellings	2.29497	122.78094	2.00	107.00	.000
Wilks	.30349	122.78094	2.00	107.00	.000
Roys	.69651				

Univariate F-tests with (1,108) D. F.

Variable-Hyp.	SS-Error	SS-Hyp.	MS-Error	MS-	F	Sig. of F
Success	49.945	22.227	49.945	.21507	232.22818	.000
Pride	18.810	24.234	18.810	.22439	83.82871	.000

Table A.4  
 Hypothesis 4 - ANOVA  
 Personal Pride, Team Pride by  
 Personal Success/failure  
 Team Success/failure

MANOVA Personal Outcome Pride, Team Outcome Pride by  
 Personal Outcome Success vs Failure (0,1) Team Outcome  
 Success vs Failure (0,1)

Variable	CELL NUMBER			
	1	2	3	4
Personal Outcome Success vs Failure	1	1	2	2
Team Outcome Success vs Failure	1	2	1	2

Cell Means and Standard Deviations			
Variable .. PERSONAL OUTCOME PRIDE SCORE	Mean	Std. Dev.	N
PERSONAL FAILURE	2.416	.598	38
TEAM FAILURE	2.836	.332	14
PERSONAL SUCCESS	3.065	.409	20
TEAM SUCCESS	3.486	.266	37
For entire sample	2.952	.626	109

Variable .. TEAM OUTCOME PRIDE SCORE			
FACTOR	Mean	Std. Dev.	N
PERSONAL FAILURE	2.397	.591	38
TEAM FAILURE	3.379	.351	14
PERSONAL SUCCESS	2.490	.658	20
TEAM SUCCESS	3.457	.303	37
For entire sample	2.900	.705	109

Table A.5  
Hypothesis 5 - ANOVA  
Personal Outcome Externality by  
Individual/team vs Team Sports

Personal Outcome Internality Score BY Individual-team  
versus team sports was not significant.

\* \* \* C E L L M E A N S \* \* \*

PERSONAL OUTCOME EXTERNAL SCORE  
BY 0=INDIVIDUAL-TEAM SPORT, 1=TEAM SPORT

TOTAL POPULATION

2.09  
( 110)

Individual-team vs Team

Ind.-team	Team
1.85	2.29
( 50)	( 60)

PERSONAL OUTCOME EXTERNAL SCORE  
BY 0=INDIVIDUAL-TEAM SPORT, 1=TEAM SPORT

Source of Variation	Sum of Squares	DF	Mean Square	F	Signif of F
Main Effects	5.310	1	5.310	6.694	.011
Ind.-team vs team	5.310	1	5.310	6.694	.011
Explained	5.310	1	5.310	6.694	.011
Residual	85.672	108	.793		
Total	90.982	109	.835		

## Appendix B

## Development and Validation of Questionnaires

Original Personal Outcome  
Attribution Questionnaire

*Sample Means T-test Comparisons.* Initially, based on the original intent of the stated hypotheses, the internal and external questions in the Personal Outcome Attribution Questionnaire were used in a single externality scale (that is, the internal questions were reverse coded as external questions). A two tailed t-test was used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Personal Outcome Attribution scale. For both the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal to .012.

*Reliability and Related Statistics.* The interitem correlation coefficients for the recoded Personal Outcome Attribution Scale shows that the internal items in the questionnaire are negatively correlated with the external questions. Item 3, opponent difficulty was the only internal item to show a positive correlation with other

scale items. The reliability coefficients for the fifteen items is  $\alpha = .5106$ ; the standardized item  $\alpha = .5237$ . This indicates that the scale as a whole is unreliable. As will be demonstrated later, it was determined that the unreliable nature of the Personal Outcome Attribution scale was due to the negative correlations between the internal and the external questions in the scale.

*Scale Factor Analysis.* The final solution for the principal components analyses (see Appendix B - Tables B.2 and B.3) for the original Personal Outcome Attribution Questionnaire shows that the attribution items explain 64.6% of the variance. The three factor solution loading pattern indicates that items 2, luck, and 15, officials, comprise a second factor and item 3, opponent difficulty, comprises a third factor. All further scale analyses at various points in the scale development which included these items indicated that they do not have a communality with the remaining items. Thus, items 2, 3 and 15 were eliminated from the Personal Outcome Attribution scales.

Original Team Outcome  
Attribution Questionnaire

*Sample Means T-test Comparisons.* As with the Personal Outcome Attribution Questionnaire, initially, based on the original intent of the stated hypotheses, the internal and external questions in the Team Outcome Attribution Questionnaire were used in a single externality scale (that is, the internal questions were reverse coded as external questions). A two tailed t-test was used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Team Outcome Attribution scale. For both the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal to .001.

*Reliability and Related Statistics.* The interitem correlation coefficients for the recoded Team Outcome Attribution Scale, again, shows that the internal items in the questionnaire are negatively correlated with the external questions. Item 3, opponent difficulty was the only internal item to show a positive correlation with other scale items. The reliability coefficients for the 15 items is  $\alpha = .3995$ ; the standardized item  $\alpha = .4395$ . This indicates that the scale as a whole is unreliable. As will be demonstrated later, it was determined

that the unreliable nature of the Team Outcome Attribution scale was due to the negative correlations between the internal and the external questions in the scale.

*Scale Factor Analysis.* The final solution for the principal components analyses (see Appendix B - Tables B.5 and B.6) for the original Team Outcome Attribution Questionnaire shows that the attribution items explain 65.1% of the variance. The three factor solution loading pattern that indicates that items 1, weather, and 9, luck, comprise a second factor and items 11, officials, and 13, opponent difficulty, comprise a third factor. All further scale analyses at various points in the scale development which included these items indicated that they do not have a communality with the remaining items. Thus, items 1, 9, 11 and 13 were eliminated from the Team Outcome Attribution scales.

#### Item Analysis of Personal Outcome Internality Scale

*Sample Means T-test Comparisons.* A two tailed t-test was again used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Personal Outcome Internality scale. For all questions, for both

the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal to .001. The scale mean was 2.490. All the t-tests showed that the items were highly discriminating.

*Reliability and Related Statistics.* The Personal Outcome Internality Scale shows that all of the items in the scale positively correlate with one another (see Appendix B - Table B.7). The reliability coefficients for the 4 items are a respectable  $\alpha = .8382$  and a standardized item  $\alpha = .8381$ . This indicates that the scale as a whole is reliable. All the items show reasonably high item-total correlations (See Appendix B - Table B.8).

*Scale Factor Analysis.* The final solution (Table B.11) for the rescaled Personal Outcome Internality Questionnaire shows that the remaining attribution items explain 69.0% of the variance. The final solution also indicates that factor loadings for all items are greater than .6.

The principal components (Tables B.9 - Table B.11) analysis for the scale reveals that the scale is comprised of a single factor. Thus, rescaling and splitting out internal questions from the original personal outcome attribution questionnaire has helped develop a discriminating,

reliable scale that is targeting on a single factor - internal attributions to causality for personal event outcomes.

### Item Analysis of Team Outcome Internality Scale

*Sample Means T-test Comparisons.* A two tailed t-test was again used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Team Outcome Internality scale. For the three items in the scale, it was not possible to rely on a t-test for determining whether there was a significant difference between the means for those individuals in the extreme groups. This was because each of the items showed no variance for the low internality group. However, visual inspection left no doubt that the items were highly discriminating. The smallest means difference for these items is 2.444; the scale mean was 2.313.

*Reliability and Related Statistics.* The Team Outcome Internality Scale shows that all of the items in the scale positively correlate with one another (see Appendix B - Table B.17). The reliability coefficients for the 3 items are a respectable  $\alpha = .8543$  and a standardized item

alpha = .8533. This indicates that the scale as a whole is reliable. All the items show reasonably high item-total correlations (See Appendix B - Table B.18).

*Scale Factor Analysis.* The final solution (Table B.21) for the rescaled Team Outcome Internality Scale shows that the remaining internal attribution items explain 76.5% of the variance. The final solution also indicates that factor loadings for all items are greater than .6.

The principal components (Tables B.19 - Table B.21) analysis for the scale reveals that the scale is comprised of a single factor. Thus, rescaling and splitting out internal questions from the original team outcome attribution questionnaire has helped develop a discriminating, reliable scale that is targeting on a single factor - - internal attributions to causality for team event outcomes.

#### Item Analysis of Personal Outcome Externality Scale

*Sample Means T-test Comparisons.* A two tailed t-test was again used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Personal Outcome Externality scale. For all eight questions, for

both the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal to .001. The scale mean was 2.074. All the t-tests showed that the items were highly discriminating.

*Reliability and Related Statistics.* The interitem correlation coefficients for the Personal Outcome Externality Scale shows that all of the items in the questionnaire positively correlate with one another (see Appendix B - Table B.12). The reliability coefficients for the 8 items are a very respectable  $\alpha = .9154$  and a standardized item  $\alpha = .9156$ . This indicates that the scale as a whole is very reliable. All the items show reasonably high item-total correlations (See Appendix B - Table B.13).

*Scale Factor Analysis.* The final solution (Table B.16) for the Personal Outcome Externality shows that the external attribution items explain 63.2% of the variance. The final solution also indicates that factor loadings for all items with the exception of item 9 are greater than .5. Item 9's factor loading is .36052.

The principal components (Tables B.14 - Table B.16) analysis for the scale reveals that the scale is comprised of a single factor. Thus, rescaling the attribution ques-

tionnaire has helped develop a highly discriminating, extremely reliable scale that is targeting on a single factor - - externality in attributions to causality for personal event outcomes.

#### Item Analysis of Team Outcome Externality Scale

*Sample Means T-test Comparisons.* A two tailed t-test was again used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Team Outcome Externality scale. For five out of seven items in the scale, it was not possible to rely on a t-test for determining whether there was a significant difference between the means for those individuals in the extreme groups. This was because each of the items showed no variance for the low internality group. However, visual inspection left no doubt that the items were highly discriminating. The smallest means difference for these items is 1.750. For the two questions with variance in both extreme groups, the pooled variance estimate and the separate variance estimate indicated that the two-tailed probabilities for these items were greater than or equal to .001. The scale mean was 2.313.

*Reliability and Related Statistics.* The Team Outcome Externality Scale shows that all of the items in the scale positively correlate with one another (see Appendix B - Table B.22). The reliability coefficients for the seven items are a respectable  $\alpha = .8741$  and a standardized item  $\alpha = .8726$ . This indicates that the scale as a whole is reliable. All the items show reasonably high item-total correlations (See Appendix B - Table B.23).

*Scale Factor Analysis.* The final solution (Table B.26) for the rescaled Team Externality Scale shows that the remaining external attribution items explain 56.7% of the variance. The final solution also indicates that factor loadings for all items are greater than .5, except item 3, psyched up. Item 3 had a factor loading of .36208.

The principal components (Tables B.24 - Table B.26) analysis for the scale reveals that the scale is comprised of a single factor. Thus, rescaling and splitting out external questions from the original team outcome attribution questionnaire has helped develop a discriminating, reliable scale that is targeting on a single factor - external attributions to causality for team event outcomes.

Item Analysis of  
Personal Outcome Pride Questionnaire

Sample Means T-test Comparisons

*Sample Means T-test Comparisons.* A two tailed T-test was used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Personal Outcome Pride scale. For those items for which a t-test was statistically appropriate, both the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal .000. The scale mean was 3.100. The items "shame", "guilt", "dishonored" and "disgraced" could not be tested statistically for a difference between the means because the individuals in the  $> 75\%$  quartile showed no variance, that is, they did not feel that they had any shame, guilt, dishonor or disgrace. However, the  $< 25\%$  quartile did have a variance on these items. It would appear that the questions are discriminating since they have rather large mean differences, ranging from 1.2 to 1.0 scale points on a 4-point scale. All the testable t-tests showed negative signs.

## Reliability and Related Statistics

*Reliability and Related Statistics.* The interitem correlation coefficients (See Appendix B - Table B.28) for the recoded Personal Outcome Pride Scale shows that all the items in the questionnaire are positively correlated with one another. The reliability coefficients for the 10 items are a respectable  $\alpha = .8914$  and a standardized item  $\alpha = .8939$ . This indicates that the scale is reliable. The "Alpha If Item Deleted" column of the Item-to-total Statistics Table shows little variability in the size of alpha if any item is deleted. In addition, the corrected item-total correlations are reasonably high for all items (See Appendix B - Table B.29).

The all of the items in the questionnaire have face validity for similar meanings since all of the item key words were very closely related to one another by definition when The Third International Webster's Thesaurus is consulted. Since the item key words, pride and shame, are components of the scale, if the scale is statistically measuring a single factor, as analyzed by factor analysis, it is suggested that the combined questionnaire has face validity for a scale examining the concept - pride.

## Scale Factor Analysis

*Scale Factor Analysis.* The final solution for the Personal Pride Questionnaire shows that the pride-shame items explain 64.7% of the variance. The final solution also indicates that factor loadings for all items with the exception of item 1 are greater than .5. Item 1's factor loading is .47232.

The factor (See Appendix B - Tables B.30 - B.32) and the rotated factor (See Appendix B - Tables B.33 and B.34) matrices for the scale reveals that the scale is comprised of two factors. The two factor solution loading pattern that exists follows exactly the pattern of item differentiation based on negatively and positively worded items. That is, one factor is based on the negatively worded items "shame", "guilt", "dishonored", "belittled", "disgraced" and the other factor is based on the positively worded items "congratulatory", "respectable", "praiseworthy", "proud", "admirable". Thus, in fact, the scale does not have two substantively different dimensions. Yet it does have two response set factors. Factor analysis further extends the evidence for the validity of the scale and its ability to measure and only measure the desired pride dimension.

Item Analysis of  
Team Outcome Pride Questionnaire

Sample Means T-test Comparisons

*Sample Means T-test Comparisons.* A two tailed T-test was used to measure if there is a difference between the means for those individuals in the extreme groups (lowest [ $< 25\%$ ] and highest [ $> 75\%$ ] quartiles) for the Team Outcome Pride scale. For those items for which a t-test was statistically appropriate, both the pooled variance estimate and the separate variance estimate, the two-tailed probabilities for all of the items were greater than or equal to .000. The scale mean was 3.000. Items shame, guilt, dishonored and disgraced could not be tested statistically for a difference between the means because the individuals in the  $> 75\%$  quartile showed no variance, that is, they did not feel that they had any dishonor or disgrace. However, the  $< 25\%$  quartile did have a variance on these items. It would appear that the questions are discriminating since they have rather large mean differences, ranging from 1.0769 to 1.0238 scale points on a 4-point scale. All the testable t-tests showed negative signs.

## Reliability and Related Statistics

*Reliability and Related Statistics.* The interitem correlation coefficients (See Appendix B - Table B.36) for the recoded Team Outcome Pride Scale shows that all the items in the questionnaire are positively correlated with one another. The reliability coefficients for the 10 items are a respectable  $\alpha = .9229$  and a standardized item  $\alpha = .9228$ . This indicates that the scale is reliable. The "Alpha If Item Deleted" column of the Item-to-total Statistics Table shows little variability in the size of alpha if any item is deleted. In addition, the corrected item-total correlations are reasonably high for all items (See Appendix B - Table B.37).

The all of the items in the questionnaire have face validity for similar meanings since all of the item key words were very closely related to one another by definition when The Third International Webster's Thesaurus is consulted. Since the item key words, pride and shame, are components of the scale, if the scale is statistically measuring a single factor, as analyzed by factor analysis, it is suggested that the combined questionnaire has face validity for a scale examining the concept - pride.

Both the Team and Personal Outcome Pride Scales are identical to one another except that the instructions are specifically adapted to whether the scale is given after the team event or the personal event. The reliability

testing reveals very similar results. However, the Team Outcome Pride Scale shows a slight advantage in reliability.

### Scale Factor Analysis

*Scale Factor Analysis.* The final solution for the Team Pride Questionnaire shows that the pride-shame items explain 72.5% of the variance. The final solution also indicates that factor loadings for all items are greater than .5.

The factor (See Appendix B - Tables B.38 - B.40) and the rotated factor (See Appendix B - Tables B.41 and B.42) matrices for the scale reveal that the scale is comprised of two factors. As in the Personal Pride Questionnaire, the two factor solution loading pattern that exists follows exactly the pattern of item differentiation based on negatively and positively worded items. That is, one factor is based on the negatively worded items shame, guilt, dishonored, belittled, disgraced and the other factor is based on the positively worded items congratulatory, respectable, praiseworthy, proud, admirable. Thus, in fact, the scale does not have two substantively different dimensions. Yet it does have two response set factors. Factor analysis further extends the evidence for the validity of the scale and its ability to measure only the desired pride dimension.

As one might expect, the Team and Personal Pride Questionnaires are substantially the same in all item analytical respects. However, while a test of Pearson-product moment showed a .6066 correlation (one-tailed significance = .001), it also indicates that they are not equivalent. Further, it should be noted that the Personal Pride Questionnaire explained less of the variance than did the Team Pride Questionnaire. Thus, because there are differences, it would appear that they may actually have measured two separate conditions, both the team and the personal outcomes, as desired.

#### Reliability of Anxiety Questionnaires

Because of the utilization and standardization of the anxiety questionnaire in other studies extensive analysis of this questionnaire was not performed. However, for the Personal Outcome Anxiety Questionnaire alpha was found to be .8214 and the standardized item alpha is equal to .8204. For the Team Outcome Anxiety Questionnaire alpha = .8526 and the standardized item alpha = .8525. Both of these are very respectable reliability findings and are consistent with other researchers findings.

## Item and Factor Analyses of Questionnaires

 Statistical Table B.1  
 Scale Code Directory (POAQ)  
 Personal Outcome Attribution Questionnaire

POUTPF01	TEAMMATE ABILITY
POUTPF02	LUCK
POUTPF03	OPPONENT DIFFICULTY
POUTPF04	COACHING
POUTPF05	CROWD
POUTPF06	PSYCHED UP
POUTPF07	MY EFFORT TODAY
POUTPF08	TEAM EFFORT TODAY
POUTPF09	WEATHER
POUTPF10	EQUIPMENT
POUTPF11	TEAMMATE EFFORT
POUTPF12	TEAM ABILITY
POUTPF13	PERSONAL PRACTICE EFFORT
POUTPF14	PERSONAL ABILITY
POUTPF15	OFFICIALS

 Principal-Components Analysis  
 Personal Outcome Attribution Questionnaire

 Statistical Table B.2  
 Factor Matrix (POAQ)  
 Personal Outcome Attribution Questionnaire

	FACTOR 1	FACTOR 2	FACTOR 3
POUTPF01	.80143	.06079	-.01711
POUTPF02	.30187	.66175	.28780
POUTPF03	.27454	-.39896	.72873
POUTPF04	.73936	.03132	.31440
POUTPF05	.74541	.33049	-.05474
POUTPF06	-.72037	.16149	.02937
POUTPF07	-.80764	.35374	-.01662
POUTPF08	.81665	-.03751	.22816
POUTPF09	.56432	.21131	-.32191
POUTPF10	.79640	.06082	-.26090
POUTPF11	.82478	.08594	.07256
POUTPF12	.87488	-.06901	-.17236
POUTPF13	-.69697	.19383	.06300
POUTPF14	-.70667	.29162	.24636
POUTPF15	.31905	.58666	.17210

See Statistical Table B.1 "Scale Code Directory" for item definitions.

Statistical Table B.3  
 Final Statistics (POAQ)  
 Personal Outcome Attribution Questionnaire

Variable	Communality	Factor	Eigen value	Pct of Var	Cum Pct
		1	7.23455	48.2	48.2
		2	1.39089	9.3	57.5
		3	1.07016	7.1	64.6
POUTPF01	.64629	*			
POUTPF02	.61187	*			
POUTPF03	.76560	*			
POUTPF04	.64648	*			
POUTPF05	.66786	*			
POUTPF06	.54588	*			
POUTPF07	.77769	*			
POUTPF08	.72038	*			
POUTPF09	.46674	*			
POUTPF10	.70602	*			
POUTPF11	.69292	*			
POUTPF12	.79988	*			
POUTPF13	.52731	*			
POUTPF14	.64511	*			
POUTPF15	.47558	*			

See Statistical Table B.1 "Scale Code Directory" for item definitions.

Statistical Table B.4  
 Scale Code Directory (TOAQ)  
 Team Outcome Attribution Questionnaire

TOUTPF01	WEATHER
TOUTPF02	EQUIPMENT
TOUTPF03	PSYCHED UP
TOUTPF04	PERSONAL PRACTICE EFFORT
TOUTPF05	PERSONAL EFFORT TODAY
TOUTPF06	CROWD
TOUTPF07	TEAM EFFORT TODAY
TOUTPF08	PERSONAL ABILITY
TOUTPF09	LUCK
TOUTPF10	TEAM ABILITY
TOUTPF11	OFFICIALS
TOUTPF12	TEAM PRACTICE EFFORT
TOUTPF13	OPPONENT DIFFICULTY
TOUTPF14	COACHING

Principal-Components Analysis  
Team Outcome Attribution Questionnaire

Table B.5  
Factor Matrix (TOAQ)  
Team Outcome Attribution Questionnaire

	FACTOR 1	FACTOR 2	FACTOR 3
TOUTPF01	.50063	.56912	-.27378
TOUTPF02	.74945	.22711	-.29840
TOUTPF03	.55682	-.20032	.03182
TOUTPF04	-.76327	.04633	-.20585
TOUTPF05	-.84884	.23172	.05658
TOUTPF06	.77846	.22935	-.15353
TOUTPF07	.83022	-.26032	-.13429
TOUTPF08	-.82382	.10275	.28051
TOUTPF09	.28659	.71415	-.01935
TOUTPF10	.76306	-.23013	-.27206
TOUTPF11	.25698	.50352	.54695
TOUTPF12	.70922	-.12378	.44629
TOUTPF13	.28766	-.08815	.60809
TOUTPF14	.73953	-.04680	.37474

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.6  
Final Statistics (TOAQ)  
Team Outcome Attribution Questionnaire

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
TOUTPF01	.64948	*	1	6.26250	44.7	44.7
TOUTPF02	.70231	*	2	1.44415	10.3	55.0
TOUTPF03	.35119	*	3	1.41381	10.1	65.1
TOUTPF04	.62710	*				
TOUTPF05	.77743	*				
TOUTPF06	.68218	*				
TOUTPF07	.77506	*				
TOUTPF08	.76792	*				
TOUTPF09	.59251	*				
TOUTPF10	.70923	*				
TOUTPF11	.61873	*				
TOUTPF12	.71749	*				
TOUTPF13	.46029	*				
TOUTPF14	.68953	*				

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Personal Outcome Internal Scale (POIS)

Table B.7  
Correlation Matrix (POIS)  
Personal Outcome Internal Scale

	POUTPF06	POUTPF07	POUTPF13	POUTPF14
POUTPF06	1.00000			
POUTPF07	.68639	1.00000		
POUTPF13	.56919	.60560	1.00000	
POUTPF14	.47453	.67404	.49750	1.00000

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Table B.8  
Item-to-total Statistics (POIS)  
Personal Outcome Internal Scale

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
POUTPF06	7.4700	9.0799	.6620	.4834	.8000
POUTPF07	7.4200	7.6602	.7756	.6177	.7452
POUTPF13	7.4200	8.9329	.6231	.3954	.8154
POUTPF14	7.5700	8.6718	.6281	.4508	.8139

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis (POIS)

Table B.9  
Initial Statistics (POIS)  
Personal Outcome Internal Scale

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
POUTPF06	1.00000	*	1	2.76010	69.0	69.0
POUTPF07	1.00000	*	2	.54765	13.7	82.7
POUTPF13	1.00000	*	3	.44635	11.2	93.9
POUTPF14	1.00000	*	4	.24590	6.1	100.0

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Table B.10  
Factor Matrix (POIS)  
Personal Outcome Internal Scale

	FACTOR 1
POUTPF06	.82395
POUTPF07	.90056
POUTPF13	.80055
POUTPF14	.79329

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

Table B.11  
Final Statistics (POIS)  
Personal Outcome Internal Scale

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
POUTPF06	.67890	*	1	2.76010	69.0	69.0
POUTPF07	.81101	*				
POUTPF13	.64087	*				
POUTPF14	.62932	*				

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Personal Outcome External Scale (POES)

Table B.12  
Correlation Matrix (POES)

	POUTPF01	POUTPF04	POUTPF05	POUTPF08	POUTPF09
POUTPF01	1.00000				
POUTPF04	.61705	1.00000			
POUTPF05	.57198	.58501	1.00000		
POUTPF08	.60701	.63139	.52515	1.00000	
POUTPF09	.41277	.19088	.40613	.44572	1.00000
POUTPF10	.61363	.46760	.60428	.56250	.55350
POUTPF11	.68699	.54329	.58487	.79968	.44569
POUTPF12	.76339	.58747	.59697	.64475	.49337

	POUTPF10	POUTPF11	POUTPF12
POUTPF10	1.00000		
POUTPF11	.65889	1.00000	
POUTPF12	.49337	.67884	1.00000

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Table B.13  
Item-to-total Statistics (POES)

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
POUTPF01	14.3700	40.2759	.7688	.6317	.9004
POUTPF04	14.2600	41.2246	.6608	.5957	.9102
POUTPF05	14.6300	41.6496	.6966	.5293	.9066
POUTPF08	14.3600	41.5661	.7533	.7127	.9020
POUTPF09	14.8900	44.9070	.5114	.3917	.9205
POUTPF10	14.7200	41.4158	.7368	.5841	.9032
POUTPF11	14.4300	39.8031	.8250	.7724	.8956
POUTPF12	14.4700	40.5344	.8329	.7150	.8955

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis

Table B.14  
Initial Statistics (POES)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
POUTPF01	1.00000	*	1	5.05556	63.2	63.2
POUTPF04	1.00000	*	2	.87424	10.9	74.1
POUTPF05	1.00000	*	3	.54901	6.9	81.0
POUTPF08	1.00000	*	4	.45184	5.6	86.6
POUTPF09	1.00000	*	5	.38469	4.8	91.4
POUTPF10	1.00000	*	6	.31654	4.0	95.4
POUTPF11	1.00000	*	7	.22345	2.8	98.2
POUTPF12	1.00000	*	8	.14466	1.8	100.0

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Table B.15  
Factor Matrix (POES)

	FACTOR 1
POUTPF01	.83943
POUTPF04	.73232
POUTPF05	.76652
POUTPF08	.82811
POUTPF09	.60043
POUTPF10	.81041
POUTPF11	.87060
POUTPF12	.87525

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

Table B.16  
Final Statistics (POES)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
POUTPF01	.70465	*	1	5.05556	63.2	63.2
POUTPF04	.53630	*				
POUTPF05	.58756	*				
POUTPF08	.68577	*				
POUTPF09	.36052	*				
POUTPF10	.65676	*				
POUTPF11	.75795	*				
POUTPF12	.76606	*				

See Table B.1 "SCALE CODE DIRECTORY" for item definitions.

## Team Outcome Internal Scale (TOIS)

Table B.17  
Correlation Matrix (TOIS)  
Team Outcome Internal Scale

	TOUTPF04	TOUTPF05	TOUTPF08
TOUTPF04	1.00000		
TOUTPF05	.66878	1.00000	
TOUTPF08	.50849	.75939	1.00000

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.18  
Item-to-total Statistics (TOIS)  
Team Outcome Internal Scale

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
TOUTPF04	4.4200	4.9329	.6425	.4890	.8705
TOUTPF05	4.6000	3.9394	.8461	.7193	.6753
TOUTPF08	4.8600	4.4448	.7001	.5954	.8210

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis

Table B.19  
Initial Statistics (TOIS)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
		*				
		*				
TOUTPF04	1.00000	*	1	2.29648	76.5	76.5
TOUTPF05	1.00000	*	2	.49955	16.7	93.2
TOUTPF08	1.00000	*	3	.20396	6.8	100.0

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.20  
Factor Matrix (TOIS)

	FACTOR 1
TOUTPF04	.82121
TOUTPF05	.93203
TOUTPF08	.86800

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.21  
Final Statistics (TOIS)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
		*				
		*				
TOUTPF04	.67439	*	1	2.29648	76.5	76.5
TOUTPF05	.86867	*				
TOUTPF08	.75342	*				

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

## Team Outcome External Scale (TOES)

Table B.22  
Correlation Matrix (TOES)

	TOUTPF02	TOUTPF03	TOUTPF06	TOUTPF07	TOUTPF10
TOUTPF02	1.00000				
TOUTPF03	.34866	1.00000			
TOUTPF06	.63155	.32807	1.00000		
TOUTPF07	.51078	.51712	.61505	1.00000	
TOUTPF10	.55517	.37807	.57758	.71821	1.00000
TOUTPF12	.30900	.33529	.41308	.55995	.43862
TOUTPF14	.44694	.38218	.52088	.52888	.47772

TOUTPF02 TOUTPF03

TOUTPF12	1.00000	
TOUTPF14	.67863	1.00000

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.23  
Item-to-total Statistics (TOES)

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
TOUTPF02	14.4200	27.8218	.6072	.4470	.8620
TOUTPF03	13.6700	29.4355	.4744	.2728	.8769
TOUTPF06	13.9800	26.1006	.6756	.5219	.8531
TOUTPF07	13.6500	25.2399	.7903	.6691	.8376
TOUTPF10	13.9800	25.9188	.7002	.5625	.8497
TOUTPF12	13.6500	26.6540	.6346	.5162	.8586
TOUTPF14	13.7900	25.2787	.6917	.5391	.8511

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis

Table B.24  
Initial Statistics (TOES)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
TOUTPF02	1.00000	*	1	3.96905	56.7	56.7
TOUTPF03	1.00000	*	2	.86478	12.4	69.1
TOUTPF06	1.00000	*	3	.74120	10.6	79.6
TOUTPF07	1.00000	*	4	.53401	7.6	87.3
TOUTPF10	1.00000	*	5	.36466	5.2	92.5
TOUTPF12	1.00000	*	6	.30428	4.3	96.8
TOUTPF14	1.00000	*	7	.22201	3.2	100.0

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.25  
Factor Matrix (TOES)

	FACTOR 1
TOUTPF02	.72415
TOUTPF03	.60173
TOUTPF06	.78670
TOUTPF07	.85616
TOUTPF10	.80025
TOUTPF12	.70790
TOUTPF14	.76755

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

Table B.26  
Final Statistics (TOES)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
TOUTPF02	.52439	*	1	3.96905	56.7	56.7
TOUTPF03	.36208	*				
TOUTPF06	.61890	*				
TOUTPF07	.73302	*				
TOUTPF10	.64040	*				
TOUTPF12	.50112	*				
TOUTPF14	.58914	*				

See Table B.4 "SCALE CODE DIRECTORY" for item definitions.

## Personal Outcome Pride Questionnaire (POPQ)

Table B.27  
Scale Code Directory (POPQ)

1.	PPRDSH01	SHAME
2.	PPRDSH02	CONGRATULATORY
3.	PPRDSH03	GUILT
4.	PPRDSH04	RESPECTABLE
5.	PPRDSH05	DISHONORED
6.	PPRDSH06	PRAISEWORTHY
7.	PPRDSH07	PROUD
8.	PPRDSH08	BELITTLED
9.	PPRDSH09	ADMIRABLE
10.	PPRDSH10	DISGRACED

Table B.28  
Correlation Matrix (POPQ)

	PPRDSH01	PPRDSH02	PPRDSH03	PPRDSH04	PPRDSH05
PPRDSH01	1.0000				
PPRDSH02	.5039	1.0000			
PPRDSH03	.4871	.3111	1.0000		
PPRDSH04	.4898	.5551	.5260	1.0000	
PPRDSH05	.3623	.2960	.5740	.5231	1.0000
PPRDSH06	.2800	.4495	.2582	.5510	.2727
PPRDSH07	.4109	.5599	.3271	.6114	.4033
PPRDSH08	.4927	.4396	.5861	.5968	.6942
PPRDSH09	.3872	.5407	.2829	.5782	.2945
PPRDSH10	.4686	.3376	.3480	.4413	.6109
	PPRDSH06	PPRDSH07	PPRDSH08	PPRDSH09	PPRDSH10
PPRDSH06	1.0000				
PPRDSH07	.5290	1.0000			
PPRDSH08	.3726	.4836	1.0000		
PPRDSH09	.5905	.6274	.4100	1.0000	
PPRDSH10	.3342	.4256	.6047	.3504	1.0000

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

Table B.29  
Item-to-total Statistics (POPQ)

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
PPRDSH01	26.1800	33.3410	.5909	.4511	.8835
PPRDSH02	27.6300	31.2052	.6298	.4688	.8815
PPRDSH03	26.1100	34.0989	.5488	.4903	.8861
PPRDSH04	26.8100	30.5595	.7713	.6121	.8704
PPRDSH05	26.0400	33.9782	.5989	.6058	.8836
PPRDSH06	27.5300	32.3930	.5747	.4400	.8850
PPRDSH07	27.0400	29.7156	.6942	.5391	.8772
PPRDSH08	26.1600	32.1156	.7107	.6294	.8757
PPRDSH09	27.4900	31.6262	.6505	.5301	.8795
PPRDSH10	25.9500	34.1086	.5889	.5058	.8842

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis

Table B.30  
Initial Statistics (POPQ)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
		*				
		*				
PPRDSH01	1.00000	*	1	5.14709	51.5	51.5
PPRDSH02	1.00000	*	2	1.32288	13.2	64.7
PPRDSH03	1.00000	*	3	.75225	7.5	72.2
PPRDSH04	1.00000	*	4	.65961	6.6	78.8
PPRDSH05	1.00000	*	5	.48223	4.8	83.6
PPRDSH06	1.00000	*	6	.41698	4.2	87.8
PPRDSH07	1.00000	*	7	.35248	3.5	91.3
PPRDSH08	1.00000	*	8	.32050	3.2	94.5
PPRDSH09	1.00000	*	9	.29217	2.9	97.5
PPRDSH10	1.00000	*	10	.25383	2.5	100.0

PC Extracted 2 factors.

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

Table B.31  
Factor Matrix (POPQ)

	FACTOR 1	FACTOR 2
PPRDSH01	.67753	-.11524
PPRDSH02	.69692	.33511
PPRDSH03	.65284	-.42289
PPRDSH04	.82839	.09833
PPRDSH05	.70460	-.50302
PPRDSH06	.64250	.46064
PPRDSH07	.75588	.32509
PPRDSH08	.79953	-.34158
PPRDSH09	.70701	.47566
PPRDSH10	.68570	-.30815

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

Table B.32 (POPQ)  
Final Statistics

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
		*				
		*				
PPRDSH01	.47232	*	1	5.14709	51.5	51.5
PPRDSH02	.59799	*	2	1.32288	13.2	64.7
PPRDSH03	.60504	*				
PPRDSH04	.69590	*				
PPRDSH05	.74950	*				
PPRDSH06	.62500	*				
PPRDSH07	.67703	*				
PPRDSH08	.75593	*				
PPRDSH09	.72612	*				
PPRDSH10	.56514	*				

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

## Varimax Rotation

Table B.33  
Rotated Factor Matrix (POPQ)

	FACTOR 1	FACTOR 2
PPRDSH01	.56403	.39268
PPRDSH02	.26222	.72749
PPRDSH03	.76205	.15593
PPRDSH04	.52195	.65074
PPRDSH05	.85514	.13506
PPRDSH06	.13542	.77888
PPRDSH07	.31130	.76166
PPRDSH08	.80970	.31674
PPRDSH09	.17091	.83481
PPRDSH10	.70507	.26081

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

Table B.34  
Factor Transformation Matrix (POPQ)

	FACTOR 1	FACTOR 2
FACTOR 1	.71327	.70089
FACTOR 2	-.70089	.71327

See Table B.35 "SCALE CODE DIRECTORY" for item definitions.

## Team Outcome Pride Questionnaire (TOPQ)

Table B.35  
Scale Code Directory (TOPQ)

1.	TPRDSH01	SHAME
2.	TPRDSH02	CONGRATULATORY
3.	TPRDSH03	GUILT
4.	TPRDSH04	RESPECTABLE
5.	TPRDSH05	DISHONORED
6.	TPRDSH06	PRAISEWORTHY
7.	TPRDSH07	PROUD
8.	TPRDSH08	BELITTLED
9.	TPRDSH09	ADMIRABLE
10.	TPRDSH10	DISGRACED

Table B.36  
Correlation Matrix (TOPQ)

	TPRDSH01	TPRDSH02	TPRDSH03	TPRDSH04	TPRDSH05
TPRDSH01	1.0000				
TPRDSH02	.4448	1.0000			
TPRDSH03	.4575	.3897	1.0000		
TPRDSH04	.4390	.7415	.3923	1.0000	
TPRDSH05	.5175	.4426	.5555	.4070	1.0000
TPRDSH06	.4122	.6896	.3831	.6981	.4330
TPRDSH07	.4687	.8104	.4862	.7615	.5431
TPRDSH08	.4545	.4426	.2722	.4667	.6495
TPRDSH09	.4322	.7901	.4143	.7602	.4833
TPRDSH10	.4927	.5026	.5317	.4495	.7902
	TPRDSH06	TPRDSH07	TPRDSH08	TPRDSH09	TPRDSH10
TPRDSH06	1.0000				
TPRDSH07	.7598	1.0000			
TPRDSH08	.5247	.5208	1.0000		
TPRDSH09	.8391	.8373	.4712	1.0000	
TPRDSH10	.4685	.5809	.5734	.5256	1.0000

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

Table B.37  
Item-to-total Statistics (TOPQ)

	SCALE MEAN IF ITEM DELETED	SCALE VARIANCE IF ITEM DELETED	CORRECTED ITEM- TOTAL CORREL.	SQUARED MULTIPLE CORREL.	ALPHA IF ITEM DELETED
TPRDSH01	25.9400	38.1176	.5669	.3772	.9221
TPRDSH02	27.3200	34.1188	.7893	.7195	.9103
TPRDSH03	25.7700	39.4920	.5360	.4333	.9233
TPRDSH04	26.8800	34.2683	.7659	.6660	.9119
TPRDSH05	25.7600	38.4469	.6589	.7219	.9184
TPRDSH06	27.2500	33.8864	.7779	.7390	.9112
TPRDSH07	27.0700	32.4496	.8656	.7999	.9055
TPRDSH08	25.7800	38.7592	.6129	.5511	.9202
TPRDSH09	27.1900	33.9736	.8422	.8257	.9070
TPRDSH10	25.8200	37.7855	.6793	.6679	.9170

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

## Principal-Components Analysis

Table B.38  
Initial Statistics (TOPQ)

Variable	Communality	*	Factor	Eigen value	Pct of Var	Pct Cum
TPRDSH01	1.00000	*	1	5.96899	59.7	59.7
TPRDSH02	1.00000	*	2	1.28406	12.8	72.5
TPRDSH03	1.00000	*	3	.74274	7.4	80.0
TPRDSH04	1.00000	*	4	.57972	5.8	85.8
TPRDSH05	1.00000	*	5	.37932	3.8	89.5
TPRDSH06	1.00000	*	6	.31941	3.2	92.7
TPRDSH07	1.00000	*	7	.24862	2.5	95.2
TPRDSH08	1.00000	*	8	.19182	1.9	97.1
TPRDSH09	1.00000	*	9	.16306	1.6	98.8
TPRDSH10	1.00000	*	10	.12227	1.2	100.0

2 factors extracted.

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

Table B.39  
Factor Matrix (TOPQ)

	FACTOR 1	FACTOR 2
TPRDSH01	.64589	.30564
TPRDSH02	.82916	-.32847
TPRDSH03	.61359	.35336
TPRDSH04	.80905	-.34622
TPRDSH05	.74080	.53976
TPRDSH06	.82224	-.32944
TPRDSH07	.89447	-.23291
TPRDSH08	.68997	.26496
TPRDSH09	.87019	-.34471
TPRDSH10	.75830	.44144

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

Table B.40 (TOPQ)  
Final Statistics

Variable	Communality	*	Factor	Eigen value	Pct of Var	Cum Pct
TPRDSH01	.51060	*	1	5.96899	59.7	59.7
TPRDSH02	.79539	*	2	1.28406	12.8	72.5
TPRDSH03	.50135	*				
TPRDSH04	.77443	*				
TPRDSH05	.84013	*				
TPRDSH06	.78461	*				
TPRDSH07	.85433	*				
TPRDSH08	.54626	*				
TPRDSH09	.87606	*				
TPRDSH10	.76988	*				

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

Varimax Rotation

Table B.41  
Rotated Factor Matrix (TOPQ)

	FACTOR 1	FACTOR 2
TPRDSH01	.29082	.65270
TPRDSH02	.84301	.29109
TPRDSH03	.23522	.66785
TPRDSH04	.83932	.26452
TPRDSH05	.21026	.89214
TPRDSH06	.83839	.28585
TPRDSH07	.83029	.40614
TPRDSH08	.35076	.65056
TPRDSH09	.88472	.30550
TPRDSH10	.28761	.82896

Varimax converged in 3 iterations.

See Table B.43 "SCALE CODE DIRECTORY" for item definitions.

Table B.42  
Factor Transformation Matrix (TOPQ)

	FACTOR 1	FACTOR 2
FACTOR 1	.75858	.65157
FACTOR 2	-.65157	.75858

## Appendix C

## Testing and Analysis

The majority of the data coding, modifications and analysis of the data were made using the statistical program SPSS-PC<sup>+</sup>.

## Instructions given to Athletes

- 1) I am a University of Maryland graduate student working on my dissertation.
- 2) The study measures attitudes and feeling for both personal and team outcomes.
- 3) There are no right or wrong answers.
- 4) The importance of the study is to understand differences between sports on attitudes and feelings.
- 5) If you don't play or participate you won't answer the questions since they wouldn't make sense.
- 6) Total time involved is 10-12 minutes.
- 7) If you are 17 or under you may not participate.
- 8) The test will take place at the end of the game or event for only one game.
- 9) It is important that you don't talk to other while being measured - spread out while taking the test.
- 10) The answers to the questions will be held in confidence and is anonymous.
- 11) Be honest - it is important to the quality of the study.
- 12) Any questions before beginning.
- 13) Please sign the consent form before beginning - when done separate the consent form from the questionnaire and place in separate box.
- 14) Be sure to recognize that there are 2 different types of questions - one set about how you did personally and one set about how the team did.
- 15) Finally, please memorize the code number in the upper left hand corner of the questionnaire you will need it to receive the correct copy of the team outcome questionnaire after the game is over (for individual-team sports).

## Situational Conditions and Outcomes

### Swimming

The University of Maryland (Baltimore Campus) versus Howard University swimming teams were measured at home (UMBC Natatorium) on November 29, 1988 at 6:30 p.m. Crowd size was moderate. The University of Maryland Coach indicated that he expected the meet to be a tight one, however, the University of Maryland won handily. Assistant investigator #2 administered the questionnaires to the University of Maryland team, while the head investigator measured the Howard team. Administration of the questionnaires took place on deck. All the athletes were very cooperative and testing went smoothly.

### Tennis

Measurement of the tennis team went very smoothly. The University of Maryland (College Park) played the University of Pennsylvania at home on March 19, 1988. The tournament was played in the University of Maryland tennis bubble. While play was indoors the temperature was cold for the majority of play due to the heater not being on. Maryland won the tournament quite easily. Five matches were won and one was lost. However, it appeared that greater than half of the events were fairly evenly matched

yet Maryland athletes ended up winning. Losers tended to be quite visibly upset. Testing occurred in the bubble away from the teammates.

### Wrestling

The University of Maryland versus Duke University wrestling teams were measured at home (Cole Field house) on February 14, 1988 at 1 P.M. Both coaches were very cooperative and helpful. Assistant investigator #1 administered the questionnaires to the University of Maryland team, while the head investigator measured the Duke team. Approximately 80 people were in attendance at any one time. The field house was noisy. There were few snags in test administration. Testing took place with good control in the auditorium well behind the benches of each team. Maryland won the meet with extreme ease, 31-8.

### Ice Hockey

The University of Maryland versus Georgetown University ice hockey teams were measured at home (Calvert Ice Rink) on November 22, 1988 at 9:30 P.M. Spectators were loud and stand conditions were crowded (150-200 people). The field conditions were, of course, slick. While the Calvert Rink is 'indoors', one of the walls is open to the

outdoor conditions. Because of this, the air temperature was extremely cold since the outdoor temperature was 16°. The physical nature of this game appeared to be quite rough at times with fights erupting from time to time. With an 8-0-1 winning season Maryland expected to win this game, but lost 4-6. The head investigator administered the questionnaires to the University of Maryland team. The questionnaire was administered to the team in the locker room. The Georgetown University team was unable to participate on this evening due to tight transportation scheduling, however, they accepted a request for measurement at another time. During testing there was extremely little discussion about the test, albeit, there was some uncontrollable background talking. In addition, respondents were well separated from one another during testing.

The Georgetown University team was measured at the Fort Dupont Ice Rink (home rink) and they played against John Hopkins University on December 5, 1988 at 10:30 p.m. Georgetown won a very physical game where one player was knocked unconscious and another was ejected from the game for violent behavior. The head investigator administered the questionnaires to the Georgetown University team. The Johns Hopkins team was not asked to participate. Testing went smoothly in the locker rooms.

## Rugby

The University of Maryland versus George Mason University rugby teams were measured at an away game on September 17, 1988 at 6:00 p.m. During the game, the outdoor field conditions were very wet as it was drizzling throughout the game. As luck would have it, the drizzle let up nearly completely during test administration - only to start up again after testing. The Maryland team unexpectedly lost this very close game by a score of 9-6. Both teams were enthusiastic and hard playing. The head investigator administered the questionnaires to both the University of Maryland team and the George Mason team. Team members filled out the questionnaire on the sidelines. These were the most difficult testing conditions of the study.

## Volleyball

The University of Maryland versus New Jersey Institute of Technology volleyball teams were measured at home on March 22, 1988 at 7:30 p.m. Playing conditions were ideal as the game took place in the Maryland gymnasium. NJIT showed a slight advantage in their play skill. However, final outcome of the tournament was 2 games to 3 games in NJIT's favor. Assistant investigator #1 administered the questionnaires to the University of Maryland

team, while the head investigator measured the NJIT team. Testing went extremely well with almost no talking whatsoever. Both teams verbally complained about the officials.

#### Assistant Investigators

The original intention of the head investigator was not to use assistant questionnaire administrators (assistant investigators). Several circumstances led to the conclusion that on most occasions assistants to collect data would be necessary. It became apparent that getting subjects to participate was going to be difficult. Testing more than one team at a time led to the capacity to collect both a winning and losing team simultaneously. This reduced the potential number of measurement occasions to a minimum of six rather than a minimum of twelve (tie situations would not be used and both teams may not be able or willing to participate or the team of measurement may win when a loss was necessary for cell fulfillment). Because of the stated logistical and limited resources reasons, passing out questionnaires and giving instructions to two teams simultaneously became burdensome or impossible, depending of the particular situation.

After it had been decided that using an assistant was necessary, the intent was to use one assistant only, but because of logistics this too became impossible (See Table). Two sports were tested without the aid of an assis-

tant. In the case of ice hockey the assistant was in attendance but was unnecessary as both teams were tested on separate occasions. Assistant #1 actually tested two teams. Assistant #1 was prepared to test the swimming team but had a sudden and last minute death in the family and could not assist. Assistant #2 was called at the last minute as the particular situation with the swimming team necessitated an assistant. Both assistants were trained, but because of time constraints assistant #2 had nearly as much training as did assistant #1. However, assistant #2 brought with him experience and educational background that gave him an understanding of threats to good research.

#### Weather

Weather conditions were generally very favorable. In many cases weather was not a factor at all because the event was held indoors. The only true exception was the rugby game in which drizzle occurred throughout the game. While tennis was played indoors there was a minor problem, in that, most of the play took place without the bubble heater turned on. This had the effect of making it quite cool, but did not seem to impede performance or play. For more information on weather conditions see descriptions of each sport situation.

### Varsity versus club

It should be pointed out that all individual-team sport teams tested were varsity sports while all team sports tested were club sports. There was low availability of club sports that met the criteria necessary for individual-team sports (i.e., sports that involved team outcomes as well as individual outcomes) resulting in exclusive use of varsity sports for this category. All but one (used in the pilot study) of the varsity team sport coaches contacted to participate in the study were unwilling to commit their teams to a study which they believed would be too disruptive of their athletic performance. These two factors led to a varsity-club sport dichotomy in the tested athletes which also happens to fall along the individual-team / team sport dichotomy.

While this would appear, on first examination, to be a serious concern, several factors reduce the dichotomy's effect on the study. Great enthusiasm is shown in both club sports and varsity sports. Competition appears to be equally as intense in both varsity and club sports. The only true difference would appear to be the level of funding by the university and the degree of organizational structure, with varsity having more in both cases.

### *Home team versus opposing team*

Except in the case of the rugby match the University of Maryland teams were all host teams. The rugby match was played at George Mason which made the University of Maryland the opposing team in that case. In the case of the ice hockey teams tested both the University of Maryland team and the Georgetown University team were the home teams during test conditions. This is the only instance in the study where the opposing team and the host team were not measured at the same time.

### *Competition difficulty*

A more serious concern may be the fact that all the individual-team sport events were of medium to easy competitive difficulty while team sport events were of medium to tough competitive difficulty. In part, this was due to the luck of the draw in the specific events tested. For instance, the University of Maryland swimming team expected their event to be pretty competitive and it turned out that it was not. While the University of Maryland rugby and volleyball teams expected their outcomes to be fairly easy wins, they turned out to be losses. The only exception was the Georgetown University hockey game where

they won handily. Again, it appears that competitive difficulty differences tend to cut across the individual-team sport/team sport dichotomy.

#### University of Maryland - Winners versus losers

Finally, another potentially serious concern is the fact that all University of Maryland individual-team sport teams won, while all University of Maryland team sport teams lost. This factor may or may not have had an effect on the results of the study.

Table C.1  
Classification of Respondents

<u>Sport</u>	<u>Number with No Missed Pages or Questions</u>	<u>Incomplete Questionnaires</u>		<u>Totally Unusable Questionnaires</u>		<u>Total Number Measured</u>
		<u>Missed 1 or more Pages</u>	<u>Missed 1 or more Questions</u>			
Swimming	20	0	0			
Tennis	11	1	0	0		20
Wrestling	17	1	0	0		12
Ice Hockey	18	3	1	2	Tied	20
Rugby	20	2	1	5	Error	27
Volleyball	14	2	0	0		23
Totals	<u>100</u>	<u>9</u>	<u>2</u>	<u>7</u>	Error	18
Total Subjects used in Analysis						<u>120</u>

Tied - Two wrestlers tied  
Errors - Two volleyball and five hockey players had severe difficulty with filling out the questionnaires.

Table C.2  
Summary of Conditions

Sport	U of MD Team Win-Loss	Varsity vs. Club	Tough vs. Easy Team Competition
Swimming	Won	Varsity	Med.-Easy
Tennis	Won	Varsity	Easy
Wrestling	Won	Varsity	Easy
Rugby	Lost	Club	Tough
Ice hockey	Lost	Club	Med.-Tough
Volleyball	Lost	Club	Med.-Tough

Appendix D  
Instruments  
Table D.1

Consent Form

Dear Participant,

I am executing a study which will examine the relationship between competition in sports, attitudes and affect. To examine this relationship I would like you to fill out some short questionnaires during competition. Time involved will be 8-9 minutes. Thank you for help.

I fully understand the project in which I am being asked to participate. I have had a chance to ask questions. I understand that I may ask any other questions at any time during the study. I understand that I am participating in this activity of my own free will and that I am free to withdraw from the project at any time.

This is to certify that I agree to participate in this project under the direction of William E. Barton.

Date:

Signature of the Participant:

Participant must be 18 years of age or older.

Table D.2a  
Sample Attribution Questionnaire  
Personal Outcome Attribution Questionnaire  
Questionnaire for Volleyball Athletes

P P O There are two types of questions in this questionnaire - one set deals with how you did PERSONALLY today and the other how the TEAM did today. While filling out the questionnaire - please be sure to answer all questions. If you do not understand how to fill out the questionnaire, or what a word means

PLEASE ASK

A. How successful were you PERSONALLY in today's volleyball game? (circle one box)

Box #1  
I was  
NOT VERY successful

Box #2  
I was  
SOMEWHAT UNSUCCESSFUL

Box #3  
I was  
QUITE successful

Box #4  
I was  
EXTREMELY successful

P-C A

If you circled Box #1 or Box #2, do ONLY the questions below (A-1 through A-15):  
Darken appropriate square to right of the statement.

If you circled Box #3 or Box #4, do ONLY the questions below (B-1 through B-15):  
Darken appropriate square to right of the statement.

The cause of how I PERSONALLY performed in today's game was...

NOT SOMEWHAT MODERATELY VERY  
AT ALL SO MUCH SO

- A-1 that certain teammates are poor at this sport [1] [2] [3] [4]
- A-2 that I was very unlucky ..... [1] [2] [3] [4]
- A-3 that my opponent was very hard ..... [1] [2] [3] [4]
- A-4 that I had very poor coaching ..... [1] [2] [3] [4]
- A-5 that the crowd was against me ..... [1] [2] [3] [4]
- A-6 that I was not very psyched up ..... [1] [2] [3] [4]
- A-7 that I put out little effort  
during this performance ..... [1] [2] [3] [4]
- A-8 that the team as a whole put out little  
effort during my performance ..... [1] [2] [3] [4]
- A-9 that weather conditions were very bad for me [1] [2] [3] [4]
- A-10 that my equipment was very poor ..... [1] [2] [3] [4]
- A-11 that certain teammates put out little  
effort during my performance ..... [1] [2] [3] [4]
- A-12 that the team as a whole is very  
poor at this sport ..... [1] [2] [3] [4]
- A-13 that I have not been practicing very  
hard recently ..... [1] [2] [3] [4]
- A-14 that I am a poor athlete at this sport ..... [1] [2] [3] [4]
- A-15 that there was very poor officiating  
while I was competing ..... [1] [2] [3] [4]

The cause of how I PERSONALLY performed in today's game was...

NOT SOMEWHAT MODERATELY VERY  
AT ALL SO MUCH SO

- B-1 that certain teammates are good at this sport [1] [2] [3] [4]
- B-2 that I was very lucky ..... [1] [2] [3] [4]
- B-3 that my opponent was very easy..... [1] [2] [3] [4]
- B-4 that I had very good coaching ..... [1] [2] [3] [4]
- B-5 that the crowd was for me ..... [1] [2] [3] [4]
- B-6 that I was very psyched up ..... [1] [2] [3] [4]
- B-7 that I put out a lot of effort  
during this performance ..... [1] [2] [3] [4]
- B-8 that the team as a whole put out a lot  
of effort during my performance ..... [1] [2] [3] [4]
- B-9 that weather conditions were very good for me [1] [2] [3] [4]
- B-10 that my equipment was very good ..... [1] [2] [3] [4]
- B-11 that certain teammates put out a lot of  
effort during my performance ..... [1] [2] [3] [4]
- B-12 that the team as a whole is very  
good at this sport ..... [1] [2] [3] [4]
- B-13 that I have been practicing very  
hard recently ..... [1] [2] [3] [4]
- B-14 that I am a good athlete at this sport ..... [1] [2] [3] [4]
- B-15 that there was very good officiating  
while I was competing ..... [1] [2] [3] [4]

Table D.2b  
 Sample Attribution Questionnaire  
 Team Outcome Attribution Questionnaire  
 Questionnaire for Volleyball Athletes

T P O There are two types of questions in this questionnaire - one set deals with how you did PERSONALLY today and the other how the TEAM did today. While filling out the questionnaire - please be sure to answer all questions. If you do not understand how to fill out the questionnaire, or what a word means

PLEASE ASK

B. How successful was your TEAM in today's volleyball game? (circle one box)

<input type="checkbox"/> Box #1 <input type="checkbox"/> We were <input type="checkbox"/> NOT VERY successful	<input type="checkbox"/> Box #2 <input type="checkbox"/> We were <input type="checkbox"/> SOMEWHAT UNSUCCESSFUL	<input type="checkbox"/> Box #3 <input type="checkbox"/> We were <input type="checkbox"/> QUITE successful	<input type="checkbox"/> Box #4 <input type="checkbox"/> We were <input type="checkbox"/> EXTREMELY successful
---	---	--	--

T-C A

If you circled Box #1 or Box #2, do ONLY the questions below (A-1 through A-15):  
 Darken appropriate square to right of the statement.

If you circled Box #3 or Box #4, do ONLY the questions below (B-1 through B-15):  
 Darken appropriate square to right of the statement.

The cause of how the TEAM performed in today's game was...

The cause of how the TEAM performed in today's game was...

		NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO				NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
A-1 that weather conditions were bad for us .....	[1]	[2]	[3]	[4]			B-1 that weather conditions were good for us ....	[1]	[2]	[3]	[4]	
A-2 that our equipment was very poor .....	[1]	[2]	[3]	[4]			B-2 that our equipment was very good .....	[1]	[2]	[3]	[4]	
A-3 that we were not very psyched up.....	[1]	[2]	[3]	[4]			B-3 that we were very psyched up .....	[1]	[2]	[3]	[4]	
A-4 that I have not been practicing very hard recently .....	[1]	[2]	[3]	[4]			B-4 that I have been practicing very hard recently .....	[1]	[2]	[3]	[4]	
A-5 that I put out little effort during this performance .....	[1]	[2]	[3]	[4]			B-5 that I put out a lot of effort during this performance .....	[1]	[2]	[3]	[4]	
A-6 that the crowd was against us .....	[1]	[2]	[3]	[4]			B-6 that the crowd was with us .....	[1]	[2]	[3]	[4]	
A-7 that the team as a whole put out little effort during this performance .....	[1]	[2]	[3]	[4]			B-7 that the team as a whole put out a lot of effort during this performance .....	[1]	[2]	[3]	[4]	
A-8 that I am a poor athlete at this sport	[1]	[2]	[3]	[4]			B-8 that I am a very good athlete at this sport .	[1]	[2]	[3]	[4]	
A-9 that we were very unlucky .....	[1]	[2]	[3]	[4]			B-9 that we were very lucky .....	[1]	[2]	[3]	[4]	
A-10 that the team as a whole is very poor at this sport .....	[1]	[2]	[3]	[4]			B-10 that the team as a whole is very good at this sport .....	[1]	[2]	[3]	[4]	
A-11 that there was very poor officiating while we were competing .....	[1]	[2]	[3]	[4]			B-11 that there was very good officiating while we were competing .....	[1]	[2]	[3]	[4]	
A-12 that we have not been practicing very hard prior to this performance .....	[1]	[2]	[3]	[4]			B-12 that we have been practising very hard prior to this performance .....	[1]	[2]	[3]	[4]	
A-13 that the other team was very hard.....	[1]	[2]	[3]	[4]			B-13 that the other team was very easy .....	[1]	[2]	[3]	[4]	
A-14 that we had very poor coaching .....	[1]	[2]	[3]	[4]			B-14 that we had very good coaching .....	[1]	[2]	[3]	[4]	

Table D.3  
Sample Pride Questionnaire

P-s Q f PO

Be sure to answer all questions below! The answer you give should indicate how you feel right now about how you personally performed. Indicate how you feel right now, at this moment, by darkening the appropriate square to the right of the statement.

What is the strength of your feelings toward your personal outcome in the swimming meet just ended?

In regards to my personal performance:

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
I feel ashamed .....	[1]	[2]	[3]	[4]
I feel congratulatory	[1]	[2]	[3]	[4]
I feel guilty .....	[1]	[2]	[3]	[4]
I feel respectable ...	[1]	[2]	[3]	[4]
I feel dishonored ....	[1]	[2]	[3]	[4]
I feel praiseworthy ..	[1]	[2]	[3]	[4]
I feel proud .....	[1]	[2]	[3]	[4]
I feel belittled .....	[1]	[2]	[3]	[4]
I feel admirable .....	[1]	[2]	[3]	[4]
I feel disgraced .....	[1]	[2]	[3]	[4]

Table D.4  
Sample Anxiety Questionnaire

Competitive State Anxiety Inventory

*DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate square to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.*

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel at ease.....	[1]	[2]	[3]	[4]
2. I feel nervous....	[1]	[2]	[3]	[4]
3. I feel comfortable	[1]	[2]	[3]	[4]
4. I am tense.....	[1]	[2]	[3]	[4]
5. I feel secure.....	[1]	[2]	[3]	[4]
6. I feel anxious....	[1]	[2]	[3]	[4]
7. I am relaxed.....	[1]	[2]	[3]	[4]
8. I am jittery.....	[1]	[2]	[3]	[4]
9. I feel calm.....	[1]	[2]	[3]	[4]
10. I feel over-excited and rattled.....	[1]	[2]	[3]	[4]

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