

ATTRIBUTION BIAS IN INDIVIDUAL AND TEAM SPORT:
A COMPARISON USING A WITHIN-GROUPS DESIGN
IN INDOOR BOWLS

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CONTENTS

	Page
Acknowledgements	ii
List of Tables and Figures	v
Table of Appendices	vi
Abstract	1
Introduction	2
Attribution Theory in Achievement Contexts	4
Attribution Theory in Sport	8
On the Method: Issues in the Measurement and Dimensional Structure of Causal Attributions	16
Other Attribution Related Variables Measured in the Present Study	18
Summary of Aims and Hypotheses	20
Method	22
Overview and Design	22
Subjects	22
Measures	23
General Procedure	27
Results	30
Post-game Measures	31
Causal Attributions - Singles Events	31
Causal Attributions - Fours Events	34
Importance Ratings of Pre-determined Causes	39
Perception of Success Results	45
Pre-game Measures	48
Expectations of Success	48
Pre-game - Post-game Relationships	49

Discussion	50
Success/Failure Biases in Causal Attributions	50
Comparing the Singles and Fours Causal Attribution	
Results	53
Other Attribution Related Variables Measured in the	
Present Study	55
Criticisms of the Present Study	57
Conclusions and Suggestions for Future Research	58
References	60
Appendices	68

LIST OF TABLES AND FIGURES

Table	Page
1	Number of Completed Questionnaires by Male and Female
	Competitors by Match Outcome for Singles and Fours Events
	30
2	Match Outcome (win/loss/draw) Planned Comparisons for
	Fours Causal Dimension Scales
	36
3	Rotated Factor Loadings for Singles Importance Rating Scales
	40
4	Rotated Factor Loadings for Fours Importance Rating Scales
	43
5	Table of Correlations Between Match Outcome, Perception of
	Success and the Causal Dimension Scales - Singles
	46
6	Table of Correlations Between Match Outcome, Perception of
	Success and the Causal Dimension Scales - Fours
	47
Figure	
1	Weiner's (1972) Two-Dimensional Model of Attributions
	5
2	Singles Locus and Controllability Scale Measures by
	Match Outcome
	32
3	Singles Stability and Globality Scale Measures by
	Match Outcome
	33
4	Fours Locus Scale Measures by Match Outcome
	35
5	Fours Controllability Scale Measures by Match Outcome
	35
6	Fours Stability and Globality Scale Measures by Match Outcome
	38
7	Graph of Internal-Controllable and External-Uncontrollable
	Scales for Singles Winners and Losers
	41
8	Graph of Internal-Controllable and External-Uncontrollable
	Scales for Fours Winners and Losers
	45

TABLE OF APPENDICES

Appendix	Page
A. Pre-game Singles Questionnaire	68
B. Pre-game Fours Questionnaire	70
C. Post-game Singles Questionnaire	72
D. Post-game Fours Questionnaire	76

ABSTRACT

This study compared the success/failure attributions made by the same individuals competing alone and within teams (of four players) in indoor bowls competition. This is the first sport-attribution study to examine individual/team differences using such a within-groups design. The benefit of this design is that it controls for: (a) possible personality differences between players in individual and in team sports, and (b) situational differences that exist between different sports. Solicited causal attributions were rated along locus, controllability, stability, and globality scales. In addition, multiple loci scales (referring to the: self, rest of team, whole team, opposition, and external circumstances) were used to assess the locus and controllability dimensions. Results were generally consistent with predictions. In the individual competition, winners as compared to losers, made more internal, controllable, stable, and global attributions. In team competition, winners as compared to losers, made more internal and controllable attributions (from the self, rest of team and whole team perspective), and more stable attributions. Also, moderate externality effects were shown in both individual and team competition. The results were interpreted as showing self-serving biases in the individual competition, and both self- and team-serving biases in the team competition. In team competition, however, team-serving interests clearly dominated. Other variables examined in relation to player's causal attributions, included player's pre-game perceived importance of outcome and expectations of success, and post-game perceptions of success. Discussion focusses on the individual/team differences in causal attributions and the related attributional variables.

INTRODUCTION

Individuals are constantly striving to organise and simplify their experiences. As part of the attempt to gain understanding and meaning, people make attributions to explain cause and effect relationships. The past twenty years have seen a dominant interest in social psychology concerning how individuals employ such causal explanations, and what effect they have on subsequent behaviour. The framework in which such questions are examined, is known as attribution theory.

Within attribution theory, social and personality psychologists have devoted a great deal of research effort to studying causal explanations in achievement related contexts. Investigators have found attributions for success or failure to influence expectations regarding future success, affective reactions to achievement outcomes, and persistence following failure (Russell, McAuley, & Tarico, 1987).

The achievement orientated world of sport has provided a naturalistic setting for the study of win/loss or success/failure attributions, typically by comparing the attributions made by winners or losers, either in team or individual sports. Attributional patterns of winners and losers have been studied using a diversity of measures, sports and subjects. As in the laboratory based studies, researchers have frequently found the presence of an attribution bias, whereby winners attribute their performance more to internal factors than do losers (e.g., McAuley & Gross, 1983). The tendency for winners to take credit for positive outcomes and for losers to deny responsibility for negative outcomes has typically been interpreted as a form of self-serving bias (Bradley, 1978; Miller & Ross, 1975; Scanlan & Passer, 1980a; Zuckerman, 1979).

In the sport area, however, little attention has been paid to the difference between self-serving attributions made by individuals performing alone and attributions made by players performing within a group (Zaccaro, Peterson, & Walker, 1987). Consequently, the results of individual and team sport studies have often been generalised with little regard to the situational or normative influence of the group (in a team) upon the individual (e.g., see Tajfel & Turner, 1979). For example, members of groups may feel less personal threat from failure than individuals performing alone (Mynatt & Sherman, 1975), and this may result in greater self-enhancement (or self-protecting) attributions made by individual performers, than group performers.

The ideal research context for comparing the achievement attributions of individuals competing alone, and within a team, is a within-groups design where the individuals are the same people in both events. Such a design would necessarily eliminate any possible personality differences that may encourage people to play in team sports rather than in individual sports and vice versa. For example, it could be argued that people who play in individual sports (e.g., golf), are especially competitive types, who are naturally more prone to self-serving biases. In contrast, those who play in team sports, may be drawn to the camaraderie and social aspects of the game, and consequently be dispositionally less prone to self-serving and more prone to team-serving. This design would also control for between-sport differences in competitors such as socioeconomic status and educational levels (Eitzen & Sage, 1982), which may influence attributions through social categorisation (Zaccaro et al., 1987).

Indoor bowls, the sport setting in which the present research was conducted, is one of a very few sports in which such a within-groups design could be implemented. In this sport a person competes alone, and in team events (pairs, triples and fours) with equal frequency. Players in other sports

such as tennis, also compete in individual (singles) and team (doubles) events, but with a team group size of four members, the sport of bowls is well suited for the study of group dynamics in the success-failure attribution process.

This introduction will consist of five main sections. First, I will present an overview of attribution theory, focussing on the more specific area of attributions in achievement related contexts, with particular reference to Weiner's model (e.g., Weiner, 1974, 1979). Second, I will present a review of the relevant sport related attribution research. Third, an examination of past and present methodologies concerning the measurement and dimensional scaling of attributions will be presented, including a critique of the most commonly used sports measure - Russell's (1982) Causal Dimension Scale. Fourth, I will present a brief summary of other variables investigated in this study including players' perception of success, expectations of success and the importance they attach to the outcome. Finally, I will review the basic aims and hypotheses of this study.

Attribution Theory in Achievement Contexts

Broadly construed, attribution theory deals with the processes that underlie the attempts of ordinary people to explain and draw inferences from behaviour. Laypeople are characterised as naive scientists, striving to understand, predict and control the course of events in their lives.

The genesis of attribution theory in social psychology is usually traced to Fritz Heider (e.g., 1944, 1958). In his 'common sense' psychology, Heider (1958) believed that behaviour was perceived by the layperson as determined by the additive combination of internal and external forces. Heider concluded that people tended to attribute someone's behaviour either to

internal causes (for example the person's disposition) or external causes (for example something about the person's situation). In an attempt to explain the cognitive processes that people used to develop an organised and meaningful view of the world, Heider discussed subjective or common-sense features that guided people's perceptions of others and themselves, including judgments about intuition, causal responsibility and motives.

Other major contributions to attribution theory have come from Jones and Davis (1965), Kelley (1967), and Weiner (Weiner, Freize, Kukla, Reed, Rest, & Rosenbaum, 1971) who systematised and expanded Heider's ideas, providing theoretical frameworks which have since spawned a plethora of research.

One of Heider's (1958) most influential sections in his book outlined a commonsense analysis of achievement related behaviours. Heider suggested that an individual's level of performance (or success) on a task will be attributed to either factors within the person or factors within the environment (or situation). Based upon this notion, Weiner and his associates (Weiner et al., 1971; Weiner, Russell, & Lerman, 1978) proposed that people use four major causal attributions to explain their success and failure in achievement settings: Ability, effort, task difficulty, and luck. These four causes can be generalised to all achievement tasks and were analysed in terms of two causal dimensions: Locus of control (internal or external), and stability (fixed or variable) (see Figure 1).

Figure 1. *Weiner's (1972) Two-Dimensional Model of Attributions*

	Stable	Unstable
Internal	ability	effort
External	task difficulty	luck

These four attributions came to be regarded by researchers as the basic attributional factors and they were measured in various ways (see below). Later, Weiner (1979) discussed a third dimension on which attributions may vary - controllability. This dimension refers to the extent to which the cause is, or is not, within the attributor's control.

Following Weiner's basic paradigm, researchers have consistently observed that success is attributed internally, (to ability and effort) more than failure which tends to be attributed to external factors such as luck and task difficulty (e.g., Bradley, 1978; Fitch, 1970; Freize & Weiner, 1971; Miller, 1976; Wortman, Constanzo, & Witt, 1973). This tendency of individuals to take personal credit for success while externalising the causes of less favourable outcomes (presumably to either maintain or enhance self-esteem) has been interpreted as a form of self-serving bias (Bradley, 1978; Miller & Ross, 1975; Scanlan and Passer, 1980a; Zuckerman, 1979).

There is debate, however, whether attributional responses to success and failure are based on motivational (maintaining or enhancing self-esteem) or on cognitive mechanisms (e.g., based on knowledge structures or schema, including prior beliefs and expectations about oneself) (see Bradley, 1978; Miller & Ross, 1975; Zuckerman, 1979). As Tetlock and Levi (1982) argue, it may be impossible to differentiate between cognitive and motivational processes given current research and theory. Therefore, the term self-serving (or team-serving) bias will be used to refer to the tendency of winners to make more internal attributions and losers to make more external attributions, presumably through a combination of motivational and cognitive mechanisms.

The importance of the stability and locus of causality dimensions has been substantiated in other research. Weiner and his colleagues, (Weiner, Heckhausen, Meyer, & Cook, 1972), have shown that expectations for future success on a task are higher among subjects making attributions to stable

causal factors (ability and task ease) rather than unstable ones (effort and luck), but expectancies were unaffected by locus of causality. Thus, if you expect to fail in a particular situation and ultimately end up succeeding, then you may be inclined to attribute your success to some unstable cause such as luck. Also, feelings of pride for success and shame for failure were increased when the performance is seen as being caused by the internal factors of ability and effort rather than the external factors of luck and task difficulty (McFarland & Ross, 1982; Reimer, 1975; Weiner et al., 1978).

There are, however, some problems with Weiner's model. Several authors have commented on the characterisation (dimensional classification) of the four basic causes (e.g., Darley & Goethals, 1980; Deaux, 1976; Feather & Simon, 1973; Valle & Frieze, 1976). Effort can also be viewed as a stable dispositional cause - for example, that of a lazy person. In addition, task difficulty (fixed in Weiner's early model) may vary according to such things as mood ("I wasn't in the mood"), or the presence of others (e.g., audience effects). Secondly, in characterizing success or failure, it may be necessary to go beyond the four traditional causes. Open-ended studies of attributions have shown that people often explain performances with reference to other factors (e.g., Elig & Frieze, 1979; Roberts & Pascuzzi, 1979). In the Roberts and Pascuzzi study an open ended questionnaire was given to 349 male and female subjects to determine the causal elements used in sport situations. Results showed that the four traditional elements were used only 45% of the time. However, when the responses of subjects were content analysed for dimensional properties, it was concluded 100% could be placed within the two dimensions of Weiner's model.

It should be noted that in more recent investigations, Weiner and his colleagues have recognised that many causal ascriptions are possible and, subsequently have used an open-ended response mode that allows subjects

to define their own causal inferences along causal dimension scales (Weiner, Russell, & Lerman, 1979).

Attribution Theory in Sport

As in mainstream social psychology, attribution theory has provided the impetus for a large amount of applied sports research. The more significant themes of attribution-related sport studies concern; the measurement of attributions, attribution antecedents or moderator variables, and the different attributional patterns of winners and losers. More recently, attributional consequences in sport have been studied including the effects upon cohesion, motivation and emotion (e.g., Biddle, 1985; McAuley, Russell, & Gross, 1983).

The achievement orientated world of sport has provided a natural setting for studying attributions for success and failure (McAuley & Gross, 1983; Mullen & Riordan, 1988; Scanlan & Passer, 1980a, 1980b): A setting which escapes many of the limitations of typical laboratory-based achievement tasks, including the use of novel or trivial tasks that may be less than ego involving, and the use of non-representative student populations (Mullen & Riordan, 1988; Rejeski & Brawley, 1983). Also, the performance expectancies and outcomes in sports events are likely to be less artificial and contrived, and more meaningful and realistic than laboratory based research (Mullen & Riordan, 1988).

Most previous studies of attributions for winning and losing in sport have employed almost exclusively, and without questioning its validity (Rejeski & Brawley, 1983) the conceptual framework developed by Weiner, (1974, 1979; Weiner et al., 1971). In much of the early research this led to player attributions being researcher-coded as representative of one of the

four causal factors, and subsequently located in the two dimensions of locus of causality and stability. More recent studies have allowed for a wider range of attributions, have used more reliable and valid measurement methods, (e.g., dimensional scales), and have included other dimensions (e.g., controllability) on which attributions may vary.

A Review of the Sports Attribution Literature

In generating hypotheses concerning possible differences between the attributional bias of players in team and individual sport, research from three main areas was assessed. These included the attribution studies of single player sports (e.g., table tennis, golf, squash), team sports (e.g., basketball, soccer, volleyball), and studies that have directly (empirically or theoretically) investigated such differences. These areas will be reviewed separately.

Also in the following summary, it will be noted that the general self-serving bias (as illustrated in the locus of causality dimension) has been broken down into its more specific components - namely internality and externality biases. This is necessary as many of the studies have found only one or other of these more specific effects.

Individual Sport Studies

There have been fewer studies examining attributions within individual competitive sports than team sports. Of those that have, some have found greater internality following wins, (e.g., McAuley & Gross, 1983; McAuley et al., 1983; Spink & Roberts, 1980; Riordan, Thomas, & James, 1985¹) but not greater externality following losses, as would be expected in the most extreme self-serving situation. Several studies have reported locus,

¹ Riordan et al., (1985) though, did find an externality bias in females.

controllability and stability differences between winners and losers (e.g., McAuley & Gross, 1983; McAuley et al., 1983). Other studies have found no difference between winners and losers on the locus dimension (winners and losers both used internal attributions) but have found winners make more stable and controllable attributions than losers (e.g., Biddle & Jamieson, 1988; Duncan & McAuley, 1987; Mark, Mutrie, Brooks, & Harris, 1984). This latter finding, termed the "reformulated success/failure bias" (Mark et al., 1984), accounts for a proposed situational norm in sport that encourages acceptance of personal responsibility for outcomes and explicitly discourages externalisation of failure (Scanlan & Passer, 1980a, 1980b; Mark et al., 1984). Thus, competitors may appear gracious winners and losers (making internal attributions), but alter their attributions along the stability and controllability dimensions. Losers, for example, may make unstable and uncontrollable attributions, and hence minimize negative emotional reactions and imply that future success is possible (e.g., "I can play better"). These findings suggest that any hypotheses regarding self- or team-serving biases should not be limited to the (typically defined) locus of causality dimension.

In the singles condition of this study we can expect at least a pattern of attributions resembling the "reformulated success/failure bias" found in some studies.

Team Sport Studies

On a general note, Zientek and Breakwell (1988) and others (e.g., Gill, 1980; Iso-Ahola, 1976; Taylor & Doria, 1981) have suggested that the extent and precise form of the attribution bias depends upon several factors, one of which is the possibility that other team members can be used in accounting for game outcome. Obviously, individual competitors only have two possible loci for which to attribute outcomes - internal (self) and external.

As a member in a team, however, there are (at least) four prominent causal loci: (1) *Outcome can be attributed to the self*. Taking personal responsibility for failure would be an example of a team-serving bias whereas denying personal responsibility would be an example of a self-serving bias. Taking personal credit for success would also be self-serving. (2) *Outcomes can be attributed to the team (including the self)*; (3) *Outcomes can be attributed to members of the team excluding the self*; (4) *Outcomes can be attributed to factors external to the self and team* (see Gill, Ruder, & Gross, 1982; Taylor & Doria, 1981; Zaccaro et al., 1987 for further discussion).

A problem of past research examining team or group member attributions is that they have generally confounded these different attributions (Lau, 1984; Lau & Russell, 1980; Peterson, 1980). Thus, there has been disagreement as to whether the same attribution is internal or external. For example, Schlenker (e.g., Miller & Schlenker, 1985) regards other group members as an external attribution, (as would be reasonable if the focus was on self-serving attributions), whereas Lau and Russell (1980) coded such attributions as internal. Other studies (e.g., Bird & Brame, 1978) have only distinguished between self and team attributions, without specifying if the team included, or excluded, the self.

By assessing the causal locus using the four possible causal loci described above, it is possible to examine the parallel operation of group and self-serving biases. Taylor and Doria (1981), in a study of intercollegiate volleyball, basketball and hockey teams found that group-serving biases (protecting one's group) were stronger than self-serving biases, but that both were evident. Other studies have found evidence for an attribution bias when attributions for group (or team) performance were examined (i.e., group-serving), but not for attributions for individual (within a team) performance (Bird & Brame, 1978; Bukowski & Moore, 1980; Gill, 1980).

Thus, in the following summary, team-sport studies will be presented in three parts: Those that have focussed upon attributions for individual performance, team performance, and those that have assessed both.

Individual focus. Several studies have found an internality bias following wins (e.g., Croxton & Klonsky, 1982a, 1982b; Iso-Ahola, 1977c). Of these, Croxton and Klonsky (1982a, 1982b), found an externality bias following a loss (but not directed to the rest of their team).

Team focus. Some studies have found greater internality following wins (e.g., Iso-Ahola, 1977a; Scanlan & Passer, 1980a, 1980b); others have found no locus difference between winners and losers but have found differences in controllability (Gill et al., 1982; Grove, Hanrahan, & McInman, 1989) and stability (Grove et al., 1989). Few studies have found an externality bias following losses (e.g., Roberts, 1975).

Self and team attributions. Some studies that have measured both self and team causal attributions have pitted them against each other so that self- versus team-serving interests can be assessed. Taylor and Doria (1981) found that individuals who experienced individual success were more likely to attribute it to the helpful contribution of team-mates, than individuals who experienced individual failure were to claim that their personal goal was hindered by team-mates. That is, individuals did not blame their team when they failed. In general, Taylor and Doria (1981) found that group-serving biases were stronger than self-serving biases, but that both were evident. Players exhibited internality and externality biases both from a self and a team perspective.

In their appropriately titled paper, "A test of the I'm OK but the Team's So-So Phenomenon", Bird and Brame (1978) found the only

incidence (amongst a number of opportunities) of self-serving (as opposed to team-serving) judgements, was that members of losing teams rated their own individual effort higher than the team's effort. Overall, winners were more positive about both individual and team internal qualities than were losers. Members of winning teams, though, did perceive that their own individual task assignment (task difficulty) was more difficult than was that of the team. This implies some self-serving, in that winners considered themselves more responsible for the team success than players in the rest of the team. However, winning members also evaluated their team to be more able than themselves, indicating a team-serving bias. In general, Bird and Brame (1978) found evidence of both self and team internality and externality effects.

Iso-Ahola (1977b) examined the effects of team outcome on the self attributions of Little League baseball players. His findings indicated that team outcomes (win/loss) did not affect players' judgements of self-ability or self-effort. Members of teams that failed, however, viewed the dimensions of team ability and team effort as less important, than successful teams. Thus, these attributions may be considered self-enhancing (or self-serving) because players blamed their team for failure but not themselves.

Comparisons Between Individual and Team Sport Attributions

In a study using the Wingate Sports Achievement Responsibility Scale (WSARS), Tenenbaum and Furst (1985) found that *individual* athletes made more internal attributions than did *team* athletes for unsuccessful events, but that there were non-significant differences between individual and team athletes for successful events. This result suggests that team athletes made more external attributions for unsuccessful events, suggesting greater attributional bias in team situations.

Zaccaro et al., (1987) using an archival method, examined the win/loss outcome attributions of individuals performing alone (tennis and golf) and those performing in groups (football, basketball and baseball). In contrast to Tenenbaum and Furst (1985), they found that lone performers made more self-serving attributions than did team performers. Both lone and team performers made internal attributions for success, but following failure, lone performers made more external, and team performers more internal attributions. The results of this study though, must be tempered with the knowledge that these attributions were made publicly (reported in newspapers). Miller and Schlenker (1985), have shown that the public/private attribution-eliciting condition affects attributions. In the public condition subjects claimed less responsibility for a group success than they gave to other members (i.e., group-served), but in private subjects claimed more responsibility for success and less for failure, than other group members (i.e., self-serving). Clearly such findings suggest that Zaccaro et al., (1987) were unlikely to find team members publicly ascribing responsibility to team-mates for failure.

The results of a meta-analytic review of self-serving attributions for performance in naturalistic (sport) settings, by Mullen and Riordan (1988), suggested that self-serving attributions tended to be more extreme in the context of larger team sizes, and for attribution measures focussed upon the team rather than the individual. By inference, their review suggests that team members may be more likely to self-serve than players competing alone.

Summary of the Sports Attribution Literature

It is difficult to summarise the above findings because of the diversity of sports, measures and subjects. It does appear, however, that players

within teams are more likely to team-serve as opposed to self-serve (especially at the expense of their team), though, both biases are evident in studies that have assessed both self and team interests.

In general, regardless of the focus of the study, the internality bias is far more prevalent than the externality bias. However, in team studies, players may have externalised failure upon team-mates which, in many cases has not been measured. For example, in the Bird and Brame (1978) study, the authors regarded players who perceived themselves as trying harder than the team, (in the case of a loss), as an internal attribution. As this implies that the team didn't try hard enough, in my opinion, this would represent an external (team-excluding self) attribution for losing, rather than an internal attribution.

More recent research has proposed a "reformulated success-failure bias" that accounts for situational norms that implicitly discourage externalisation of failure (e.g., Mark et al., 1984). Thus, to fully investigate attributional differences between winners and losers it is necessary to include the measurement of other dimensions apart from the general internal-external one.

The few studies that have compared individual and team sport attributions have produced a set of conflicting results. This was possibly a function of the diversity of methods used, which included the WSARS scale (Tenenbaum & Furst, 1985), an archival analysis (Zaccaro et al., 1987), and a meta-analysis (Mullen & Riordan, 1988). Moreover, as previously noted, such studies typically compare different sports. Hence, it is unclear to what extent the findings are a function of the different sports, or individual differences in the individuals who elect to play in different sports.

In the present study, I allowed subjects a greater range of relevant loci, for which to attribute outcomes, than normally allocated. In the singles events, outcomes can be attributed to the self, the opposition or to factors

external to both. In the four events there are five prominent loci: Outcomes can be attributed to the self; the rest of the team (excluding the self); the whole team (including the self); the opposition; and to factors external to the team and opposition.

*On the Method: Issues in the Measurement and Dimensional Structure
of Causal Attributions*

Despite the evidence that causal attributions are important determinants of motivation and behaviour, relatively little attention has been paid to the reliability and validity of different methods for assessing causal attributions (Russell et al., 1987). In one of the most thorough examinations of this issue to date, Elig and Frieze (1979) reported on the various preferences of subjects for open-ended, structured/independent/unipolar ratings and ipsative techniques (percentage scale, single choice, bipolar scale, paired scale). Using their own coding system for the open-ended responses, Elig and Frieze (1979) compared these with the other methods described above. They concluded that structured scale ratings (especially importance rating of different causes) represented the most reliable and valid method for assessing causal attributions.

In the examination of self-serving biases, however, it is necessary to go beyond the causal attributions themselves to the causal dimensions they represent for reasons already noted. In this respect, the most commonly used method allows subjects to first provide a cause, then rate this causal attribution themselves along various causal dimensions. The merit of this method in assessing the dimensional nature of causal attributions, is that it allows for a wide range of attributions rather than constraining subjects to pre-determined causes (Rejeski & Brawley, 1983; Brawley, 1984b; Elig and

Frieze, 1979), and it allows subjects to rate their causal attributions along causal dimensions as they see fit (Mark et al., 1984; McAuley & Gross, 1983; Russell et al., 1987).

Based upon this method, Russell (1982) developed the Causal Dimension Scale (CDS), which has been by far the most widely used scale in the sports attribution field. The scale, which allows for an initial free response attribution to be made followed by 9 ratings of the attribution, yields scores on the extent of the internality, stability and controllability of the attribution. Each dimension is represented by the additive total of three (of the 9) scales. Although the scale has been shown to have good reliability and validity in a number of studies (e.g., Abraham, 1985; Mark et al., 1984; McAuley, 1985; Russell, 1982), there has been concern at the poor internal reliability of the controllability scale (e.g., Biddle, 1988; Rejeski & Brawley, 1983). The problem appears to be the theoretical confound between two of the three controllability subscales - namely, those of intentionality and responsibility (the other is controllability), (Rejeski & Brawley, 1983).

In a recent examination of the methodologies for assessing causal dimensions, Russell et al., (1987) concluded that the CDS was a more reliable and valid measure of causal attributions than open-ended or importance rating scales. However, they also noted the problem with the controllability subscales.

On a more general note, Biddle (1988) suggested that in the sport attribution research, there had been an uncritical acceptance of the three dimensions of locus, stability and controllability, with an absence of research utilising other possible dimensions such as globality (see Abramson, Seligman, & Teasdale, 1978). On this theme, in the recent development of a scale to measure attributional *style* in sport, Hanrahan, Grove, and Hattie (1989) concluded it was worthwhile to investigate the dimensions of internality, stability, globality, controllability, and intentionality.

Summary of Method

Based upon the review of methodologies for the assessment and dimensional classification of attribution, it was decided to use two distinct methods in the present study. The first and primary method, required subjects to provide a causal attribution for their match outcome, and then rate this cause along dimensional scales. The second method required subjects to give importance ratings to a pre-determined, experimenter-supplied, list of causal attributions. Using two methods allows for a more rigorous test of the hypotheses.

As well as the commonly researched dimensions of locus of causality, controllability and stability, it was decided to investigate the dimension of globality. With the exception of Prapavessis and Carron (1988), and Hanrahan et al. (1989), sport researchers have ignored this dimension, which is commonly used in other areas of research such as learned helplessness (Abramson et al., 1978), and close relationships (Fletcher & Fincham, 1991, in press).

Other Attribution-Related Variables Measured in the Present Study

After reviewing the sport attribution literature it was decided to measure the following factors in addition to causal attributions: Players' perceived importance of outcome and winning, their expectations of success, and their perception of success.

Perceptions of Success

There has been an assumption that the absolute outcomes of winning and losing parallel the cognitive (relative) outcomes of success and failure. However, as Maehr and Nichols (1980) have suggested, success and failure

are psychological states, rather than reflections of objective levels of performance. For example, a losing player can feel successful if they have achieved personal goals or attained self (or coach) imposed standards of excellence. According to Rejeski and Brawley (1983), the researcher must be cognizant of which outcome (objective or subjective) the actor is explaining.

There has been little research that combines subject's perceptions of outcome, in terms of success and failure, with actual outcomes (Weiner, 1979). In one of the few sports studies to date, McAuley (1985) found that gymnasts' perceptions of success, were more accurate predictors of their causal attributions than actual gym scores. In this study, I included both an objective and a subjective measure of player's match outcome.

Expectations of Success

Feather and Simon (1972) have demonstrated that success expectations (or high self-efficacy) can influence causal attributions. Although Duncan and McAuley (1987), using a bicycle ergometer task found no relationship between efficacy expectations and causal attributions, they suggest "Future research ... should continue to explore the effects of self-efficacy on causal attributions in more diverse exercise and sport settings, where personal involvement and culpability for outcomes are perceived to be more salient" (p. 392).

Weiner (1974, 1979, 1985) has noted that whereas the locus of causality and controllability dimensions are primarily proposed to influence affective reactions to success and failure, the stability dimension is related to expectations for future behaviour. Although Weiner (e.g., 1985) implies this relationship to be uni-directional, studies such as that by Feather and Simon (1972), suggest a bi-directional relationship. For example, if you fully expect to lose, and ultimately end up winning, you may be likely to attribute your success to some unstable cause such as luck (behaviour-stability).

Conversely, your continuing negative expectations can ultimately end up influencing your outcome (or participation) as demonstrated by learned helplessness (e.g., Abramson et al., 1978).

In this study, pre-game expectations of success were measured. It was hypothesized that players with low success expectations who won, would attribute their success to less stable causes than players with low expectations who lost. Conversely, it was predicted that players with high success expectations who won, would attribute their success to more stable causes than players with high success expectations who lost.

Importance of Performance and Outcome

According to Biddle and Jamieson (1988), a potentially significant moderator variable in the success/failure attribution link would be the value or importance attached to the outcome by the participants. As previously mentioned, a major criticism of laboratory based achievement research is that the tasks may be perceived as unimportant by subjects and consequently be low ego-involving. In the present study (pre-game) importance ratings of performance and outcome were measured, as an indication of how ego-involving the events were for the players.

Summary of Aims and Hypotheses

The present study was designed to add to the existing research in two main ways. First, it is the only sports-attribution study to use a within-group design to investigate the attributional differences of players in an individual and team sport. This design allows for particularly strong conclusions to be drawn from the results because the individual/team differences can not be attributable to: (a) Different sports being compared, (b) individual

differences in people who play different sports or, (c) individual differences in people who elect to play in team sport as opposed to individual sport and vice versa. Second, the present study allowed subjects a greater range of specific loci with which to locate attributions for their match outcome, than has been typically provided.

Other novel features of this study included: Assessing the effect of match outcome on attributions along the globality dimension, investigating the relationship between causal attributions and players' perceptions of success (as well as match outcome), and investigating the relationship between players' pre-game expectations of success and perceived importance of success with their causal attributions.

Hypotheses: In both the singles and team events, it was hypothesized that winners as compared to losers, would attribute their outcomes to more internal, controllable, stable and global causes.

In the team events, however, it was hypothesized that team-serving biases would predominate over self-serving biases. Consequently, it was predicted that winners' attributions would mostly be located in and controlled by the whole team rather than; (a) the rest of the team, (b) the self, (c) the opposition, or (d) the external circumstances. Conversely, it was hypothesized that losers' attributions would be located in and controlled by the opposition or external circumstances rather than; (a) the whole team, (b) the rest of the team, or, (c) the self. I would also expect that if team-serving biases were clearly overriding self-serving interests, losers' attributions would be more located in the self than in the whole team or the rest of the team, but also more located in the opposition or in the external circumstances than in the whole team (that is losers would protect their team by externalising failure beyond their team).

METHOD

OVERVIEW AND DESIGN

Data was collected at three representative indoor bowls fixtures. All players at these fixtures competed in fours, pairs and singles matches, and in that order.

In this study, players completed pre-game and post-game questionnaires, for their fours and singles matches only. The independent variables were the match outcome (win, loss and draw), and the individual (singles)/team (fours) distinction. The dependent variables included two separate methods of measuring causal attributions; pre-determined importance scale ratings and rating a solicited causal attribution along dimension scales.

The use of pre-game and post-game measures, enabled relationships between pre-game cognitions (such as expectations of success) and post-game attributions to be examined.

SUBJECTS

The subjects were 56 male and 28 female representative indoor bowlers from Christchurch ($n=40$), North Otago ($n=8$), Canterbury Country ($n=14$), and North Canterbury ($n=24$).

The approximate age range of the subjects was 18 to 75 with an approximate mean age of 40. These were estimates only as age was not assessed.

Subjects were participants at three separate fixtures: Canterbury vs North Otago (11-8-90), Christchurch vs North Canterbury (14-8-90), and Christchurch vs Combined Country (22-8-90).

MEASURES

Two sets of questionnaires were developed for use in this study - a pre-game and a post-game, singles and fours questionnaire.

Pre-game Questionnaire (see Appendices A and B)

This questionnaire (as described here), was designed to collect descriptive information from the subjects, their perceived importance of winning and playing well, and their expectations of success.

Descriptive information. This included the subject's province and sex, and in the fours their playing position (one to four).

As all questionnaires were anonymous, to match a subject's pre- and post-game questionnaires, subjects were asked to write the last three digits of their telephone number on all the questionnaires they completed.

Perceived importance of winning and playing well. Pre-game importance ratings of personally playing well and of winning were included. On seven point scales where 7 was labelled "Very important", the mean singles importance ratings were 6.32 (playing well) and 6.16 (winning), and for the fours, 6.42 (playing well) and 6.07 (winning). Thus, these events were considered important and ego-involving for the players concerned.

Expectations of success. Subjects were asked to indicate their expectations of success for their next match on a 7 point scale with end points "High expectations of losing" and "High expectations of winning".

Post-game Questionnaire (see Appendices C and D)

This questionnaire was developed to collect descriptive information of the subjects, their perception of success and measures pertaining to their causal attributions for the match outcome.

Descriptive information. This included the subject's province, sex, and in the fours their playing position (one to four). Subjects also indicated the match result (won, lost, drew) and the score of the game.

Perceptions of success. This was measured on a 7 point scale with the end points "Not at all successful" and "Very successful". In the singles questionnaire the wording of this question was "Disregarding the result of the match, how successful do you regard your performance?" In the fours questionnaire "your" was changed to "your own" and an extra question was included on how successful they regarded the performance of the other players in their team.

Causal Attribution Measures

Dimension Scale Ratings of a Solicited Causal Attribution.

At the bottom of the cover page, an open-ended attribution was solicited by the question "In your opinion, what was the most important cause in determining whether you (your team) won or lost this game?" After writing this down in a space provided subjects turned over the page

and answered questions relating to the dimensional properties of their attribution.

Responses to all causal dimension measures were made on seven point scales with the endpoints "Not at all" and "Very much" (for locus and control scales), "Very unstable" and "Very stable" (stability scales), and "Very general" and "Very specific" (globality scales). The dimensions and causal loci assessed in the singles and fours questionnaires were as follows:

Causal locus scales. Subjects were asked "To what extent is this cause (the solicited attribution) located in ...(locus)?" In the singles questionnaire the loci assessed were "you", the "opposing player", and the "external situation or circumstances". The fours questionnaire included the extra loci of the "whole team" and "the rest of the team".

Locus of control scales. These questions took the form "To what extent is this cause controlled by ...(locus)?" In the singles questionnaire the loci were "you" and the "opposing player", and in the fours questionnaire; "you", the "rest of the team", the "whole team", and the "opposing team".

Causal stability scale. Subjects were asked "To what extent is this cause something that is stable and permanent (will always be present), or unstable and temporary (comes and goes)?"

Globality scale. Subjects were asked "To what extent is this cause something that is specific to this particular match (influences just this match), or very general (influences many matches)?"

In total there were seven causal dimension scales in the singles questionnaire and eleven in the fours questionnaire.

Importance Ratings of Experimenter Supplied Attributions

The next section of the post-game questionnaire required subjects to rate how important a list of pre-determined causal attributions were to the outcome of their match. The causes were: Luck, mood, ability, effort, anxiety, motivation, concentration, confidence, consistency, practice, team cohesion, experience and unstable ability. These were derived from a study by Roberts and Pascuzzi (1979) as the most common causes for success and failure in a (non-specific) sporting contest, as generated by a large sample of students. The importance of the playing surface (mat) and the hall conditions, were also included as possible attributions specific to indoor bowls.

In the singles questionnaire, subjects were asked to rate how important each listed cause was to the match outcome from their own perspective, and that of their opposition. For example, they rated how important their "own effort", and the "opposing player's effort" was to the match outcome. In the fours questionnaire, subjects also gave importance ratings from the perspective of the "players in the rest of their team".

All importance ratings were made on 7 point scales, with the end points "Not at all" and "Very much".

In total there were 41 importance rating scales in the post-game fours questionnaire and 26 in the singles questionnaire.

GENERAL PROCEDURE

Study Approval

A letter was sent to the respective indoor bowling associations outlining the study aims and seeking permission to carry out the study at the proposed fixtures. This was granted, and ethical approval was given for this study on the 10th of August 1990.

Player Consent

Individual player consent was sought by the respective representative selectors, who advised the players that they were free to choose to participate in the study, and that any questionnaires completed would be anonymous. There were no refusals for completing the fours questionnaires, but 5 players either refused or only partly completed the second (singles) questionnaire.

Procedure

At each fixture the tournament organiser introduced my assistants and myself to the players as "researchers from the University of Canterbury", and explained in brief that there would be a questionnaire to complete before and after the fours and singles games.

Pre-game questionnaires, taking approximately 3 minutes to complete, were handed out just prior to the start of the matches. At this time players knew the specific player(s) in the opposition. This allowed them to evaluate their opposition and give a basis for their expectations of success.

These questionnaires were collected immediately upon completion.

Instructions on the cover page read:

"This questionnaire concerns your private thoughts about the upcoming match. Please answer each question as honestly as possible. This questionnaire is anonymous, so please express your own private thoughts. So that we can put your questionnaires together at the end of the day, please write the last three digits of your telephone number on this, and every other questionnaire you complete today. You will find a space provided for this over the page."

Post-game questionnaires were handed out immediately upon completion of games. This questionnaire took between 5-10 minutes for subjects to complete. Instructions were similar to those above.

De-briefing

De-briefing was by way of a letter to the respective associations, once the data collection was completed, outlining the hypotheses and results of the study. Because many players competed at more than one of the sampled fixtures (although they only completed one set of questionnaires), the hypotheses (etc.) could not be revealed until all data had been collected.

Independence of Data

In this study, data analysis was based upon the assumption that individual player's responses were independent. The use of ANOVAs and t-tests, for example, are based on the assumption that players competing in the same game or in the same team make attributions (etc.) independently of each other. However, this may not be the case. For example, they may

perceive common causes, or have discussed the causes. To test for this possibility, intra-class correlations were computed between players and their opposition in the singles and fours, and also between players within teams. As all correlations were non-significant ($p > .25$), all individual data were treated as independent (see Kenny & La Voie, 1985, for more details).

As some players competed at more than one of the sampled fixtures, this meant that in the latter fixtures there were questionnaires being completed by only some of the participants. This resulted in unequal groups of winners and losers, but did not affect the balance of completed singles and fours questionnaires.

RESULTS

The results are presented in five sections. A breakdown of the independent variables is presented first. Second, the causal dimension scale results for the singles and fours matches are presented, followed by the importance rating scales. The perception of success results are next, and finally, pre-game measures and their relationships with post-game measures are presented.

Table 1 presents the breakdown of completed questionnaires for the singles and fours matches. As can be seen, there were few draws in the singles events and subsequently these were excluded from analyses.

Table 1. *Number of Completed Questionnaires by Male and Female Competitors by Match Outcome for Singles and Fours Events*

Match Outcome	Singles			Fours		
	Male	Female	Total	Male	Female	Total
Win	26	10	36	15	9	24
Loss	23	16	39	25	13	38
Draw	4	2	6	16	8	24

Gender Differences

There were no gender differences on any of the attribution or pre-game measures in the singles and fours questionnaires, so this variable will not be mentioned further.

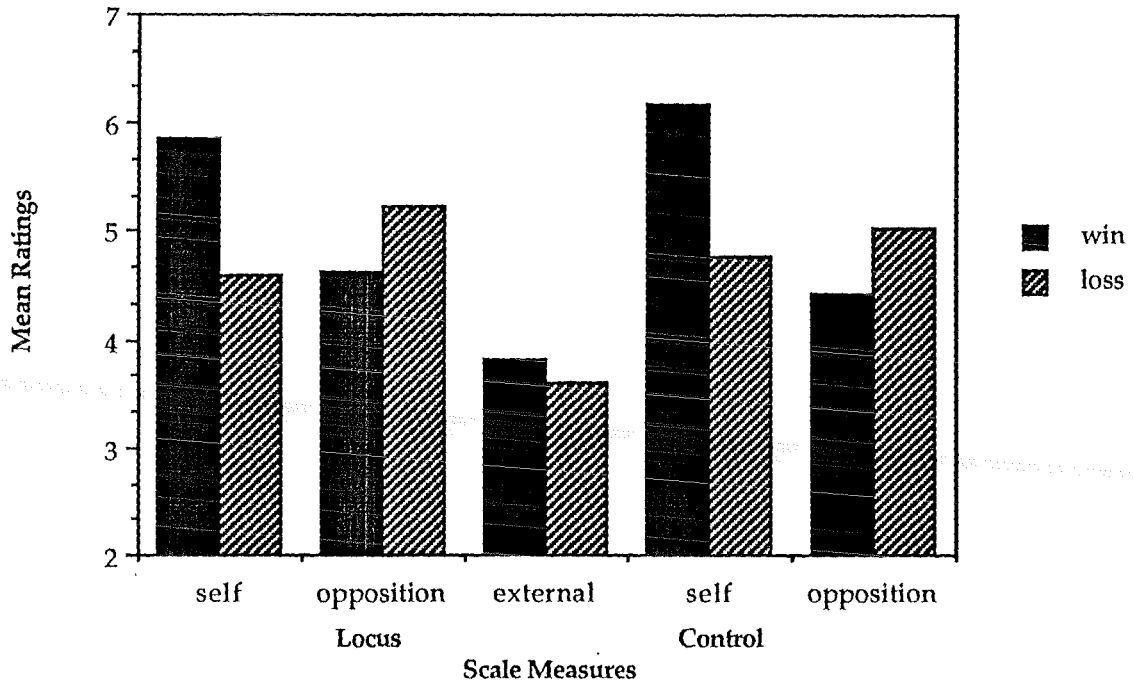
POST-GAME MEASURES

Causal Attributions - Singles Events

Due to the low frequency, draws were excluded from these analyses. However, as individual predictions were made concerning win/loss differences, causal attribution scale ratings were analysed with planned comparisons using t-tests. To assess differences between scales on the same causal dimension (for example the controllability scales of self and opposition), a 2 (win/loss) by N (dimension scales) ANOVA was used with the match outcome (win/loss) as the independent variable, and the second variable (self vs opposition) as a repeated measure.

Causal locus scales. A 2 (win/loss) X 3 (locus-self, locus-opposition, locus-external) ANOVA revealed a significant main effect, $F(2,143) = 14.47$, $p < .001$, and win/loss interaction, $F(2,143) = 5.23$, $p < .01$. As evident from Figure 2, attributions were generally located in the self or opposition, but not externally. As predicted, the significant interaction effect was the result of the win/loss reversal for the self and opposition measures. Planned comparisons revealed that winners ($M = 5.87$) as compared to losers ($M = 4.59$) located the cause for their success internally (locus-self), $t(74) = 3.22$, $p < .01$. Although only marginally significant, there was also a reverse win/loss effect on the locus-opposition scale. Losers ($M = 5.23$) located the cause for their failure more in the opposition than winners did for their successes ($M = 4.61$), $t(73) = 1.46$, $p < .10$. There was a non-significant difference between winners and losers on the external locus measure. In general, the locus results indicate a strong internality bias, but a weaker externality bias.

Figure 2. *Singles Locus and Controllability Scale Measures by Match Outcome*

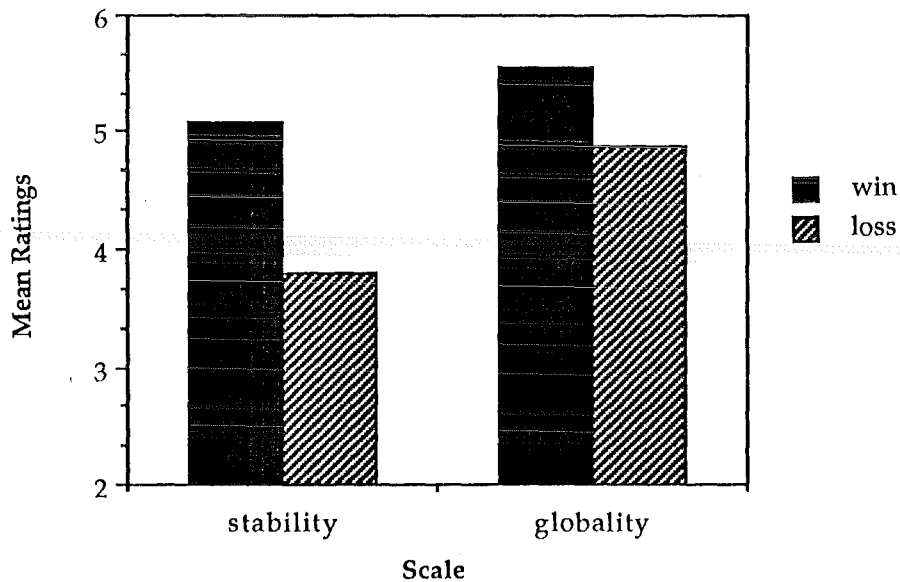


Controllability scales. A 2 (win/loss) X 2 (control-self, control-opposition) ANOVA indicated a significant main effect for scale, $F(1,73) = 5.71, p < .05$, and a significant outcome by scale interaction effect, $F(1,73) = 10.30, p < .01$. As predicted and illustrated in Figure 2, (and similarly to the locus scales), the interaction effect was the result of the win/loss reversal for the self and opposition measures. Planned comparisons revealed that winners ($M = 6.17$) as compared to losers ($M = 4.77$), rated their causal attributions as more controllable by themselves, $t(74) = 3.62, p < .001$. In contrast there was a non-significant effect of match outcome for the control-opposition scale.

Stability and globality scales. The causal stability and globality scale results are shown in Figure 3. As predicted, winners ($M = 5.08$) perceived their attributions as more stable than did losers ($M = 3.79$), $t(75) = 3.07,$

$p < .005$, and as more global ($M = 5.56$) than did losers ($M = 4.87$), $t(74) = 1.74$, $p < .05$.

Figure 3. *Singles Stability and Globality Scale Measures by Match Outcome*



Summary. The causal dimension scale results for the singles events show a strong internality effect. Winners rated their causal attributions as more internal, controllable, stable and global than did losers.

There was only weak evidence of an externality bias. Although losers tended to locate the cause for their failure more in their opposition than in themselves (marginally significant), the win/loss interaction effects on the locus and control measures were predominantly produced by large differences in winners' responses.

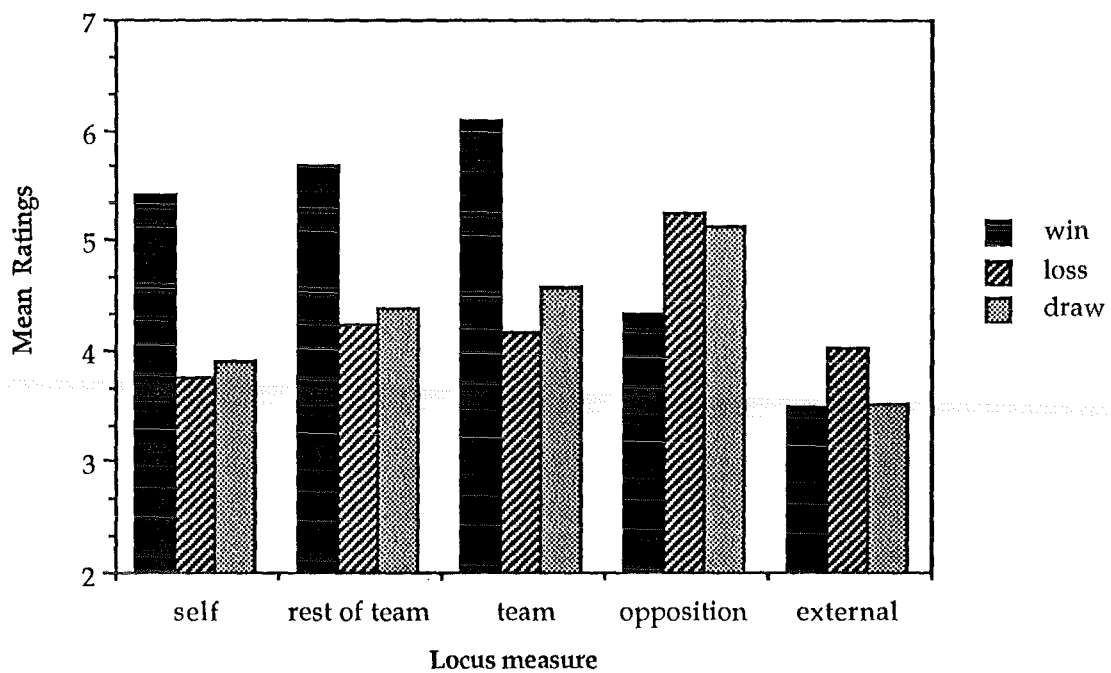
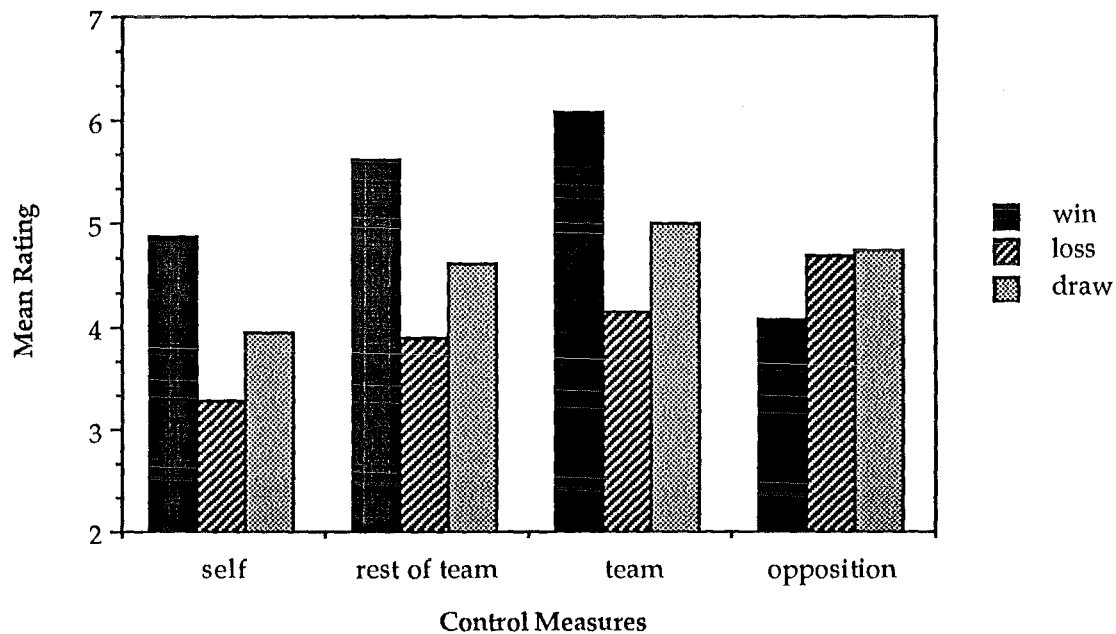
Causal Attributions - Fours Events

As in the singles analysis ANOVAs were used to investigate differences between scales of the same causal dimension. Individual scale ratings were analysed by one way analysis of variance, with the match outcome (win, loss and draw) as the independent variable. As individual predictions were made concerning win/loss differences, the use of planned comparisons was justified.

Causal locus scales. The causal locus scale results are shown in Figure 4. A 3 (match outcome) X 5 (locus scale) ANOVA revealed a significant main effect for scale, $F(4,324) = 12.95, p < .001$, and a significant scale by match outcome interaction, $F(8,324) = 7.89, p < .001$. To clarify the interaction, I carried out separate one-way ANOVAs on each locus measure. There was a significant effect of match outcome for the three (team) internal measures of: Locus-self, $F(2,81) = 9.31, p < .001$; locus-rest of team, $F(2,81) = 8.87, p < .001$; and locus-whole team, $F(2,81) = 13.10, p < .0001$. Planned comparisons of means showed that as predicted and graphically illustrated, winners' ratings on these scales were significantly higher than those of both losers and drawers (see Table 2). There were non-significant differences between losers' and drawers' mean ratings.

Although there was no main effect of match outcome on the locus-external or locus-opposition scales, as predicted losers ($M = 5.24$) located their causal attributions more in the opposition than did winners ($M = 4.33$), $t(81) = 2.05, p < .05$.

Overall, these results indicate a strong team-serving bias. Attributions for winning were predominantly located in the whole team, whereas losing attributions were located externally in the opposition. There was also moderate evidence for self-serving, with individual players rating

Figure 4. *Fours Locus Scale Measures by Match Outcome*Figure 5. *Fours Controllability Scale Measures by Match Outcome*

their winning attributions as more located within themselves than in the entire opposition.

Table 2. *Match Outcome (win/loss/draw) Planned Comparisons for Fours Causal Dimension Scales*

Scale	Planned Comparison		
	Win/Loss	Win/Draw	Draw/Loss
Locus-self	4.10***	3.34**	0.34
Locus-rest of team	4.40***	3.62**	0.39
Locus-whole team	6.08***	3.91***	0.92
Locus-opposition	2.05*	1.78*	0.26
Locus-external	1.02	0.04	0.94
Control-self	3.17***	1.68*	1.33
Control-rest of team	4.31***	2.27*	1.76*
Control-whole team	4.97***	1.94*	2.77**
Control-opposition	1.29	1.23	0.08
Stable	2.84**	1.87*	0.75
Global	1.42	0.42	0.97

Note: All figures reported are *t* scores from one-tailed *t*-tests (*df* = 81).

* = $p < .05$

** = $p < .01$

*** = $p < .001$

Controllability scales. The controllability scale results are shown in Figure 5. A 3 (match outcome) X 4 (control scale) ANOVA revealed a significant main effect for scale, $F(3,243) = 5.61, p < .001$, and a significant scale by match outcome interaction, $F(6,243) = 5.39, p < .001$. Clearly, the interaction was once again caused by the win/loss reversal between the team-internal controllability scales and the opposition scale. Univariate ANOVAs indicated a significant effect of match outcome for the control-self,

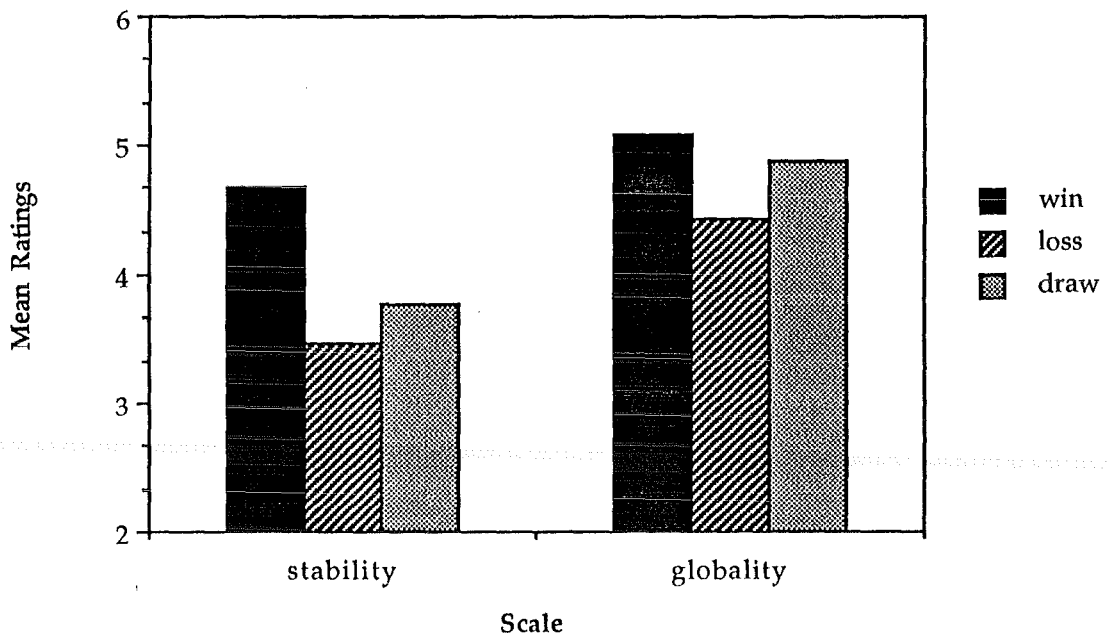
$F(2,81) = 5.02, p < .01$; control-rest of team, $F(2,81) = 9.29, p < .001$; and the control-whole team scales, $F(2,81) = 12.76, p < .0001$. Planned comparisons showed that as predicted, and showing remarkable similarity with the locus results, winners' ratings on the three (team) internal scales were significantly greater than those of both losers and drawers (see Table 2). Drawing players, however, rated their attributions as more controllable on the whole team, $t(81) = 2.77, p < .01$, and rest of team, $t(81) = 1.76, p < .05$, measures than did losers. There were non-significant differences between winners, losers or drawers on the control-opposition scale.

As in the causal locus results for the fours, regardless of the match outcome, attributions were rated as more controllable, in proportion to the progressively larger units of self, rest of team and whole team.

Stability and globality scales. The stability and globality scale results are presented in Figure 6. A one-way ANOVA revealed a significant effect of match outcome for the stability scale $F(2,81) = 4.12, p < .05$. Planned comparisons showed that, as predicted, winners ($M = 4.67$) rated their attributions as more stable than did both losers ($M = 3.46$), $t(81) = 2.84, p < .01$, and drawers ($M = 3.78$), $t(81) = 1.87, p < .05$.

Although there was no main match outcome effect on the globality scale, planned comparisons showed that winners ($M = 5.08$) tended to rate their attributions as more global than did losers ($M = 4.43$), $t(81) = 1.42, p < .10$.

Figure 6. *Fours Stability and Globality Scale Measures by Match Outcome*



Summary. The fours causal dimension scale results mirror those of the singles. Winners rated their attributions as more internal and controllable (from a self, rest of team, and whole team perspective), and as more stable and global (marginally significant) than did losers. Conversely, losing attributions were rated as more located in and controllable by the opposition. Drawing players' scale ratings generally fell midway between those of the winners and losers.

Overall, there was strong evidence of an internality bias but a more modest indication of an externality bias, both from a team-serving and self-serving perspective.

There was little evidence of self-serving at the expense of the team. In the most extreme case, this would have been evident if individuals had taken more credit for success than they gave their team (by locating winning attributions more in the self than in the whole team), or blamed their team

for failure (by locating more losing attributions in the whole team than in the self). However, although losing attribution ratings were higher, for the locus and controllability scales for the rest of the team and the whole team, than they were for the self, there was also a parallel increment in the locus and control ratings of winning attributions. This appears to be logical given that the three players in the rest of the team, obviously contribute more to both winning *and* losing match outcomes (see discussion).

Importance Ratings of Pre-determined Causal Attributions

Singles. The 26 causal importance rating measures were first analysed by a principal components factor analysis, with an orthogonal rotation. Based upon the eigenvalues of the first two factors (which explained 44.4% of the variance), the data was orthogonally rotated to two factors. The rotated factor loadings are presented in Table 3. The items with high loadings for Factor 1, were clearly of an external-uncontrollable nature, referring to the opposition or environmental factors. Apart from the two lowest loading items, the items in Factor 2 were labelled as an internal-controllable set of causes. Hence, there was clear evidence that the causes used rotated along the familiar internal-external dimension.

After the exclusion of items that loaded less than 0.4 (or greater than 0.4 on both factors), two scales were then formed. These scales were also balanced for content, so that similar (but opposite) items featured in each. For example, 'your effort' was balanced in one scale with the 'opposition effort' in the other. This required the exclusion of both self and opposition motivation, anxiety, luck, hall conditions, and playing surface measures, and resulted in 9 items per scale. The internal reliability coefficients for the scales were $\alpha = .84$ (internal-controllable), and $\alpha = .91$ (external-uncontrollable). Hence, the two scales showed good internal reliability.

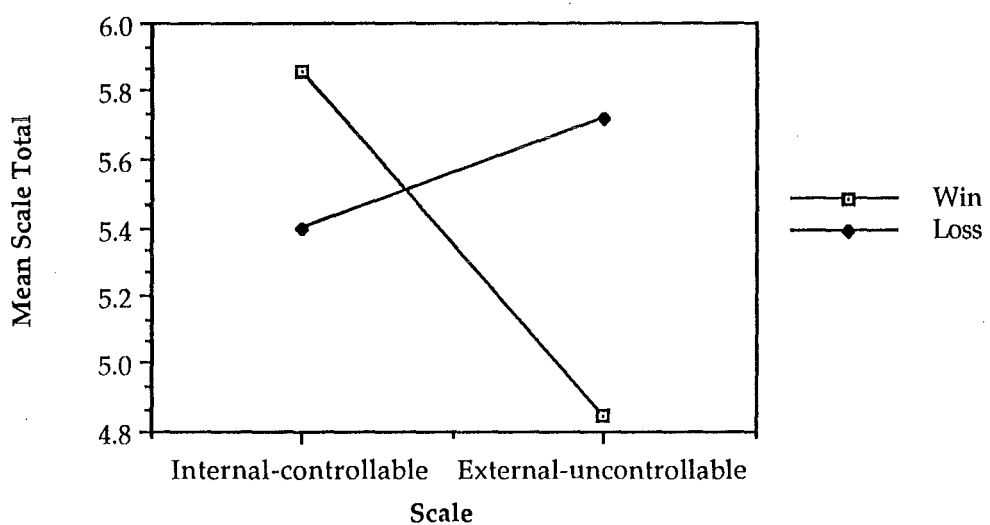
Table 3. *Rotated Factor Loadings for Singles Importance Rating Scales*

Item	Factor 1	Factor 2
	External-Uncontrollable	Internal-Controllable
Opposition ability	.86	
Opposition effort	.83	
Opposition good play	.81	
Opposition confidence	.81	
Opposition concentration	.78	
Opposition motivation	.76	
Opposition experience	.68	
Opposition practice	.61	
Hall conditions*	.54	
Opposition mood	.50	
Opposition performance	.48	
Mat quality*	.44	.43
Self performance		.70
Self ability		.68
Self experience		.62
Self motivation*	.42	.61
Self mood		.61
Self effort		.60
Self good play		.56
Self practice		.56
Self confidence		.54
Self luck*	.46	.53
Self anxiety*		.47
Self concentration		.42
Opposition anxiety*		.42
Opposition luck*		

Note. * indicates if the scale was excluded from analysis. Only scales with loadings over 0.4 are shown for each factor. The only scale not to attain a loading of 0.4 on any factor was Opposition luck.

Analysis of the effect of match outcome (win/loss) on the mean scale totals. The mean scale totals for winners and losers are illustrated in Figure 7. A 2 (win/loss) X 2 (scale) ANOVA revealed a significant main effect for scale, $F(1,68) = 7.66, p < .01$, and a significant scale by match outcome interaction, $F(1,68) = 29.24, p < .001$. As in the singles dimension scale results, the interaction is characterised by winners emphasizing the importance of internal-controllable causes, and losers the external-uncontrollable causes. To further investigate the interaction, t-tests were carried out on the individual scales. These showed a significant win/loss difference for the external-uncontrollable scale, $t(68) = 2.90, p < .01$, but only a marginally significant win/loss difference for the internal-controllable scale, $t(68) = 1.8, p < .10$. These t-test results appear in contrast to the causal dimension scale results, as the major win/loss differences occur here in the importance of external factors rather than internal factors.

Figure 7. *Graph of Internal-Controllable and External-Uncontrollable Scales for Singles Winners and Losers*



Fours (win and loss only). As in the singles' analysis, the 41 importance rating scales were analysed with a principal components factor analysis. Based upon the eigenvalues of the first three factors (which explained 49.7 % of the total variation), the data was orthogonally rotated to three factors. The rotated factor loadings are presented in Table 4. Apart from two items (the hall and mat conditions) the items in Factor 1 were all of a team-internal nature referring to the self, rest of team or whole team. Conversely, the items loading to Factor 2 were predominantly of an external nature. The third factor contained anxiety and luck items. These items also loaded on the same factor in the singles analysis, suggesting that they may not be perceived internally or externally regardless of the self or opposition perspective. Two scales were then formed from items contained within the first two factors. Items were excluded from the makeup of the scales if they loaded less than 0.4 on their rotated factor, or greater than 0.4 on more than one factor. Also, the items mat quality, hall conditions, self-mood and self-experience were omitted because of their inconsistent loading with the factor structure (items excluded are indicated in Table 4). In total there were 17 items in the internal scale, and 11 in the external scale. The internal reliability coefficients for these scales were $\alpha = .88$ (external-uncontrollable), and $\alpha = .94$ (internal-controllable), suggesting good internal reliability.

Table 4. *Rotated Factor Loadings for Fours Importance Rating Scales*

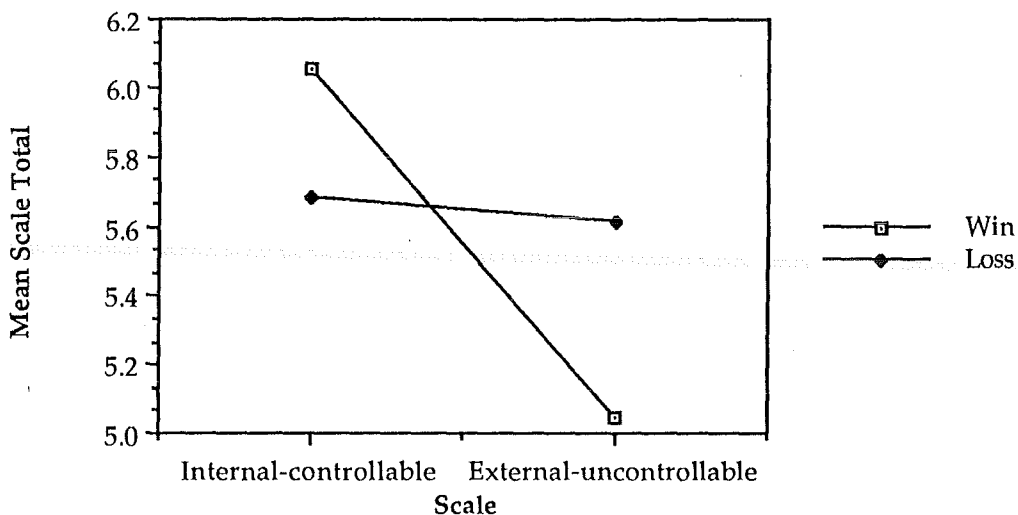
Item	Factor 1	Factor 2	Factor 3
	Internal-Controllable	External-Uncontrollable	
Team composition	.81		
Self concentration	.80		
Rest effort	.80		
Self motivation	.77		
Self ability	.78		
Mat quality*	.78		
Rest good play	.74		
Self effort	.74		
Rest concentration	.71		
Team cohesion	.70		
Rest motivation	.68		
Self confidence	.65		
Rest experience	.63		
Rest practice*	.61		.46
Rest performance	.61		
Self good play	.61		
Rest ability	.60		
Self performance*	.59		.44
Hall conditions*	.59		
Self practice*	.55		.40
Rest mood	.45		
Rest confidence	.41		
Opposition concentration		.80	
Opposition motivation		.72	
Opposition effort		.71	
Opposition mood		.70	
Opposition confidence		.66	
Opposition ability		.60	
Opposition composition		.59	
Opposition cohesion		.59	
Opposition practice		.57	
Opposition experience		.55	
Self mood*		.48	
Opposition performance		.40	

Item	Factor 1	Factor 2	Factor 3
Opposition good play*			
Self experience*			
Rest anxiety*			.82
Opposition anxiety*			.80
Self anxiety*			.72
Team luck*			.44
Opposition luck*			.44

Note. * indicates if the scale was excluded from analysis. Only scales with loadings over 0.4 are shown for each factor. The scales not attaining a loading of 0.4 on any factor were the opposition good play and self experience scales.

Analysis of the effect of match outcome (win/loss) on the mean scale totals. The mean scale totals for winners and losers are shown in Figure 8. A 2 (win/loss) X 2 (scale) ANOVA revealed a significant main effect for scale, $F(1,44) = 322.2, p < .001$, and a significant scale by match outcome interaction, $F(1,44) = 7.51, p < .01$. As illustrated in Figure 8, the interaction effect appears to be the result of winners rating internal-controllable causes as important to their success, but external-uncontrollable causes as unimportant. Planned comparisons of win/loss differences on individual scales, however, showed only a marginally significant effect on the external-uncontrollable scale, $t(44) = 1.82, p < .10$, and a non-significant effect on the internal-controllable scale, $t(44) = 1.48, ns$. Hence, the four causal importance ratings showed little evidence of an internality bias (both winners and losers rated the internal causes as far more important than the external causes), and only moderate evidence of an externality bias (losers only rated the external causes as more important than did winners, but not more important than internal causes).

Figure 8. Graph of Internal-Controllable and External-Uncontrollable Scale Means for Fours Winners and Losers



Perception of Success Results

Singles. The correlation between player's subjective assessment of success, as measured on a seven point scale (1 = not at all successful) and win and loss (coded 2 and 1 respectively) was $r(73) = -.50, p < .001$. Not unexpectedly, winners regarded themselves as more successful than did losers.

Fours. There were two perception of success measures in the fours; a success-self and a success-rest of team measure. The correlations with these and the win/loss dummy variable as described above were $r(61) = -.48, p < .001$ (self), and $r(61) = -.37, p < .01$ (rest of team).

A paired t-test on the two fours success measures, showed that regardless of the match outcome, players regarded the rest of their team as more successful than themselves, $t(86) = 4.65, p < .001$.

Perception of success and objective match outcome: Which is the basis for causal judgments? Many researchers have suggested that in naturalistic achievement settings actual and perceived outcomes may not be consistent. Insofar as attributions reflect cognitions, they have argued it would be the perception of success that is instrumental in determining attributions. In this study the objective outcome was used as the basis for analysis. Thus, it is prudent to investigate what relationship actually exists between actual and perceived outcomes as they relate to perceptions of causality. To do this, correlations were compared between the actual and perceived outcomes, with the causal dimension scales.

Table 5. *Table of Correlations between Match Outcome, Perception of Success and the Causal Dimension Scale Measures - Singles*

Measure	Causal Dimension Scale						Stable	Global
	Locus		External	Control				
	Self	Opp'			Self	Opp'		
Perception of Success (7 = very successful)	.38**	-.06	.04	.32**	-.15	.39***	.21	
Match Outcome (1 = loss, 2 = win)	.35**	-.17	.05	.39**	-.15	.34**	.20	

Note. $N = 75$ for all correlations. Match outcome was coded as a dummy variable. Significance levels were calculated using 2-tailed tests.

** = $p < .01$

*** = $p < .001$

Singles correlations. As can be seen from Table 5, the correlations between the objective and subjective measure of success with the dependent causal dimension scale measures are of a very similar magnitude and

direction, with significant correlations occurring for the same measures. This suggests that the scaling of causal attributions along causal dimensions is similar using either a subjective or objective assessment of success.

Fours Correlations. The correlations between the subjective measures of success (success-self and success-rest of team), and the match outcome, with the causal dimension scales are presented in Table 6.

Table 6. *Table of Correlations Between the Causal Dimension Scales and the Perception of Success Measures and Match Outcome - Fours*

Scale	Perception of Success Measure		
	Self	Rest of Team	Match Outcome
Locus-self	.32*	.17	.50***
Locus-rest of team	.37**	.45***	.46***
Locus-whole team	.41**	.33**	.57***
Locus-opposition	-.29*	-.22	-.25
Locus-external	-.04	-.03	-.13
Control-self	.20	.31*	.39**
Control-rest of team	.23	.25	.51***
Control-whole team	.32*	.28*	.56***
Control-opposition	-.25*	-.13	-.18
Stable	.15	.28*	.35**
Global	.21	.16	.18

Note. $N = 61$ for all correlations. Match outcome was coded as a dummy variable (1 = loss, 2 = win). Significance levels were calculated using 2-tailed tests.

* = $p < .05$

** = $p < .01$

*** = $p < .001$

As in the singles, there is similarity between the objective and subjective measures of success, as they correlate with players' scale ratings. In most cases though, it does appear that match outcome correlates more strongly with the scale measures, suggesting that the scaling of players' causal attributions may be more dependent in this case upon an objective assessment of success.

PRE-GAME MEASURES

Expectations of success - singles. Player's pre-game expectations of success were significantly related to their actual match result, $r(72) = .32$, $p < .01$. Winners ($M = 5.74$) had higher expectations of success than those who subsequently lost ($M = 4.77$), $t(72) = 2.84$, $p < .01$. This result suggests that players had realistic expectations of success to some extent.

Expectations of success - fours. There was no significant relationship with this pre-game measure and players actual match result.

A comparison of the fours and singles pre-game expectations of success. A paired t-test on players' fours and singles expectations of success showed players had significantly higher expectations of winning their fours matches than their singles matches, $t(74) = 2.68$, $p < .01$.

Given that expectations of success correlated significantly with winning in the singles but not in the fours, and that expectations of success were significantly higher in the fours we may postulate that players may be more realistic when competing alone or, alternatively, overly confident when competing in a group.

Pre-game - Post-game Relationships

It was predicted that players with high expectations of success who subsequently lost would tend to make more unstable attributions than those who won, who would tend to make stable attributions. The opposite pattern of results was predicted for players with low expectations of success. To examine this, the independent variables of expectation of winning, actual match outcome, and a third variable - the product of the first two (expectations of winning X match outcome), were regressed upon the dependent variable (stability of cause). If the proposed relationships existed, we would expect the product of expectation X match outcome to explain a greater proportion of the total variance than the two individual variables. However, neither the combined nor the individual variables were significant predictors of the stability ratings for either the singles or fours events. Thus, it appears that players' pre-game expectations of success were unrelated to post-game causal attributions as defined along the stability dimension.

DISCUSSION

The discussion will be presented in five parts. First, the singles' and fours' causal attribution results will be compared with past research, and the causal importance scale results. Second, I will discuss the overall differences between the singles' and fours' causal attribution results. Next, I will discuss the other attribution related variables examined in the present study, including the perception of success and the expectation of success results. Fourth, I will present criticisms of the present study. Finally, based upon conclusions of this study, I will propose suggestions for future research.

Success/Failure Biases in Causal Attributions

Individual (Singles) Results

Self-serving biases were clearly evident in the singles' causal dimension scale results of the present study. As hypothesised, winners as compared to losers rated their causal attributions as more internal, controllable and stable. These findings concur with several previous individual-sport studies (e.g., McAuley & Gross, 1983; McAuley et al., 1983), while other studies have obtained similar results for the dimensions of stability and controllability (e.g., Biddle & Jamieson, 1988; Duncan & McAuley, 1987; Mark et al., 1984), and internality (e.g., Spink & Roberts, 1980; Riordan et al., 1985). Although the internality effect was strongest, there was moderate evidence of losers externalising failure toward their opposition. Few recent individual-sport studies have found an externality bias. Also as hypothesised, winners rated their attributions as more global than did losers.

Team (Fours) Results

Overall, the fours' causal dimension scale results were in accord with predictions. Winners rated their attributions as more internal and controllable (from a self, rest of team, and whole team perspective) and as more stable than did losers. These findings replicate previous whole team focussed studies with respect to the locus (Iso-Ahola, 1977a; Scanlan & Passer, 1980a, 1980b), controllability (Gill et al., 1982; Grove et al., 1989), and stability dimensions (Grove et al., 1989). From a self perspective, the internality effect of past team studies was again demonstrated (e.g., Croxton & Klonsky, 1982a, 1982b; Iso-Ahola, 1977c).

Although, as in the singles the internality bias was strongest, there was evidence of an externality bias, with losers (from a self, rest of team, and whole team perspective), rating their attributions as more located in their opposition as compared to winners or drawers. In previous team-sport research, the externality bias has been found from a self perspective by Croxton and Klonsky (1982a, 1982b), and from a team perspective by Roberts (1975). Bird and Brame (1978), and Taylor and Doria (1981), also found similar internality and externality biases, from self and team perspectives.

In contrast to the singles, however, there was only a marginally significant effect of the match outcome on the globality dimension.

Self- and team-serving biases in the fours: An argument for multiple causal loci. One of the major aims of the present study was to demonstrate, in a group achievement setting, the importance of measuring multiple causal loci. Clearly, this was achieved. Regardless of the match outcome, players rated their causal attributions as more located in and controllable by the rest of the team than themselves, but more in the whole team than the rest of the team. This pattern of team-internal locus and controllability

ratings, (shown vividly in Figures 4 and 5 of the results section), suggests that players appeared to recognise the proportionate contribution of each (individual) team member, to winning, losing and drawing match outcomes. This pattern of findings appears to demonstrate a logical or rational pattern.

Although the overall attributional patterns appeared rational, self- and team-serving biases were also evident. Team-serving biases, however, clearly predominated; replicating past research that had assessed both self and team focussed causal attributions (Bird & Brame, 1978; Taylor & Doria, 1981). In general, players appeared to give the rest of the team more credit for the team's success, and more responsibility for the team's failure. Although locating losing causal attributions more in the rest of the team than in themselves appears self-serving, losing attributions were also more located in the opposition than in the whole team, suggesting a more dominant team-serving effect. However, self-serving biases were also evident in that individuals suggested the cause for their team's success was more located in, and controllable by themselves, than by their entire opposition.

The occurrence of what appears to be a logical or rational proportioning of responsibility *within a team*, seems to be in direct contrast to the self- and team-serving biases, which have been described by some authors as motivationally based. Although it is not my intention to further the already well argued cognition-motivation debate (see Tetlock & Levi, 1982), these results do suggest that self- and team-serving biases may be a product of both motivational *and* cognitive mechanisms.

The Causal Importance Rating Scales: Were the Results Consistent with the Causal Dimension Scales?

The results of the importance rating scales were in contrast to the results produced by the causal dimension scales. Whereas the dimension scale results showed the internality bias to be strongest, the importance rating results showed a non-significant internality bias (in both the singles and fours competition), and a significant externality bias in the singles.

It was argued earlier that using two different methods in the dimensional assessment of players' causal attributions, allowed for a more rigorous test of the hypotheses. However, although the two methods both showed the operation of attributional bias, the differences between the two sets of results highlight the methodological concerns raised previously (see Elig & Frieze, 1979; Russell et al., 1987). As previously noted, however, the causal dimension technique is preferable to the importance rating scales because, (a) it allows for more fine-grained analyses of attributions and (b), it gives subjects the freedom to generate their own causes - subjects are limited to pre-determined (and possibly inappropriate) experimenter supplied lists of causes when completing importance rating scales.

In summary, the inconsistencies in findings produced by these two methods, suggests that previous inconsistent results may derive, in part, from the diversity of methods used.

Comparing the Singles and Fours Causal Attribution Results

The results of this study suggest that the self-serving bias in causal attributions is weakened when individuals compete in groups, as compared to when individuals compete alone. It appears that when competing within a team, players take on a team-oriented social identity, and as a consequence

the team, as opposed to the self, becomes the focus for protective or enhancement biases. However, although self-serving effects were reduced in favour of team-serving biases in the fours, this does not preclude the existence of self-enhancement effects. As Hewstone and Jaspers (1982) argue, attributions which enhance the group (team-serving biases) can increase the value of social identity to that group member, and thus raise individual self-esteem. Group-serving attributions can also have the effect of increasing the overall cohesiveness of the group (e.g., Bird, Foster, & Maruyama, 1980; Schlenker & Miller, 1977), and consequently raise the capacity of the group in subsequent performance situations (Forsyth, Berger, & Mitchell, 1981).

It could be argued that group-serving attributions reflect social desirability forces in responding to the questionnaires (Taylor & Doria 1981). Although questionnaires in the present study were completed privately and anonymously, if group-serving biases were perceived as socially desirable, this would still indicate that the team image is an important and pervasive norm (Taylor & Doria 1981).

Overall, the incidence of attributional bias was similar in the singles' and fours' causal attribution results. With respect to specific attributional dimension results, there were minor differences, including a more significant externality bias in the fours, and a significant globality effect in the singles, but not in the fours.

From an individual perspective, a comparison of the fours' and singles' results suggests that players, when competing within a team, take less responsibility for losing outcomes than they do when competing alone. Obviously, in a team-sport environment there are a greater number of participants contributing to the match outcome, so it is not surprising that an individual feels less responsible. However, with respect to winning outcomes, individuals within teams attribute nearly as much credit to

themselves as they do when competing alone. Thus, it could be argued that team players bask in team success, but don't feel as responsible as the alone player after a losing outcome (see below for further discussion of this point).

Other Attribution-Related Variables Measured in the Present Study

Perceptions of Success

Perceived or objective measures of success: Which was used as the basis for causal attributions? Not surprisingly, players' perceptions of success reflected the objective match outcome. That is, they felt more successful after winning than after losing outcomes. The correlations produced between the two success measures and the causal dimension scales in the singles were almost identical, suggesting that either measure could have been used as the basis for causal attributions. The fours' correlations however, indicated that subjects were more likely to have used the objective (actual match result) as the basis for their attributions. McAuley's (1985) finding that gymnasts' perception of success were more accurate predictors of the causal attributions stands in contrast to the present results. However, this may be an artifact of the apparently subjective (or difficult) nature of scoring in gymnastics as compared to the objective (and more easily assessed) points scoring in indoor bowls. Notwithstanding these differences, subjects' perceptions of success appears to be an important determinant of causal attributions. Further research is needed to clarify the between-sport differences suggested by this study.

Perceptions of success for the self and the rest of team: Further indications of team-serving. A comparison of the two perception of success

measures assessed in the fours showed, regardless of the match outcome, that players perceived the rest of the team as more successful than themselves. For losing outcomes this would appear team-serving, as players suggested that they were less successful and consequently more responsible for failure, than the more successful rest of the team. In winning outcomes, rating the rest of the team as more successful than the self also appears team-serving.

Expectations of Success

Expectations of success and causal attributions: Does a relationship exist? Similarly to the findings of Duncan and McAuley (1987), and against predictions derived from Weiner's theory (1974, 1979, 1985), players' pre-game expectations of success were not related to their post-game causal attributions as defined along the stability dimension. Given the significant relationships in the singles, between stability ratings and the match outcome, and between expectations of success and the match outcome, the failure to link these variables fails to support Weiner's model, which on the surface seems intuitively plausible. Possibly, longitudinal based research may be needed to establish this relationship, where longer sequences of winning or losing outcomes could lead to stronger future expectancies, and where more unexpected outcomes may be reflected in stability ratings.

Why did players have higher expectations of success when competing in a team? A comparison of the singles' and fours' pre-game expectations of success measures showed that overall players were more confident of success in the fours. Why was this so? Mynatt and Sherman (1975) have suggested that members of groups may feel less personal threat from failure

than individuals performing alone. If this is the case, possibly individual competitors may be forced to reason more accurately about their true chances of success. That players' expectations of success were significantly related to their actual match result in the singles, but not in the fours, supports this supposition. Alternatively, players may find it easier to accurately evaluate their chances of success in individual competition, where the outcome is an interactive product of two players as compared to the many players involved in team competition (in this case 8 players).

Nonetheless, the expectation of success results do suggest that players are more confident of success in a team situation. Taken together with the earlier causal attribution results for the fours - where it was suggested that team players did not feel as responsible for losing outcomes as players in individual competition, (there were always others who could be attributed responsibility for losing outcomes) - it does seem plausible that team players feel less threat from failure, and as a consequence are not forced to prepare for that failure by objectively or accurately evaluating their chances of success.

Criticisms of the Present Study

At each fixture players competed in a fours, a pairs and a singles game, and in that set order. As all players completed their singles questionnaires after completing their fours questionnaires, this introduced the possible problem of primed responses. Subjects' causal attributions for their singles matches may have been influenced by the experimenter-supplied set of causes, (including reference to ability, effort, luck, etc.), previously given in the fours questionnaire. However, given the within-groups design of this study and that the playing order of events at these

indoor bowling fixtures was fixed, this potential problem was unavoidable. Also, this problem may have been offset by the elapsed time between completion of the fours and singles questionnaires which was at least a period of one hour.

Although this study used a within-groups design, in that the same subjects competed in both individual and team events, a full factorial design (i.e., fully balanced) was not possible. Ideally, for statistical purposes, it would be necessary for all subjects to encounter both wins and losses, in both the singles and fours events. However, such a design would be difficult to achieve in a naturalistic setting where the researcher has no control over match outcomes. Logistically, such a design would need to be implemented experimentally.

Conclusions and Suggestions for Future Research

Sport-attribution researchers have long been cognizant of the problems comparing studies of players in individual and in team sports. Indeed, the few studies that have attempted to resolve them have produced vague and uninterpretable results as a consequence of a methodology unable to control for the influence of (a) between-sport situational differences, and (b) personality differences between players in individual and in team sports. The present study, however, avoided the methodological weaknesses of these past studies, by using a within-groups design, applied to the sport of indoor bowls. Subsequently, the individual/team differences, reported in this study, must be considered a function of (only) the individual/group achievement context.

In the present study, however, superseding the effects of individual or team competition, was the replication of the success/failure bias in a

naturalistic achievement setting. This bias, which was revealed in the locus of causality, controllability, stability and globality dimensional ratings, suggests, that to examine the bias solely along the internal-external dimension, may be simplistic. That few sport-attribution studies have included the assessment of attributions along the globality dimension, appears surprising. Given the results of this study and those of Hanrahan (1989), and Prapavessis and Carron (1988), this dimension should be included in future sport-attribution studies.

This study also sought to further enhance understanding of the range of possible causal loci for which subjects may attribute or partially attribute outcomes (especially in a group performance setting). A more detailed analysis of attributions for group performance can facilitate theory development and model building in relation to group dynamics.

While causal attributions were the central focus of this study, the inclusion of the perception of success and expectation of success measures was motivated by a lack of research into what appeared important attribution-related variables. The results, which indicated significant differences between players in individual and team sports, showed that these variables warrant further investigation.

Although there has been substantial applied-sport attribution research, there seems to be, all too often, an uncritical acceptance of current pervasive methodologies and theoretical models. It appears time that researchers broaden their scope, by challenging existing models, and by assessing other variables situationally related to the context of individual and team sport. Through such endeavours, we may gain greater understanding of the causal attribution process in achievement settings. Hopefully, this research takes us some way down this path.

REFERENCES

- Abraham, I.L. (1985). Causal attributions of depression: Reliability of the Causal Dimension Scale in research on clinical reference. *Psychological Reports, 56*, 415-418.
- Abramson, L.Y., Seligman, M.E.P., & Teasdale, J.D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.
- Biddle, S.J.H. (1985). The study of emotion in sport: An attributional perspective. In *Proceedings of the 28th World Congress of ICHPER*. London: Physical Education Association.
- Biddle, S.J.H. (1988). Methodological issues in the researching of attribution-emotion links in sport. *International Journal of Sport Psychology, 19*, 264-280.
- Biddle, S.J.H., & Jamieson, K.J. (1988). Attribution dimensions: Conceptual clarification and moderator variables. *International Journal of Sport Psychology, 19*, 47-59.
- Bird, A.M., & Brame, J.M. (1978). Self versus team attributions: A test of the "I'm OK, but the team's so-so phenomenon". *Research Quarterly, 49*(3), 260-268.
- Bird, A.M., Foster, C.D., & Maruyama, G. (1980). Convergent and incremental effects of cohesion on attributions for self and team. *Journal of Sport Psychology, 2*, 181-194.
- Bradley, G.W. (1978). Self-serving biases in the attribution process: A re-examination of the fact or fiction question. *Journal of Personality and Social Psychology, 36*, 56-71.
- Brawley, L.R. (1984b). Unintentional egocentric biases in attributions. *Journal of Sport Psychology, 6*, 264-278.

- Bukowski, W.M., & Moore, D. (1980). Winners and losers attributions for success and failure in a series of athletic events. *Journal of Sport Psychology, 2*, 195-210.
- Croxtton, J.S., & Klonsky, B.G. (1982). Sex differences in causal attributions for success and failure in real and hypothetical sport settings. *Sex Roles, 8*, 399-409.
- Darley, J.M., & Goethals, G.R. (1980). People's analyses of the causes of ability-linked performances. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*. Vol. 13. New York: Academic Press.
- Deaux, K. (1976). Sex: A perspective on the attribution process. In J.H. Harvey, W.J. Ickes, and R.F. Kidd (Eds.), *New Directions in Attribution Research*. Hillsdale, New Jersey: Erlbaum.
- Duncan, T., & McAuley, E. (1987). Efficacy expectations and perceptions of causality in motor performance. *Journal of Sport Psychology, 9*, 385-393.
- Eitzen, S.D., & Sage, G.H. (1982). *Sociology of American Sport*. New York: W.C.Brown.
- Elig, T.W., & Frieze, I.H. (1979). Measuring causal attributions for success and failure. *Journal of Personality and Social Psychology, 37*, 621-634.
- Feather, N.T., & Simon, J.G. (1972). Attribution of responsibility and valence of outcome in relation to initial confidence and success and of self and other. *Journal of Personality and Social Psychology, 18*, 173-188.
- Feather, N.T., & Simon, J.G. (1973). Fear of success and causal attributions for outcome. *Journal of Personality, 41*, 515-542.
- Fitch, G. (1970). Effects of self-esteem, perceived performance, and choice on causal attributions. *Journal of Personality and Social Psychology, 16*, 311-315.

- Fletcher, G.J.O., & Fincham, F.D. (Eds.) (In press, 1991). *Cognition in Close Relationships*. Hillsdale. New Jersey: Lawrence Erlbaum Associates.
- Forsyth, D.R., Berger, R.E., & Mitchell, T. (1981). The effects of self-serving vs. other serving claims of responsibility or attraction and attribution in groups. *Social Psychology Quarterly*, 44, 59-64.
- Frieze, I., & Weiner, B. (1971). Cue utilization and attributional judgments of success and failure. *Journal of Personality*, 39, 591-605.
- Gill, D.L. (1980). Success-failure attributions in competitive groups: An exception to egocentrism. *Journal of Sport Psychology*, 2, 106-114.
- Gill, D.L., Ruder, M.K., & Gross, J.B. (1982). Open-ended attributions in team competition. *Journal of Sport Psychology*, 4, 159-169.
- Grove, J.R., Hanrahan, S.J., & McInman, A. (1989). Success/Failure bias in attributions: Across involvement categories in sport. In press (*Personality and Social Psychology Bulletin*) sent 21/2/89.
- Hanrahan, S.J., Grove, J., & Hattie, J.A. (1989). Development of a questionnaire measure of sport-related attributional style. *International Journal of Sport Psychology*, 20, 114-134.
- Heider, F. (1944). Social perception and phenomenal causality. *Psychology Review*, 51, 358-374.
- Heider, F. (1958). *The Psychology of Interpersonal Relations*. New York: Wiley.
- Hewstone, M., & Jaspers, J.M.F. (1982). Intergroup relations and attribution processes. In *Social Identity and Intergroup Relations*. H. Tajfel (Ed.). Cambridge: Cambridge University Press.
- Iso-Ahola, S.E. (1976). Determinants of evaluation of team performance. *Scandinavian Journal of Psychology*, 17, 292-296.

- Iso-Ahola, S.E. (1977a). Immediate attributional effects of success and failure in the field setting: Testing some laboratory hypothesis. *European Journal of Social Psychology*, 7, 275-296.
- Iso-Ahola, S.E. (1977b). Effects of team outcome on children's self perception: Little league baseball. *Scandinavian Journal of Psychology*, 18, 38-42.
- Iso-Ahola, S.E. (1977c). Effects of self-enhancement and consistency on causal and trait attributions following success and failure in motor performance. *Research Quarterly*, Vol. 48, 4, 717-726.
- Jones, E.E., & Davis, K.E. (1965). From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*. Vol. 2. New York: Academic Press.
- Kelley, H.H. (1967). Attribution theory in social psychology. In D.L. Vine (Ed.), *Nebraska Symposium on Motivation*. Lincoln, Nebraska: University of Nebraska Press.
- Kenny, D.A., & La Voie, L. (1985). Separating individual and group effects. *Journal of Personality and Social Psychology*, 48, 339-348.
- Lau, R.R. (1984). Dynamics of the attribution process. *Journal of Personality and Social Psychology*, 46, 1017-28.
- Lau, R.R., & Russell, D. (1980). Attributions in the sports pages. *Journal of Personality and Social Psychology*, 39, 29-38.
- McAuley, E. (1985). Success and causality in sport: The influence of perception. *Journal of Sport Psychology*, 7, 13-22.
- McAuley, E., & Gross, J.B. (1983). Perceptions of causality in sport: An application of the Causal Dimension Scale. *Journal of Sport Psychology*, 5, 72-76.
- McAuley, E., Russell, D., & Gross, J.B. (1983). Affective consequences of winning and losing: An attributional analysis. *Journal of Sport Psychology*, 5, 278-287.

- McFarland, C., & Ross, M. (1982). The impact of causal attributions on affective reactions to success and failure. *Journal of Personality and Social Psychology, 43*, 937-946.
- Maehr, M.L., & Nichols, J.G. (1980). Culture and achievement motivation: A second look. In N. Warren (Ed.), *Studies in Cross-cultural Psychology*. New York: Academic Press.
- Mark, M.M., Mutrie, N., Brooks, D.R., & Harris, D.V. (1984). Causal attributions of winners and losers in individual competitive sports: Toward a reformulation of the self-serving bias. *Journal of Sport Psychology, 6*, 184-196.
- Miller, D.T. (1976). Ego-involvement and attributions for success and failure. *Journal of Personality and Social Psychology, 34*, 901-906.
- Miller, D.T., & Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction? *Psychological Bulletin, 82*, 213-225.
- Miller, R.S., & Schlenker, B.R. (1985). Egotism in group members: Public and private attributions of responsibility for group performance. *Social Psychology Quarterly, 48*, 85-89.
- Mullen, B., & Riordan, C.A. (1988). Self-serving attributions for performance in naturalistic settings: A meta-analytic review. *Journal of Applied Social Psychology, 18*, 3-22.
- Mynatt, C., & Sherman, S.J. (1975). Responsibility attributions in groups and individuals: A direct test of the diffusion of responsibility hypothesis. *Journal of Personality and Social Psychology, 6*, 1111-1118.
- Peterson, C. (1980). Attribution in the sports pages: An archival investigation of the covariation hypothesis. *Social Psychology Quarterly, 43*, 136-141.
- Prapavessis, H., & Carron, A.V. (1988). Learned helplessness in sport. *The Sport Psychologist, 2*, 189-201.

- Reimer, B.S. (1975). Influence of causal beliefs on affect and expectancy. *Journal of Personality and Social Psychology, 31*, 1163-1167.
- Rejeski, W.J., & Brawley, L.R. (1983). Attribution theory in sport: Current status and new perspectives. *Journal of Sport Psychology, 5*(1), 77-99.
- Riordan, C.A., Thomas, J.S., & James, M.K. (1985). Attribution in a one-on-one sports competition: Evidence for self-serving biases and sex differences. *Journal of Sport Behaviour, 8*, 42-57.
- Roberts, G.C. (1975). Win-loss causal attributions of little league players. *Mouvement: Acts du 7 Symposium Canadien en Apprentissage Psycho-Moteur et Psychologie du Sport, 315-322*.
- Roberts, G.C., & Pascuzzi, D. (1979). Causal attributions in sport: Some theoretical implications. *Journal of Sport Psychology, 1*, 203-211.
- Russell, D. (1982). The Causal Dimension Scale: A measure of how individuals perceive causes. *Journal of Personality and Social Psychology, 42*, 1137-1145.
- Russell, D., McAuley, E., & Tarico, V. (1987). Measuring causal attributions for success and failure: A comparison of methodologies for assessing causal dimensions. *Journal of Personality and Social Psychology, 52*, 1248-1257.
- Scanlan, T.K., & Passer, M.W. (1980a). The attributional responses of young female athletes after winning, tying, and losing. *Research Quarterly for Exercise and Sport, 51*, 675-684.
- Scanlan, T.K., & Passer, M.W. (1980b). Self-serving biases in the competitive sport setting: An attributional dilemma. *Journal of Sport Psychology, 2*, 124-136.
- Schlenker, B.R., & Miller, R.S. (1977). Group cohesiveness as a determinant of egocentric perceptions in cooperative groups. *Human Relations, 11*, 1039-1055.

- Spink, K.S., & Roberts, G.C. (1980). Ambiguity of outcome and causal attributions. *Journal of Sport Psychology*, 2, 237-244.
- Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W.G. Austin, & Worchel, S., (Eds.), *The Psychology of Intergroup Relations*. Monterey, CA: Brooks/Cole.
- Taylor, D.M., & Doria, J.R. (1981). Self-serving and group-serving bias in attributions. *The Journal of Social Psychology*, 113, 201-211.
- Tenenbaum, G., & Furst, D. (1985). The relationship between sport achievement responsibility, attribution and related situational variables. *International Journal of Sport Psychology*, 16(4), 254-269.
- Tetlock, P.E., & Levi, A. (1982). Attribution bias: On the inconclusiveness of the cognition-motivation debate. *Journal of Experimental Social Psychology*, 18, 68-88.
- Valle, V.A., & Frieze, I. (1976). Stability of causal attributions as a mediator in changing expectations for success. *Journal of Personality and Social Psychology*, 33, 579-587.
- Weiner, B. (1972). *Theories of Motivation: From Mechanism to Cognition*. Chicago. Rand McNally.
- Weiner, B. (Ed.) (1974). *Achievement Motivation and Attribution Theory*. Morristown, New Jersey: General Learning Press.
- Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology*, 71, 3-25.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92, 548-573.
- Weiner, B., Frieze, I.H., Kukla, A., Reed, L., Rest, S., & Rosenbaum, R.M. (1971). *Perceiving the Causes of Success and Failure*. Morristown, New Jersey: General Learning Press.

- Weiner, B., Heckhausen, H., Meyer, W.U., & Cook, R.C. (1972). Causal ascriptions of achievement behaviour: A conceptual analysis of effort. *Journal of Personality and Social Psychology, 21*, 239-248.
- Weiner, B., Russell, D., & Lerman, D. (1978). Affective consequences of causal ascriptions. In J.H. Harvey, W.J. Ickes, and R.F. Kidd (Eds.), *New Directions in Attribution Research*, Vol 2. Hillsdale, New Jersey: Erlbaum.
- Weiner, B., Russell, D., & Lerman, D. (1979). The cognition-emotion process in achievement related contexts. *Journal of Personality and Social Psychology, 37*, 1211-1222.
- Wortman, C.B., Constanzo, P.R., & Witt, T.R. (1973). Effects of anticipated performance on the attributions of causality to self and others. *Journal of Personality and Social Psychology, 27*, 372-381.
- Zaccaro, S.J., Peterson, C., & Walker, S. (1987). Self-serving attributions for individual and group performance. *Social Psychology Quarterly, 50*(3), 257-263.
- Zientek, C.E.C., & Breakwell, G.M. (1988). Attributions made in ignorance of performance outcome. *International Journal of Sport Psychology, 19*, 38-46.
- Zuckerman, M. (1979). Attribution of success and failure revisited, or: The motivation bias is alive and well in attribution theory. *Journal of Personality, 47*, 245-287.

Appendix A. Pre-game Singles Questionnaire

PRE-COMPETITION SPORTS QUESTIONNAIRE

This questionnaire concerns your private thoughts about the upcoming match. Please answer each question as honestly as possible. This questionnaire is **anonymous**, so please express **your own private thoughts**.

So that we can put your questionnaires together at the end of the day, please write the last 3 digits of your telephone number on **this, and every other questionnaire you complete today**. You will find a space provided for this over the page.

PLEASE TURN OVER AND BEGIN

Answer all questions please.

1 Team _____ Sex M / F

2 Last 3 digits of your telephone number _____

Answer all of the following questions. Circle one number to indicate your response. Please note, that you can circle any number along the rating scale when answering. The labels at each end of the scale are for your guidance only.

3 How important is it that you win the match?

Not at all important 1 2 3 4 5 6 7 *Very important*

4 How important is it that you personally play well today?

Not at all important 1 2 3 4 5 6 7 *Very important*

5 What are your expectations of winning or losing your next match?

High expectations of losing 1 2 3 4 5 6 7 *High expectations of winning*

Please check that you have answered all questions.

THANK YOU FOR YOUR TIME.

Appendix B. Pre-game Fours Questionnaire

PRE-COMPETITION SPORTS QUESTIONNAIRE

This questionnaire concerns your private thoughts about the upcoming match. Please answer each question as honestly as possible. This questionnaire is **anonymous**, so please express **your own private thoughts**.

So that we can put your questionnaires together at the end of the day, please write the last 3 digits of your telephone number on each and every questionnaire you complete (ie. the same 3 digits you wrote on the singles questionnaires). You will find a space provided for this over the page.

PLEASE TURN OVER AND BEGIN

Answer all questions please.

- 1 Team _____ Sex M / F
- 2 Last 3 digits of your telephone number _____
- 3 Position in team (tick one) 1st___ 2nd___ 3rd___ 4th___

Answer all of the following questions. Circle one number to indicate your response. Please note, that you can circle any number along the rating scale when answering. The labels at each end of the scale are for your guidance only.

- 4 How important is it to you that your team win the match?

Not at all important 1 2 3 4 5 6 7 *Very important*

- 5 How important is it to you that your team play well today?

Not at all important 1 2 3 4 5 6 7 *Very important*

- 6 How important is it to you that you personally play well today?

Not at all important 1 2 3 4 5 6 7 *Very important*

- 7 What are your expectations of winning or losing your next match?

High expectations of losing 1 2 3 4 5 6 7 *High expectations of winning*

Please check that you have answered all questions.

THANK YOU FOR YOUR TIME.

Appendix C. Post-game Singles Questionnaire

POST-COMPETITION SPORTS QUESTIONNAIRE

This questionnaire concerns your private thoughts about the match you have just completed. Please answer each question as honestly as possible. This questionnaire is **anonymous**, so please express **your own private thoughts**.

So that we can put your questionnaires together at the end of the day, please write the **same 3 digits that you wrote on the Pre-game Questionnaire**, (ie., last 3 digits of your telephone number) in the space provided below.

Answer all questions please.

1. Team _____ Sex M / F

2. Write the 3 digits that you put on the _____
Pre-game Questionnaire.

3. Did you win or lose the game? Won _____ Lost _____

4. What was the score of the game? _____

5. Disregarding the result of the match, how successful do you regard
your own performance?

Not at all successful 1 2 3 4 5 6 7 *Very successful*

6. In your opinion, what was the **most important cause** in determining whether you won or lost this game? Write this on the dotted line below.

After answering this question, PLEASE TURN OVER and complete the questions on the next page

Think about the **cause** you have written on the preceding page. The questions below concern your impressions or opinions of that cause.

Circle one number for each of the following questions to indicate your answer. Please note, that you can circle any number along the rating scale when answering. The labels at each end of the scale are for your guidance only.

Answer all questions.

1(a) To what extent is this cause located in **you**?

Not at all 1 2 3 4 5 6 7 *Very much*

(b) To what extent is this cause located in the **opposing player**?

Not at all 1 2 3 4 5 6 7 *Very much*

(c) To what extent is this cause located in the **external situation or circumstances?** (outside of both players).

Not at all 1 2 3 4 5 6 7 *Very much*

2(a) To what extent is this cause controlled by **you**?

Not at all 1 2 3 4 5 6 7 *Very much*

(b) To what extent is this cause controlled by the **opposing player**?

Not at all 1 2 3 4 5 6 7 *Very much*

3(a) To what extent is this cause something that is **stable and permanent** (will always be present), or **unstable and temporary** (comes and goes)?

Very unstable 1 2 3 4 5 6 7 *Very stable*

4 To what extent is this cause something that is **specific** to this particular match (influences just this match), or very **general** (influences many matches)?

Very specific 1 2 3 4 5 6 7 *Very general*

PLEASE TURN OVER AND CONTINUE

Could you now please rate how important each of the following factors were to the outcome of your match. Circle one number only.

Answer all questions please.

1(a) **Your own luck.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **The opposing player's luck.**

Not at all important 1 2 3 4 5 6 7 *Very important*

2(a) **Your mood.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **The opposing player's mood.**

Not at all important 1 2 3 4 5 6 7 *Very important*

3(a) **Your own ability.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **The ability of the opposing player.**

Not at all important 1 2 3 4 5 6 7 *Very important*

4(a) **Your personal effort.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **The opposing player's effort.**

Not at all important 1 2 3 4 5 6 7 *Very important*

5(a) **How anxious or nervous you were.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **How anxious or nervous the opposing player was.**

Not at all important 1 2 3 4 5 6 7 *Very important*

6(a) **How motivated you were.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **How motivated the opposing player was.**

Not at all important 1 2 3 4 5 6 7 *Very important*

7(a) **How much you concentrated.**

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) **How much the opposing player concentrated.**

Not at all important 1 2 3 4 5 6 7 *Very important*

PLEASE TURN OVER AND CONTINUE

8(a) How confident you were.

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) How confident the opposing player was.

Not at all important 1 2 3 4 5 6 7 *Very important*

9(a) How consistent your good play was.

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) How consistent your opponent's good play was.

Not at all important 1 2 3 4 5 6 7 *Very important*

10(a) The amount of practice or preparation you have had.

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) The amount of practice or preparation you estimate your opponent to have had.

Not at all important 1 2 3 4 5 6 7 *Very important*

11(a) That today you had an unusually good or bad performance.

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) That today the opposing player had an unusually good or bad performance.

Not at all important 1 2 3 4 5 6 7 *Very important*

12 The quality of the playing surface,(mat and floor etc).

Not at all important 1 2 3 4 5 6 7 *Very important*

13 The hall conditions, (heating and lighting etc).

Not at all important 1 2 3 4 5 6 7 *Very important*

14(a) Your experience at this level.

Not at all important 1 2 3 4 5 6 7 *Very important*

(b) Your opponent's experience at this level.

Not at all important 1 2 3 4 5 6 7 *Very important*

Please check that you have answered all questions.

THANK YOU FOR YOUR TIME.

Appendix D. Post-game Fours Questionnaire

POST-COMPETITION SPORTS QUESTIONNAIRE

This questionnaire concerns your private thoughts about the match you have just completed. Please answer each question as honestly as possible. This questionnaire is **anonymous**, so please express **your own private thoughts**.

So that we can put your questionnaires together at the end of the day, please write **the last 3 digits of your telephone number** (ie., the digits you wrote on the Pre-Game questionnaire) in the space provided below.

Answer all questions please.

- 1 Team _____ Sex M / F
- 2 Write the last 3 digits of your _____ telephone number.
- 3 Position in team (tick one) 1st ___ 2nd ___ 3rd ___ 4th ___
- 4 Did your team win or lose the game? Won ___ Lost ___
- 5 What was the score of the game? _____
- 6 Disregarding the result of the match, how successful do you regard **your own** performance?
Not at all successful 1 2 3 4 5 6 7 *Very successful*
- 7 Disregarding the result of the match, how successful do you regard the performance of the players in the **rest of your team**?
Not at all successful 1 2 3 4 5 6 7 *Very successful*
-
8. In your opinion, what was the **most important cause** in determining whether your team won or lost this game? Write this on the dotted line below
-

After answering this question PLEASE TURN OVER and complete the questions on the next page

Think about the **cause** you have written on the preceding page. The questions below concern your impressions or opinions of that cause.

Circle one number for each of the following questions to indicate your answer. Please note, that **you can circle any number along the rating scale** when answering. The labels at each end of the scale are for your guidance only.

1(a) To what extent is this cause located in **you**?

Not at all 1 2 3 4 5 6 7 *Very much*

(b) To what extent is this cause located in the **rest of your team** (not including yourself)?

Not at all 1 2 3 4 5 6 7 *Very much*

(c) To what extent is this cause located in **your whole team**?

Not at all 1 2 3 4 5 6 7 *Very much*

(d) To what extent is this cause located in the **opposing team**?

Not at all 1 2 3 4 5 6 7 *Very much*

(e) To what extent is this cause located in the **external situation or circumstances** (outside of both teams)?

Not at all 1 2 3 4 5 6 7 *Very much*

2(a) To what extent is this cause controlled by **you**?

Not at all 1 2 3 4 5 6 7 *Very much*

(b) To what extent is this cause controlled by **the rest of the team** (not including yourself)?

Not at all 1 2 3 4 5 6 7 *Very much*

(c) To what extent is this cause controlled by **your whole team**?

Not at all 1 2 3 4 5 6 7 *Very much*

(d) To what extent is this cause controlled by the **opposing team**?

Not at all 1 2 3 4 5 6 7 *Very much*

3 To what extent is this cause something that is **stable and permanent** (will always be present), or **unstable and temporary** (comes and goes)?

Very unstable 1 2 3 4 5 6 7 *Very stable*

PLEASE TURN OVER AND CONTINUE

- 4 To what extent is this cause something that is **specific** to this particular match (influences just this match), or very **general** (influences many matches)?

Very specific 1 2 3 4 5 6 7 *Very general*

Could you now please rate how important each of the following factors were to the outcome of your match. Circle one number only.

Answer all questions please.

- 1(a) **Your team's luck.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (b) **The opposing team's luck.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- 2(a) **Your mood.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (b) **The mood of other players in the rest of your team.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (c) **The mood of the players in the opposing team.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- 3(a) **Your own ability.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (b) **The ability of other players in the rest of your team.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (c) **The ability of the players in the opposition.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- 4(a) **Your personal effort.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (b) **The effort of other players in the rest of your team.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (c) **The opposing team's effort.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- 5(a) **How anxious or nervous you were.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (b) **How anxious or nervous other players in the rest of you team were.**

Not at all important 1 2 3 4 5 6 7 *Very important*

- (c) **How anxious or nervous players in the opposition were.**

Not at all important 1 2 3 4 5 6 7 *Very important*

PLEASE TURN OVER AND CONTINUE

- 6(a) How motivated **you** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) How motivated other players in the **rest of your team** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) How motivated the players in the **opposition** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 7(a) How much **you** concentrated.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) How much other players in the **rest of your team** concentrated.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) How much the players in the **opposing team** concentrated.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 8(a) How confident **you** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) How confident other players in the **rest of your team** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) How confident the players in the **opposition** were.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 9(a) How consistent **your** good play was.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) How consistently good the play of **others in your team** was.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) How consistently good the play of the **opposition** was.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 10(a) The amount of practice or preparation **you** have had.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) The amount of practice or preparation of other players in the **rest of your team** (have had).
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) The amount of practice or preparation you estimate the players in the **opposition** to have had.
Not at all important 1 2 3 4 5 6 7 *Very important*

PLEASE TURN OVER AND CONTINUE

- 11(a) That today **you** had an unusually good or bad performance.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) That today other players in the rest of **your team** had unusually good or bad performances.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) That today some players in the **opposing team** had unusually good or bad performances.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 12 The quality of the playing surface (mat and floor etc.).
Not at all important 1 2 3 4 5 6 7 *Very important*
- 13 The hall conditions (heating and lighting etc.).
Not at all important 1 2 3 4 5 6 7 *Very important*
- 14(a) The cohesion or compatibility of **your team**.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) The cohesion or compatibility of your **opposition**.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 15(a) The composition of **your team**.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) The composition of the **opposition team**.
Not at all important 1 2 3 4 5 6 7 *Very important*
- 16(a) **Your** experience at this level.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (b) The experience of other players in the rest of **you team** at this level.
Not at all important 1 2 3 4 5 6 7 *Very important*
- (c) The experience of the players in the **opposition** at this level.
Not at all important 1 2 3 4 5 6 7 *Very important*

Please check that you have answered all questions

THANK YOU FOR YOUR TIME