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74

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UMI
THE CONTRIBUTION OF GOAL CHARACTERISTICS AND CAUSAL ATTRIBUTIONS TO EMOTIONAL EXPERIENCE IN YOUTH SPORT PARTICIPANTS

A Thesis Submitted to the College of Graduate Studies and Research in Partial Fulfillment of the Requirements For the Degree of Doctor of Philosophy In the College of Kinesiology University of Saskatchewan Saskatoon

By Thomas R. Graham Spring 1999

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by
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ABSTRACT

This project examined the relationship between causal attributions (Weiner, 1986) and goal characteristics (Lazarus, 1991) in an effort to better understand emotion in youth sport participants. Specifically, the research attempted to determine if attributions and goal characteristics (goal importance and goal discrepancy) made direct contributions or combined in an interactive fashion (moderator model) to predict emotion. A multi-study approach was used. First, it was necessary to develop a valid goal importance scale (GIS). A preliminary GIS was developed and then evaluated in a study with 198 youth soccer players. Factor analysis produced a unidimensional five item scale with good reliability (α=.86). The GIS correlated with a goal commitment scale (r=.67), task value (r=.80) and task importance (r=.80). A second study, with 102 soccer players before a Leger fitness test, replicated the findings of the first study. A second research objective was to assess the Revised Causal Dimension Scale (CDSII), which was used to assess causal attributions. The CDSII was completed by 188 soccer players following competition. Confirmatory factor analysis indicated that the CDSII provided a good fit to the data (GFI=.93, CFI=.92). There were concerns with the low internal consistency of the stability subscale (α=.58) and the high correlation between locus of causality and personal control factors (r=.91). The primary research objective was to test the direct effects and moderator models for attributions and goal characteristics in predicting discrete positive and negative emotions. One study included 132 soccer players who completed measures of attributions, goal importance, objective goal discrepancy and five emotions in conjunction with a Leger fitness test. Hierarchical regression analysis found both attributions (R²=.045 to .186) and goal characteristics (R²=.053 to .082) were
significant predictors. Results supported only the direct effects model. A second study, with 174 swimming and track and field athletes during actual competition, repeated the previous study except that subjective goal discrepancy was also measured. The results showed attributions ($R^2 = .047$ to .087) and goal characteristics ($R^2 = .286$ to .411) predicted significant variance in positive emotions. For negative emotions, only subjective goal discrepancy was a significant predictor. The direct effects model was supported. No interactions were found to support the moderator model. Overall, the research indicates that goal discrepancy as well as causal attributions make direct contributions in predicting emotions in adolescent athletes.
Acknowledgements

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DEDICATION

TO MY WIFE, ANNE-MARIE

AND CHILDREN, SARAH AND ROBERT
TABLE OF CONTENTS

PERMISSION TO USE i
ABSTRACT ii
ACKNOWLEDGEMENTS iv
TABLE OF CONTENTS vi
LIST OF TABLES xi
LIST OF FIGURES xiii
LIST OF APPENDICES xiv

1.1 Introduction 1
1.2 Literature Review 3
  1.2.1 Conceptual Views of Emotion 4
  1.2.2 The Merits of Theory Driven Research 9
  1.2.3 Attribution Theory 12
  1.2.4 Theory of Goal Setting 19
  1.2.5 Cognitive-Motivational-Relational Theory 21
  1.2.6 The Case for Integration of Goal Characteristics into Attribution Theory 22
  1.2.7 Investigating Outcome and Attributional Appraisals 30
  1.2.8 Outcome-Dependent Emotions 32
  1.2.9 Attribution-Dependent Emotions 33
1.3 Statement of the Purpose 37
2.1 Introduction to Study 1.1

2.1.1 Preliminary Item Development

2.2 Method

2.2.1 Participants

2.2.2 Measures

2.2.2.1 Goal Importance

2.2.2.2 Goal Commitment

2.2.2.3 Task Value

2.2.2.4 Task Importance

2.2.2.5 Trait Anxiety

2.2.2.6 Social Desirability

2.2.3 Procedure

2.3 Results

2.3.1 Descriptives

2.3.2 Exploratory Factor Analysis

2.3.3 Construct Validity of the Five-Item GIS

2.4 Introduction to Study 1.2

2.5 Method

2.5.1 Participants

2.5.2 Measures

2.5.3 Procedure

2.6 Results

2.7 Discussion

vii
2.8 Introduction to Study 2

2.8.1 Preliminary Item Assessment and Development

2.9 Method

2.9.1 Participants

2.9.2 Procedure

2.9.3 Data Analysis

2.10 Results

2.10.1 Descriptives and Scale Reliabilities

2.10.2 Confirmatory Factor Analysis

69

2.11 Discussion

74

2.12 Introduction to Study 3

2.12.1 Testing the Model

77

2.13 Method

78

2.13.1 Participants

78

2.13.2 Measures

79

2.13.2.1 Goal Importance

79

2.13.2.2 Objective Goal Discrepancy

79

2.13.2.3 Causal Attributions

79

2.13.2.4 Emotion

80

2.13.3 Procedure

81

2.13.4 Data Analysis

82

2.14 Results

89
2.14.1 Scale Descriptives and Reliabilities 89
2.14.2 Gender Differences 90
2.14.3 Success-Failure Differences in Attributions 92
2.14.4 Preliminary Regression Analysis 92
2.14.5 Analysis of Regression Assumptions 93
2.14.6 Testing the Models-Positive Emotions 96
2.14.7 Testing the Models-Negative Emotions 97

2.15 Discussion 104

2.16 Introduction to Study 4 105

2.17 Method 107
   2.17.1 Participants 107
   2.17.2 Measures 108
      2.17.2.1 Goal Importance 108
      2.17.2.2 Subjective Goal Discrepancy 108
      2.17.2.3 Causal Attributions 108
      2.17.2.4 Emotion 108
   2.17.3 Procedure 109
   2.17.4 Data Analysis 110

2.18 Results 111
   2.18.1 Scale Reliabilities and Descriptives 111
   2.18.2 Gender Differences 111
   2.18.3 Perceived Success-Failure Differences in Attributions 113
   2.18.4 Preliminary Regression Analysis 113
List of Tables

Table 1  Descriptive Statistics for Nine Preliminary Items for Goal Importance Scale  51
Table 2  Pearson Product Moment Correlations Among Nine Preliminary Items for Goal Importance Scale  52
Table 3  Exploratory Factor Analysis (Principal Axis) with Oblique Rotation of Nine Preliminary Items for Goal Importance Scale  54
Table 4  Exploratory Factor Analysis (Principal Axis) of Five Items Retained for Goal Importance Scale  56
Table 5  Descriptive and Item-Total Statistics for GIS Items-Study 1.1  59
Table 6  The Revised Causal Dimension Scale (CDSII)  67
Table 7  Descriptive Statistics for CDSII Items for Adolescent Athletes  70
Table 8  Internal Consistency Reliability for the Four Causal Dimension Scales  71
Table 9  Goodness of Fit for Four Factor Oblique CDSII Model  73
Table 10  Initial Descriptive Statistics for Goal Importance Scale, CDSII Scales and Emotion Scales  91
Table 11  Pearson Product Moment Correlations Among Causal Dimensions, Goal Characteristics and Discrete Emotions  95
Table 12  Regression Analysis for Joviality-Study 3  99
Table 13  Regression Analysis for Self-Assurance-Study 3  100
Table 14  Regression Analysis for Guilt-Study 3  101
<p>| Table 15 | Regression Analysis for Hostility-Study 3 | 102 |
| Table 16 | Regression Analysis for Sadness-Study 3 | 103 |
| Table 17 | Initial Descriptive Statistics for Goal Importance Scale, CDSII Scales and Emotion Scales | 112 |
| Table 18 | Pearson Product Moment Correlations Among Causal Dimensions, Goal Characteristics and Discrete Emotions | 115 |
| Table 19 | Regression Analysis for Joviality-Study 4 | 120 |
| Table 20 | Regression Analysis for Self-Assurance-Study 4 | 121 |
| Table 21 | Regression Analysis for Guilt-Study 4 | 122 |
| Table 22 | Regression Analysis for Hostility-Study 4 | 123 |
| Table 23 | Regression Analysis for Sadness-Study 4 | 124 |</p>
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.1</td>
<td>Direct effects model based on causal attributions and goal</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>characteristics</td>
<td></td>
</tr>
<tr>
<td>Figure 1.2</td>
<td>Moderator model based on causal attributions and goal</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>characteristics</td>
<td></td>
</tr>
<tr>
<td>Figure 2.1</td>
<td>Confirmatory factor analysis for the CDSII</td>
<td>72</td>
</tr>
</tbody>
</table>
## List of Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Glossary of Terms</td>
<td>153</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Expert Evaluation of Preliminary Goal Importance</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>Scale Items</td>
<td></td>
</tr>
<tr>
<td>Appendix C</td>
<td>Expert Feedback on Preliminary Goal Importance</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>Scale Items</td>
<td></td>
</tr>
<tr>
<td>Appendix D</td>
<td>Interview Guide for Goal Importance Scale</td>
<td>170</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Draft Letter to Sport Organizations</td>
<td>174</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Cover Letter and Volunteer Consent Form</td>
<td>176</td>
</tr>
<tr>
<td>Appendix G</td>
<td>Interview Guide for Revised Causal Dimension Scale</td>
<td>179</td>
</tr>
<tr>
<td>Appendix H</td>
<td>Draft Letter to Sport Organizations</td>
<td>183</td>
</tr>
<tr>
<td>Appendix I</td>
<td>Positive Affect Negative Affect Schedule-Expanded Form</td>
<td>185</td>
</tr>
<tr>
<td>Appendix J</td>
<td>Draft Letter to Sport Organizations</td>
<td>188</td>
</tr>
</tbody>
</table>

"xiv"
Chapter 1

1.1 Introduction

Sport and exercise scientists have argued that emotion is important in understanding motivational behaviour in physical activity. Positive emotions have been associated with the enjoyment of competitive sport and exercise (Wankel, 1993), participation in youth sport programs (Klint & Weiss, 1987; Scanlan & Lewthwaite, 1986), activity choices (Kendzierski & DeCarlo, 1991), higher levels of physical activity (Kavussanu & McAuley, 1995) and involvement in challenging physical activity (Crocker & Bouffard, 1992). Negative emotions have been implicated in low personal expectations (Burton and Martens, 1986), decreased performance (Burton, 1988), burnout in elite youth sport (Gould, Udry, Tuffey, & Loehr, 1996) and avoidance of competition (Lewthwaite & Scanlan, 1989).

Despite a growing empirical base, understanding how and why emotion occurs in physical activity is still limited. This knowledge state is indirectly related to a shortage of theory driven research and the lack of a comprehensive theory of emotion applicable to sport and physical activity. Several contemporary psychological theories suggest that emotional responses are driven by the person’s cognitive appraisal or evaluation of the situation. Among these theories, Weiner's (1986) attribution theory has been widely applied in physical activity research in the last decade (e.g., McAuley & Duncan, 1990; Robinson & Howe, 1989). His theory proposed two stages in the development of emotional states in achievement settings. In the first stage, performance outcome is appraised in terms of perceived success and failure. Based on this evaluation, general outcome-dependent
emotions such as happiness and sadness are experienced. In the second stage, specific causes or attributions for the outcome are identified and classified into causal dimensions. These dimensions include locus of causality, stability and controllability and are associated with attribution-dependent emotions such as pride, guilt and anger.

Attribution theory holds that emotion is primarily dependent on perceived causes of success and failure (Weiner, 1986). However, some theorists and researchers have argued that attributions may be more predictive of emotion when considered with other constructs (Lazarus, 1991a; McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987). Specifically, Lazarus (1991a, 1993) has suggested future attribution research must address the personal significance of achievement situations. According to a proposed cognitive-motivational-relational theory (Lazarus, 1991a), goal relevance (importance) and goal congruence (perceived discrepancy between goal and performance) are considered central elements in the appraisal of personal significance.

The purpose of the current research was to integrate key elements from attribution theory and cognitive-relational-motivational theory in an effort to better understand emotional experience in youth sport participants. Specifically, the research examined the contribution of causal attributions, goal importance and goal-performance discrepancy (plus possible interaction effects) in predicting discrete post-event emotions in youth sport participants. The primary objectives of the proposed research were:

1. To construct and provide initial validation of a goal importance scale for an adolescent sporting population.

2. To evaluate the model properties of an existing attribution measure, the Revised Causal
Dimension Scale.

3. To test the theoretical relationships between specific causal dimensions and emotional responses following success and failure outcomes.

4. To determine if goal characteristics predict emotional responses beyond causal attributions.

1.2 Literature Review

Finding a definition of emotion that would satisfy all emotion researchers is all but impossible (Vallerand, 1984). Yet having a descriptive definition of key emotional terms is necessary to understanding the antecedents and consequences of emotions in sport. A limitation in sport research is that terms such as emotions, emotionality, affect, feeling states, arousal, and moods are used interchangeably. To help clarify the use of emotion in sport, key terms such as emotion, mood and affect will be discussed. Emotion, affect and other terms associated with the current research are defined in the glossary in Appendix A.

Emotions are complex psychophysiological states of limited duration. There is some disagreement about all the necessary and sufficient characteristics of emotions. Nevertheless, the following characteristics are common: relatively short duration, common perceptual or cognitive appraisal antecedents, distinctive physiological patterns, subjective feeling (commonly referred to as affect), and facial or bodily expression (Cornelius, 1996; Ekman, 1994; Lazarus, 1991a). Emotions include happiness, pride, surprise, sadness, disgust, anger, anxiety, shame, guilt, and fear.

Mood is a diffused subjective feeling or affective state that involves more durable
feeling states than emotions. In moods there is a lack of emotion defining attributes like facial expressions, specific physiological patterns, and specific cognitive appraisals (Davidson, 1994). Frijda (1994) proposed that moods, unlike emotions, do not involve relationships between a person and a particular object. For example, when a gymnast is afraid while on the balance beam, she is afraid of something. When in a bad mood, however, the gymnast’s emotional state is not directed toward a particular person or thing.

Affect appears often in the sport literature but is one of the most difficult emotional terms to define. In sport research it has often been used interchangeably with emotion (e.g., Hanin, 1997). The key characteristics of affect is that it is a subjective feeling state that varies in hedonic tone (pleasant-unpleasant) and intensity, and is often associated with preceding thoughts and subsequent actions (Weiner, 1986). Affects can range in duration from temporary states to more trait-like dispositions lasting days, months, or even years (Watson & Clark, 1992). Terms used to describe affective states in sport settings include pure emotions (i.e., anger, anxiety, happiness), mood states (i.e., vigorous, calm, pleased, annoyed), and more cognitive-behavioral states (i.e., competent, confident, motivated, lazy) (see Hanin & Syrja, 1995; Vallerand, 1987). Affect definitions often do not include physiological arousal or facial/bodily expression (Weiner, 1986).

1.2.1 Conceptual Views of Emotion

How emotions are conceptualized will have a major impact on how emotions are defined and operationalized. One of the difficulties in comparing sport research on
emotion is that researchers have implicitly used different conceptualizations. Like many constructs in psychology, emotion has been shaped by evolutionary, physiological, social-cultural, and cognitive perspectives. These different conceptualizations have influenced the development of various theories of emotion or directed researchers to use specific measures of emotions. The following is a brief description of the four different conceptual views of emotions; namely evolutionary, physiological, social-constructivist, and cognitive.

The evolutionary perspective holds that emotions are universal (the same across cultures) and have specific adaptive functions that enable people to deal with situations that would occur repeatedly in evolutionary history (Cornelius, 1996). Distinctive facial expressions are associated with specific emotions (e.g., happiness, surprise, sadness, fear, disgust, and anger) and are recognized across cultures (Ekman, 1994). The facial expression is part of a distinct pattern of autonomic nervous system activity that organizes facial expressions, cognitive, and behavioral activities. To account for variations across cultures, Ekman suggests that people learn display rules that govern how emotions should be expressed in specific situations. Through the socialization process, parents, teachers, and coaches teach children appropriate patterns of expression management.

From an evolutionary perspective, the function of emotion is to allow people to deal with situations in ways that may have been adaptive in our evolutionary past. Emotion allows us to act quickly without a lot of thinking and planning. The distinct physiological pattern prepares the body for specific types of action. The facial expression
serves to convey information to others about our emotion. Hackfort (1993) has incorporated the expressive role into explaining emotion-sport relationships.

Anger is commonly experienced and expressed in sport. According to the evolutionary view, anger would occur when the person automatically perceives another person threatening his/her well being. Anger would arise very rapidly and be associated with a specific physiological pattern such as increased arousal. The athlete would exhibit the characteristic facial expression with eyebrows furrowed, lips retracted, and teeth bared. The athlete would also experience an impulse to attack the offending person physically or verbally. Whether the athlete continues to express the emotion or act upon the impulse to attack will be determined, to a large extent, upon learned behavior.

Another conceptualization of emotion emphasizes physiological mechanisms. To a large extent, explanations of how emotions arise and their effect on sport performance have been dominated by the role of physiological processes. Physiological explanations of emotion focus on how bodily and brain processes impact on emotional experiences and behaviour. The dominance of physiological explanations is due to several reasons including a subjective experiential perspective that many strong emotions seem to involve physiological activation, the training of early ‘emotion’ theorists like William James and James Cannon in physiology, and the fact that physiological processes could be assessed by objective measures such as heart rate, blood pressure, blood flow, skin temperature, eye pupil dilation, and sweating.

The impact of physiological systems on sport performance has focused primarily on arousal mechanisms. Sport researchers have attempted to determine how physiological
activation affects performance though impairment of mechanisms such as attention, decision making, memory, and neuromuscular control (see Hardy, Jones & Gould, 1996). There is a danger, however, in equating emotion as physiological states. Emotions like anxiety are often confused with arousal. Although high anxious states are associated with physiological activation, high arousal may not necessarily be linked to anxiety. Further, diverse positive and negative emotions may be linked to high arousal (i.e., fear, anger, joy). Therefore, trying to explain emotion-performance relationships or the social functions of emotion through only arousal mechanisms may be misleading.

A third conception of emotion is advocated by social constructivist theorists. They argue that social institutions like education and sport play a major role in influencing how athletes experience and express emotion. Social constructivists emphasize how emotions become part of the culture’s social practices (Averill, 1993; Cornelius, 1996; Ellsworth, 1994). Averill (1993) uses the term emotional syndrome, which are socially determined rules that people learn to determine when certain emotion states and responses are appropriate.

Let’s consider the emotion of anger in sport. Anger often occurs when an athlete believes someone else has committed a moral wrong such as trying to intimidate a skilled teammate or breaking normative rules to gain an unfair advantage. The socialization process directed by authority figures (parents, teachers, coaches, administrators, officials) will determine the moral belief. Through the socialization process, athletes learn the appropriate circumstances and reactions for anger. For example, Canadian ice hockey players learn that skilled teammates must be protected from physical intimidation.
Through the encouragement of parents, commentary of hockey analysts, coaching instruction, and the structure of the rules, older youth players learn that it is acceptable to get angry when an opponent makes a hard check on your skilled player and that the appropriate expression can involve physical retaliation (Smith, 1983).

In conclusion, the social constructivist position is that emotion can only be understood from a social cultural perspective. Since there are differences within society and sporting organizations, it is not surprising there are differences in the conditions that produce emotion and the emotional responses associated with the emotional state. Nevertheless, a major focus of the social constructivist perspective is to determine how societal rules “help constitute (not simply regulate) the way we think, feel, and act during an emotional episode. [and that]...a primary goal of research should be to specify such rules for a variety of different emotions, both within and across cultures” (Averill, 1995, p. 205).

An emotion conceptualization that arose during the 1960s resulted in an increased scientific recognition that how people interpret situations and physiological processes were critical to emotion experience (Arnold, 1960; Lazarus, 1966; Schachter & Singer, 1962). The cognitive point of view focuses on the role of perceptual and thinking processes in emotion generation and regulation. An athlete’s emotional experience and expression depend on how a situation affects the athlete’s personal goals and well being. Because athletes bring different experiences and goals to any situation, individual differences in emotional experiences and reactions are not uncommon to the same objective situation. Cognitive theories attempt to explain individual differences in terms
of factors like personal well being, goals, intentions, and coping (see Lazarus, 1991a; Crocker & Graham, 1995). These concepts will be explained in greater detail in later sections that outline specific cognitive theories of emotion.

Many cognitive theorists, although emphasizing the central role of cognition, have recognized that physiological processes are involved in emotion (Lazarus, 1991a). Arnold (1960) suggested that every emotion has its own distinct physiological pattern that produces an impulse. For example, an athlete will have an urge to strike when angry. The athlete may not strike because of the perceived consequences and other factors, but the urge to strike is present. Joy, on the other hand, involves a sense of pleasure combined with the urge towards exuberance and contact seeking (Frijda, 1994). Nevertheless, cognitive theorists choose to emphasize cognitive processes such as appraisal since these processes explain more about the flexibility and individual variations present in emotion. With the central role cognitive based emotion models have played in contemporary sport psychology, this viewpoint will the major guiding conceptualization in this dissertation.

1.2.2 The Merits of Theory Driven Research

Given the complex nature of emotion, researchers in physical activity are faced with the dilemma of choosing appropriate constructs and their associated indicators. Descriptive studies have attempted to identify situational and personal factors that influence affective states such as enjoyment, state anxiety and competitive trait anxiety (e.g. Scanlan & Lewthwaite, 1986). Other research has been guided by some semblance of theory and might best be described as quasi-theoretical (e.g. Crocker & Bouffard, 1992; Wankel & Sefton, 1989). These studies used theory that outlined general relationships between constructs but
pathways between specific variables were not clearly established. In some studies, variables not specified by the guiding theory but thought to have intuitive appeal have been added (e.g. McAuley, 1985). Some writers have suggested that descriptive research tied to relevant theoretical constructs may be an important step in developing a body of scientific research (Reid, 1989). Still, researchers are faced with the problem of justifying the choice of constructs to explain emotion in sport and physical activity.

Theory driven research has numerous advantages over other approaches. Rejeski (1992) has identified three merits of theory that are applicable to physical activity research. First, theory delimits the research field and helps prevent the researcher from being overwhelmed by the complexity of the phenomena. A good theory of emotion for sport should clearly define the critical psychological constructs and their relationship to each other in an integrated structure. Without the benefit of theory, researchers risk dealing with an unmanageable number of variables. Second, theory assists in the organization of research findings into logical conceptual units and standardizes terminology. The lack of a well-defined theory often produces differences in the operationalization of constructs resulting in generalization problems across studies. Third, theories promote the systematic development of knowledge and the inspiration of novel research activity.

Theory driven research has the additional advantage of guiding the statistical analysis. Emotion research in the physical activity domain relies primarily on passive observational (correlational) designs and multiple regression statistical techniques. Without theory, the researcher must make the difficult choice of selecting not only the specific type of regression analysis to use, but also the order of the variables to be entered (Draper &
Smith, 1981). Many researchers (e.g., Crocker & Bouffard, 1992; Wankel & Sefton, 1989) have used stepwise regression methods in which the predictor most correlated with the criterion is entered first. Subsequent predictors are entered based on the highest partial correlations with the criterion. Smith (1989) has suggested that strict stepwise regression techniques may result in erroneous conclusions due to the problem of common variance shared by the predictors. This is not a problem for theory driven research. Theory specifies plausible direct or indirect relations among these variables.

The joint use of theory has been advocated in the recent literature as a means of examining complex phenomena in physical activity (Brawley, 1993; Crocker, 1992; Crocker & Graham, 1995; Rodgers & Brawley, 1993). It has been suggested that variables from conceptually similar theories might explain variance not captured when a single conceptual framework is used. According to Weinstein (1993), research is often limited to finding the simplest model that accounts for the most variance. Instead, research needs to consider which variables from different theories add to the understanding of the issue at hand. Similarly, Rodgers and Brawley (1993) urged researchers to consider when related models can be used jointly. These authors noted that the uniqueness of each model may capture variation not explained by their common properties. Thus, a prerequisite for the appropriate use of joint theory is the presence of both similarities and dissimilarities in the models that are used.

Several contemporary cognitive theories of emotion share the element of appraisal but differ in some of the constructs, variables and boundary conditions responsible for emotional experience. Specifically, none of the prominent theories of emotion emphasize
the joint effects of personal goals and causal attributions. Several focus primarily on goals but not attributions (e.g., Carver & Scheier, 1990; Locke & Latham, 1990). On the other hand, personal goals are given only minimal attention in physical activity research based on attribution theory. In this section of the literature review, Weiner's (1986) attribution theory will be discussed and compared to Locke and Latham's (1990) theory of goal setting and the cognitive-motivational-relational theory proposed by Lazarus (1991a, 1993). Arguments and research findings will then be presented to support the integration of goal characteristics into the attributional framework. Objectives will be subsequently stated with respect to this information and will form the basis of the research.

1.2.3 Attribution Theory

Attribution theory has been a prominent cognitive model in the study of emotion in sport and exercise. The relationship between attributions and emotions has been investigated in gymnastics (McAuley & Duncan, 1990), team sports (Robinson & Howe, 1989; Vallerand, 1987) and in a variety of exercise settings (McAuley, 1991; McAuley & Duncan, 1989). The theory proposes that both outcome and attributional appraisals are implicated in the generation of emotion. In outcome appraisal, performance is evaluated automatically in terms of perceived success and failure. Based on this performance appraisal, general positive or negative outcome-dependent emotions occur. These emotions include feeling happy following success and sad following failure, reflecting the positive or negative outcome rather than the perceived cause for that outcome. The theory would predict that athletes are happy following a victory regardless of whether the win was due to superior ability, great effort or good luck.
Outcome appraisal is followed by a causal search (attributional appraisal) to determine why the particular outcome occurred. It is initiated most readily in response to important outcomes (Weiner, 1982), in the event of unexpected outcomes (McAuley & Duncan, 1989) and following nonattainment of a goal (Wong & Weiner, 1982). Attributional appraisal results in the identification of perceived causes for success or failure, called attributions, and is considered the primary determinant of discrete emotional experience. While the number of potential attributions is extensive, a relatively small number tend to be salient including ability, effort, task difficulty and luck.

According to attribution theory, it is the common properties of attributions that discriminate between individual emotions (Weiner, 1986). Three causal dimensions represent the properties of specific attributions and each is uniquely related to a set of emotions. Locus of causality refers to whether the cause is perceived to lie within or outside of the individual. This dimension is primarily responsible for the development of pride or self-esteem. The stability dimension is concerned with whether the cause is expected to be consistent or variable over time. If a cause is considered stable, similar positive or negative outcomes will generally be expected in the future. Stability has been associated with the time-related emotions of hope and hopelessness. Controllability refers to whether the cause is considered to be under the control of the attributor or someone else. Social emotions such as shame, guilt, anger and pity are predicted by the controllability dimension.

Historically, the analysis of causal structure began with locus of causality. Development of this dimension drew heavily on the work of early attributional researchers. Both Heider (1958) and Rotter (1966) argued that results depended on two sets of
conditions, namely factors within the person and factors within the environment (Weiner, 1971). For example, ability and effort are considered internal to the person while luck is an external or environmental cause. This classification provided researchers with a legitimate way to differentiate between perceived causes. Thus, the internal-external distinction formed the basis for the first and most fundamental causal dimension.

Weiner (1971) argued that a second dimension, termed stability, was also necessary. He maintained that some causes varied over time while others remained relatively constant. Take the example of ability and effort, which are both internal causal attributions. Ability is considered a constant capacity whereas effort is under volitional control and can change within and across achievement situations. Accordingly, Weiner (1971) represented the dominant attributions of ability, effort, task difficulty and luck on a 2 X 2 (locus X stability) categorization scheme. This illustrated that individual attributions can differ on both locus and stability dimensions. The addition of the stability dimension was important in moving the theory closer to establishing linkages between specific causal dimensions and individual emotions.

A third dimension of causality, termed controllability, was later added to attribution theory. Rosenbaum (1972) argued that attributions such as fatigue and effort share internal and unstable characteristics but are distinguishable if controllability is considered. Specifically, the investment of effort is personally controllable while the onset of fatigue is considered uncontrollable by the person. A slightly different distinction applies to external causes. Although many external causes cannot be changed by the person, any decision to categorize all such causes as uncontrollable is likely incorrect. Some external causes might
be controllable by others. For example, a tennis athlete may believe an important match was lost because of biased officiating. Although this cause is uncontrollable by the athlete, the athlete perceives the official had control over his decisions and, therefore, the outcome. Consequently, the athlete blames the official for the setback and experiences anger towards the official.

The strength of attribution theory is its potential to predict individual emotions. Attributional appraisal is considered the dominant predictor in this regard. It is clear, however, that outcome appraisal interacts with causal attributions in discriminating between emotions such as pride, gratitude and anger (see McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987). For example, if a successful outcome is attributed to personal effort, that effort will be categorized as internal, unstable and controllable and result in feelings of pride. If help from others becomes the primary cause for the successful outcome, the locus dimension will change from internal to external and the emotion will likely become gratitude. In the event of a failure outcome, this same dimensional pattern will produce the negative emotion of anger.

Although Weiner's theory advocates three distinct causal dimensions, recent attribution research has measured four dimensions, with the control dimension including personal and external control (McAuley, 1991; Santamaria & Furst, 1993). The additional dimension is a direct result of changes in the measurement of attributions. Early approaches to attributional assessment saw researchers classify specific attributions into three causal dimensions. This procedure assumed that investigators perceived the causes for success and failure in the same way as the participants. According to Russell (1982), this represented a
fundamental error in methodology. To overcome such problems, Russell (1982) developed the Causal Dimension Scale (CDS). Using the CDS, participants were responsible for assigning their own attributions along subscales representing locus of causality, stability and control. Although the psychometric properties of the CDS received modest support, a number of researchers (McAuley & Gross, 1983; Vallerand & Richer, 1988) raised concerns regarding the control subscale. First, the internal consistency of the subscale was reported to be low (α=.42 to .53). Vallerand and Richer (1988) raised the question of the homogeneity of control items. The control items did not appear to be conceptually equivalent but represented the constructs of control, responsibility and intentionality. Other research has also indicated that the control dimension measured related but distinct constructs (Russell, McAuley & Tarico, 1987). A second problem concerned the discriminant validity of the locus of causality and control dimensions. Specifically, Russell et al. (1987) found high correlations (r=.93) between these subscales, indicating that they may measure the same construct.

Due to these concerns, McAuley, Duncan and Russell (1992) attempted to reduce the psychometric problems associated with the control dimension. Three item subscales were generated for both personal and external control and evaluated in a series of three studies in physical activity settings plus a fourth sample of undergraduate students. The average internal consistencies across studies were: locus of causality (α=.67), stability (α=.67), personal control (α=.79) and external control (α=.82). Confirmatory factor analysis of CDSII items (combining all four studies) provided support for the hypothesized four factor model (Goodness of Fit =.95). Interfactor correlations were high between locus
of causality and the personal and external control subscales ($r=.71$, $r=-.65$). These correlations, however, were lower than those found by Russell et al. (1987). Results suggested that treating personal and external control as separate dimensions and employing more homogeneous items served to increase the reliability and discriminability of the CDSII subscales. Nevertheless, both the original and revised CDS instruments have been used in sport research.

Research on attribution-emotion relationships has produced mixed results in sport and physical activity settings. Robinson and Howe (1989) found that locus of causality was the main predictor of emotion in a sample of high school sport participants. Other researchers (Mark, Mutrie, Brooks & Harris, 1984; McAuley & Duncan, 1990; McAuley & Gross, 1983; McAuley, Russell & Gross, 1983; Vallerand, 1987) demonstrated that both stability and controllability were the primary determinants. Finally, studies by McAuley (1991) and Robinson and Howe (1989) implicated controllability alone in the generation of emotion. The number and variability of sport outcomes as well as individual differences in the personal meaning of these outcomes are suggested as possible reasons for the findings (McAuley, 1991). The latter observation suggests a need for more information about the personal significance or value that is attached to performance outcomes.

The purpose of this research is to determine if the evaluation of personal significance contributes to emotion beyond that accounted for by causal dimensions. While attribution theory has been described as an Expectancy X Value model, the determination of value has not be adequately addressed. Weiner (1985) has acknowledged that several cognitive models of emotion emphasize a class of variables called goal incentives. Goal
incentives refer to the characteristics of a goal such as its importance or value and the likelihood of attaining it. Attribution theory, however, does not conceptualize goal incentives in this way. Instead, incentives are considered to be a consequence of attributions that are made following successful outcomes. A victory attained because of good luck, hard work or the help of others is expected to produce the emotional consequences of surprise, pride and gratitude, respectively. Therefore, the position of the theory is that causal attributions influence the type of emotions that are experienced with value implicit.

It is not surprising, then, that research linking attributions and emotion in the physical activity domain has not adequately addressed the issue of value or personal significance. While attribution theory emphasizes cause, it has minimized important antecedents such as personal goal characteristics that may influence value and emotional experience. As a result, its application to the sport and physical domain has been questioned. Rejeski and Brawley (1983) have argued that appraisal includes more than an evaluation of cause as athletes interact constantly with teammates, opponents, officials and other environmental factors. Similarly, McAuley (1985) has suggested that additional personal and environmental factors affect the appraisal of success and failure in sport and physical activity. It is the position of this research that personal significance is such a factor and should be considered along with causal attributions in the study of sport-related emotion. Two cognitive models that address the issue of value or personal significance in emotional experience are Locke and Latham's (1990) theory of goal setting and the cognitive-motivational-relational theory proposed by Lazarus (1991a, 1993).
1.2.4 Theory of Goal Setting

Locke and Latham (1990) proposed a theory of goal setting (TGS) in which behaviour is considered to be consciously regulated and goal directed. The theory holds that many differences in performance and affective experience can be understood in terms of goals. While Locke's views on goal setting have generally focused on the relationship between goals and performance (Locke & Latham, 1985), TGS also outlines factors responsible for affective experience. The following paragraphs will present the theoretical basis of emotion according to TGS.

Locke and Latham (1990) stated that emotions develop primarily from evaluations of outcome in terms of individual well-being. From a practical standpoint, goals provide a standard for assessing performance outcomes. When performance meets or exceeds the goal, the individual experiences success and feelings of satisfaction. When performance falls short of the goal, feelings of failure and dissatisfaction are experienced. Thus, the direction of the discrepancy between performance and the standard determines whether the emotion is positive or negative. TGS predicts a positive relationship between goal-performance discrepancy size and the intensity of the emotional experience. Specifically, the greater the success achieved in relation to a goal, the greater the satisfaction. Satisfaction is dependent on goal attainment and individuals are expected to be minimally satisfied when barely meeting a goal but increasingly satisfied with higher levels of attainment. More satisfaction, therefore, will be associated with larger positive discrepancies between goals and subsequent performance (Locke, 1991). Similarly, greater dissatisfaction will be experienced when a goal has been frustrated by a lot rather than a little.
The intensity of emotional experience depends on both goal-performance discrepancy and goal importance. If the goals involved are important, attaining or not attaining them will produce more intense emotion than if the goals are unimportant. It is implied in TGS that a goal representing a central aspect of self (e.g. being a good athlete) can produce more intense emotions than a goal that is less important (completing daily house chores). A goal without implications for personal well-being will have little impact on emotional experience.

According to TGS, the relationship between goals and satisfaction is complicated by the manner in which goals are appraised. First, individuals may use multiple standards to evaluate performance success. In competition settings, athletes may wish to defeat an opponent and improve personal performance. How these two (or more) appraisals interact to influence satisfaction is unclear but failure to consider either one may exclude important goal-related information. Second, an athlete can also use both intermediate and end goals to evaluate performance. In this case, satisfaction would be a function of not only the size of the discrepancy between the short-term goal and performance but also how performance allows progress toward attainment of the end goal. The relative effects of regulation to intermediate and end goals has been illustrated in an early study by Locke, Cartledge and Knerr (1970). This research demonstrated that early goal-performance discrepancies did not have the same major affective implications as discrepancies in later trials since the latter condition posed greater threat to end goal attainment.

A limitation of TGS in understanding emotion in achievement situations like sport is the principal focus on satisfaction (or dissatisfaction) to the exclusion of other emotional
states. The generation of more distinct emotions such as pride, gratitude, guilt and shame is not addressed. The role of causal attributions, which Weiner (1985) hypothesized would produce change in individual emotions, is given only cursory mention in TGS. With TGS, causal attributions only change the level of satisfaction with higher satisfaction resulting from internal attributions for success.

1.2.5 Cognitive-Motivational-Relational Theory

A cognitive-motivational relational theory developed recently by Lazarus (1991a, 1993) addresses both the differences between distinct emotions and the intensity of those emotions. The theory holds that cognitive evaluation of the personal meaning or significance of a situation is critical to emotional experience. Primary appraisal concerns whether goals important to an individual are at stake in a situation. It is comprised of the motivational factors of goal importance and goal-performance discrepancy. Lazarus (1991a) has suggested that the two factors interact so that emotional experience is primarily the result of achieving or failing to achieve important individual goals.

Primary appraisal includes an evaluation of the importance or strength of a goal (Lazarus, 1991a; Lazarus & Smith, 1988). The more important the goal, the more intense the subsequent emotion is expected to be. If a goal is unimportant to an individual, no emotion will occur regardless of the cause associated with an outcome (Lazarus, 1991a). While an argument could be made that all achievement goals and situations are personally important, it is necessary to explore the effects of different levels of importance on emotional intensity. For example, we might expect that an experienced athlete would view an exhibition game and a playoff game as having different levels of importance.
Discrepancy between goals and performance also plays an important role in emotion. The important goals that an individual desires to achieve in a situation may be achieved (resulting in benefit) or frustrated (resulting in harm). Goal-performance discrepancy can affect emotion in two ways. First, individuals will experience either positive emotions if they attain or expect to attain their goals or negative emotions if they fail or expect to fail. Second, the size of the positive or negative discrepancy is expected to influence the intensity of these emotions. Specifically, larger discrepancies between goals and performance are predicted to result in stronger positive and negative emotions. In summary, emotion depends on important goals that are blocked or facilitated to different degrees.

1.2.6 The Case for Integration of Goal Characteristics into Attribution Theory

While Weiner's (1986) theory predicts that causal dimensions are sufficient for emotional experience, there have been arguments in the general and sport psychology literatures that the theory fails to predict emotions adequately. According to Lazarus (1991b), causes predict the type of emotion that is experienced but not the intensity. The suggested reason is that causal attributions reflect knowledge about an outcome rather than an assessment of significance. Lazarus and Smith (1988) describe knowledge as consisting of cognitions "...about the way things are and how they work". Primary appraisal, on the other hand, consists of evaluations of the significance of this knowledge for personal well-being. In other words, emotion will be generated only when there is something important to gain or lose. Although knowledge about a particular cause is necessary for emotion, further appraisal is needed to determine whether this knowledge has implications for harm or
benefit to the individual in question. For instance, if athletic failure is attributed to the actions of an official, the cause necessary for the emotion of anger is present. Unless the situation is personally significant, however, the emotion will not occur. Emotions associated with specific causal dimensions have not been dependably produced in physical activity research. Low levels of personal significance may partially explain why this is the case.

A primary reason for the limited predictive utility of attribution theory in sport may be the fit between independent and criterion variables. Specifically, personal significance has not been considered as an independent variable in most attribution studies involving individual emotions (McAuley, 1991; McAuley & Duncan, 1989, 1990; Robinson & Howe, 1989; Vallerand, 1987). This may help explain the modest variance accounted for in these investigations. Several attribution studies in the physical domain have asked participants how much they experienced certain emotions. Clearly, the dependent measures reflect not only the types of emotion but their intensity as well. If causal attributions (predicting emotional type) are measured but personal significance (predicting emotional intensity) is not, the prediction of specific emotions will be limited.

Lazarus (1991a; 1991b, 1993) and his colleagues (Lazarus & Smith, 1988) have argued that primary appraisal is the main process in the assessment of personal significance and needs to be addressed by attribution theorists. As mentioned previously, the goal characteristics of goal importance and goal-performance discrepancy are expected to be important determinants of personal significance. Lazarus and Smith (1988) have suggested that these elements of the appraisal process produce emotional intensity. Currently, only limited research (Biddle & Hill, 1992; Lewthwaite, 1990) has addressed the effects of goal
importance and goal-performance discrepancy on emotion in physical activity. As a theory-based construct, goals should be considered with attributions in an effort to understand the meaning of outcome and increase the predictive capabilities of the ascriptive model.

Both the mainstream and sport psychology literatures have indicated a need for the integration of goals into the attributional framework. Roberts (1984) has contended that the appraisal of subjective outcome depends on the achievement goal of the athlete. Goals provide the standard against which success and failure are assessed. As a result, outcome cannot be evaluated apart from the athlete’s individual goals. From this perspective, it seems clear that goals must be considered to appreciate the meaning of an outcome and the emotions that follow. When perceived causes for performance outcomes are reported by individuals, they tell us nothing about the nature of the goals that have been attained or frustrated and the potential effects on emotional experience. Based on this argument and the theorizing of Lazarus (1991a), a focus on goals within attribution theory seems conspicuous by its absence.

Additional arguments for including goal characteristics in the attributional model follow the work of Folkman and Lazarus (1990). They maintain that changes in emotional response include 1) a personal evaluation of performance and 2) the implications of outcome for the future. With respect to the first point, outcome is measured in attribution research while goals are not. Although the process of emotion begins with an outcome that is perceived as positive if the chosen goal is attained and negative if it is frustrated (Weiner, 1985), personal goals have received little attention. Locke and Latham (1990) stated that goals provide the standard for measuring performance while Roberts (1984) has argued that
subjective outcome can be appreciated only if the behavioural goal of an athlete is known. Without a measure of the participant's performance goal, it is not possible to determine the discrepancy between intended and actual performance. While attribution theory measures outcome, information is lost if the personal standard for subjective success or failure is not measured as well. Several attribution researchers have measured goal-performance discrepancy in their studies. This has been done either by calculating a difference score between expected and actual performance (Mone & Baker, 1992; Russell & McAuley, 1986), by asking participants how successful they were (Robinson & Howe, 1989; Vallerand, 1987) or by asking participants to rate performance satisfaction (Biddle & Hill, 1992). While this is a promising first step, no attribution research has adequately addressed the influence of both goal discrepancy and goal importance on emotion in physical activity. Lazarus (1991a) has argued that each is essential to emotional experience.

According to Folkman and Lazarus (1990), a second reason for emotional change is concern about the consequences or anticipated consequences of an outcome (Folkman & Lazarus, 1990). For Lazarus (1990), appraisal is an assessment of the significance of information for personal well being and includes an evaluation of the consequences of success or failure. Thus, real or expected failure to make the cut in a golf tournament will likely produce intense emotions if it prevents qualification for an important upcoming event. This appraisal of potential harm or benefit and the associated level of emotion depends on the importance of personal goals and the discrepancy between those goals and subsequent performance. The process of emotion in the attributional model begins with an outcome, focuses on cause, but does not address the goal characteristics responsible for the
evaluation of personal meaning and emotional intensity.

If the appraisal of goals rather than causes is responsible for personal meaning and emotional intensity (Lazarus, 1991a, 1993), goals must be appraised somewhere in the ascriptive model. Several arguments can be made in support of outcome appraisal as the appropriate place. First, as discussed earlier, goals play an important role as the standard for evaluating performance outcomes. Second, additional predictor variables have been called for to explain the increased importance of outcome appraisal in emotional experience. Several sport attribution studies (Biddle & Hill, 1992; McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987) have revealed that 21-44% of the variance in emotional responses was accounted for by outcome and attributional appraisals. Contrary to Weiner's (1986) position, outcome appraisal was the dominant predictor of both general and attribution-dependent emotions in each study. The study conducted by McAuley and Duncan (1990) examined the appraisal-emotion relationship in gymnastics participants and produced several interesting results. First, both outcome and attributional appraisals were significant predictors of general emotions. Second, only outcome appraisal accounted for significant unique variance in feelings of pride. Third, the two forms of appraisal explained a moderate amount of shared or common variance in general and attribution-dependent emotions.

Robinson and Howe (1989) examined the relationship between appraisal and emotion in a large sample of high school athletes. The study revealed that both outcome and attributional appraisals had important roles in both forms of emotion. The finding that general emotions were affected by both appraisal processes mirrors the McAuley and
Duncan (1990) study. Together, these results run contrary to Weiner's (1985) contention that general emotions are totally outcome dependent. Second, outcome appraisal was found to have the greatest predictive power for not only general emotions but attribution-dependent emotions as well. Again, this finding was not consistent with Weiner's (1985) theory.

Finally, Vallerand (1987) employed a sample of high school basketball players to determine the antecedents of emotional experience. Two important results were found in common with the previously mentioned studies. First, outcome appraisal was implicated in both general and attribution-dependent emotions. Second, the researchers found that, although attributional appraisal was an important contributor to general and individual emotions, its influence was limited in comparison to outcome appraisal. Despite the emphasis of the theory, attributional appraisal appears to merely modify the influence of a more important outcome appraisal process.

In light of these findings, it is suspected that antecedents of emotion extend beyond the process of causal search to include outcome variables. Consistent with this notion, Weiner (1985) has acknowledged that outcome variables deserve inclusion in the attribution model and may help in understanding the prediction of individual emotions. Unfortunately, the role of goals in outcome appraisal has received little empirical attention in the sport and physical activity area. In most cases, researchers have assumed that the movement activity is important. Goal theorists would argue, however, that varying levels of goal importance will affect the nature of emotional experience. It is important, therefore, that future research on emotion explores factors that determine the significance of sport outcome as well as the
traditional focus on causal attributions. These factors include personal goals.

If outcome appraisal explains the majority of emotional variance in physical activity, it is important to understand why this is the case. It is suggested here that outcome appraisal affects the intensity of general and specific emotions through the evaluation of goal characteristics which are not currently part of the attribution model. The implications of this position are twofold. First, it implies that outcome appraisal involves considerable cognitive processing which is inconsistent with Weiner's (1986) theoretical stance. Second, it suggests that attributional appraisal determines the type of emotion that is experienced while the assessment of personal significance determines emotional intensity. Thus, each form of appraisal may be responsible for distinctly different and necessary aspects of emotion.

The proposed research examining goal characteristics and attributions as predictors of emotion in physical activity is warranted for several reasons. First, no research has adequately addressed the contributions of both factors in this domain. A number of studies in physical activity (e.g. McAuley, 1991; McAuley & Duncan, 1989) have investigated the influence of causal attributions on individual emotions but have not considered goal characteristics. A second group of studies (McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987) has indicated, contrary to Weiner's (1986) position, that outcome appraisal is the central determinant of both general and individual emotional responses. Although the investigators have called for additional variables to account for the importance of this appraisal, goals have received little attention as an outcome-related construct.

An investigation by Biddle and Hill (1992) appears to be the only sport attribution
study to assess the influence of both goal importance and goal discrepancy. In this study, attributions were assessed for objective outcome (win-loss) and subjective appraisal of performance (satisfied-dissatisfied) following squash competition. In addition, measures were taken for outcome importance, performance importance and 16 criterion emotions. Results indicated that, for winners, subjective performance was the strongest predictor of emotion. This finding supports earlier evidence (Valierand, 1987) that performance rather than attributional appraisal is the main predictor of emotional responses. For losers, emotion was best predicted by unstable attributions. For participants who were satisfied with their performance, unstable attributions were again the main predictor of emotion. For dissatisfied participants, emotion was predicted by opponent attributions.

This investigation is noteworthy because both goal importance and goal discrepancy were employed with attributions as predictors of sport-related emotion. Results indicated that attributions and goal characteristics were involved in the generation of emotion. Due to several limitations, however, the research does not provide firm evidence for the integration of theory. First, ratings of outcome importance and performance importance were assessed by single item questions that lack reliability. Second, the attributional dimensions included in this study were not theoretically consistent. Participants were supplied with 12 commonly used sport attributions and asked to rate them for outcome and personal performance. The attributions were then factor analyzed to produce personal ability, stability and opponent dimensions. Since these dimensions do not reflect those identified by attribution theory (Weiner, 1986), results should not be considered a definitive argument for model expansion. A third limitation concerned measures of emotion. Thirteen bipolar scales
(e.g. pleased-displeased) were presented to the participants after physical activity. Subsequent factor analysis produced three emotion factors (positive self-esteem, relaxation and surprised incompetence). These emotions are not specifically associated with attribution theory dimensions. Consequently, relationships found between the predictors and emotions in this study were not theoretically meaningful. These limitations suggest that the research was not sufficiently driven by theory. To adequately evaluate or expand theory, reliable and valid measures of related theoretical constructs are necessary.

A second reason for the current investigation is that attribution-emotion research with youth sport participants has been sparse. Although there has been extensive research on attributions in sport, this work has focused almost exclusively on adult populations with little research (e.g., Biddle & Hill, 1992; Robinson & Howe, 1989; Vallerand, 1987) targeting adolescents in sport and physical activity settings. As a result, there is a need to study the nature of the attribution-emotion relationships that exist among young people. The current research will provide an opportunity to evaluate the key postulates of Weiner's theory and the general applicability of the model to the domain of youth sport.

1.2.7 Investigating Outcome and Attributional Appraisals

Identifying the prevalent emotions associated with causal dimensions is an important function of attribution theory. Although specific relationships between causal dimensions and individual emotions are outlined by the model, Weiner (1986) has emphasized that further study is necessary in this area. For the purposes of the current research, additional investigation is warranted for two reasons. First, the recent advent of the CDSII and a fourth causal dimension suggests the theoretical links between causal
dimensions and individual emotions may need to be re-assessed. To this point, no research in youth sport has addressed the relationships between locus of causality, stability, personal control, external control and the specific emotions that they may predict. Second, sport research addressing relationships between the three dimensions and emotional experience has produced variable results across age groups (Mark, Mutrie, Brooks & Harris, 1984; McAuley, 1991; McAuley & Duncan, 1990; McAuley & Gross, 1983; McAuley, Russell & Gross, 1983; Robinson & Howe, 1989; Vallerand, 1987). As a result of these considerations, it is important to evaluate relationships between attributions and specific emotions with active youth.

Weiner (1986) has argued that research in the attribution area should address a range of specific emotions. Happiness, sadness, pride, anger and guilt will be examined in the current research for several reasons. First, attribution theory has established specific relationships between these emotions and the causal dimensions that antecede them. Second, while the attribution model will drive this research, the previously mentioned emotions are also addressed in cognitive-motivational-relational theory. Since goal characteristics are evaluated in the investigation, it is important that their effects are considered within an appropriate emotional context. Third, the emotions are justified from a measurement perspective in that instruments with demonstrated psychometric properties assess these emotions. Finally, each emotion is likely to be well represented within the sport and physical activity domain. Antecedents for this range of emotions have been outlined in attribution theory and will now be discussed.
1.2.8 Outcome-Dependent Emotions

A number of studies have revealed that an important determinant of emotion is the outcome of an event. Success at achievement-related activities has been associated with happiness, while failure was related to sadness and frustration. In an initial investigation, Weiner, Russell and Lerman (1978) compiled a dictionary list of 250 potential affective reactions to success and failure. Subjects were given a series of causes for success or failure within a brief story format and asked to rate the intensity of the emotions that they thought would be experienced. The results indicated that respondents felt happy, pleased and satisfied in the success condition regardless of the attributions that were provided. For failure, feelings of sadness and dissatisfaction were the dominant emotions not linked to causal attributions.

In a follow-up study (Weiner, Russell & Lerman, 1979), participants reported incidents in their lives when they succeeded because of ability, effort, help from others or luck. The subjects were asked to recall these events and the three most dominant emotions associated with each one. The most prevalent emotion following success was happiness which was reported by 45% of the respondents. Similar results were reported for sadness following failure. These and other early investigations in non-sport settings suggested that happiness and sadness did not vary as a function of causal attributions. More recent work in sport, however, has indicated that attributions play an important role in the development of general emotions (McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987).
1.2.9 Attribution-Dependent Emotions

Attribution theory holds that locus of causality influences feelings of pride or self-esteem (Weiner, 1986). More specifically, internal attributions for success are anticipated to result in greater pride than success that is externally attributed. Thus, pride should be enhanced when athletic success is credited to personal ability rather than low task difficulty or good luck. Failure attributed to the self is hypothesized to result in lower pride and self esteem than failure that is attributed to external causes. Early investigations were conducted by Weiner et al. (1978, 1979) to examine the causal dimensions associated with pride and other emotional reactions. As a reminder to the reader, attributions were specified for success and failure and participants indicated the intensity of the emotions they experienced or thought they would experience. To determine the influence of the locus dimension, the emotional responses for internal causes were compared to the responses for external causes. The results for both studies indicated that feelings of pride, competence, confidence and satisfaction were more likely to be experienced following internal rather than external attributions for success.

The general psychology literature has revealed a self-serving attributional bias that affects the level of emotional experience (see Weiner, 1985). Successful experiences are generally attributed to internal causes. This tends to increase the intensity of any positive emotions that are experienced. In contrast, failure is often externalized. This serves to deflect personal responsibility for adverse events and decreases the intensity of associated negative emotions. A number of earlier studies on attributions in sport (Bukowski & Moore, 1980; McAuley & Gross, 1983; Mutrie, Rose & Brooks, 1982) have demonstrated that
internal ascriptions follow success more often than failure and affect the degree to which emotions are experienced. A single study (Mark, Mutrie, Brooks & Harris, 1984) found that winners and losers differed on the stability and control dimensions as opposed to locus of causality. While the results of their investigation might have been affected by sample size, the effects of attribution patterns on emotional intensity deserve more consideration in future research.

The controllability dimension is associated with the widest range of individual emotions including anger, guilt and shame. Anger is expected when personal failure is due to causes that are controllable by others (Weiner, 1986). For example, when athletic failure is caused by the poor performance of a teammate, anger is likely to result. Limited attribution research in non-sport domains has confirmed the importance of perceived control in the generation of this emotion. Averill (1982, 1983) asked his respondents to describe a situation in which they were angry. After examining the characteristics of these situations, he concluded:

Anger, for the person in the street, is an accusation... Over 85% of the episodes described by angry persons involved either an act that they considered voluntary and unjustified (59%) or else a potentially avoidable accident (e.g. due to negligence or lack of foresight, 28%)... More than anything else, anger is an attribution of blame (Averill, 1983, p.1150).

The research on anger has often included comparisons with pity. In one investigation conducted by Weiner, Graham and Chandler (1982), college students were asked to describe instances in their lives in which anger or pity were experienced. After recalling two experiences for each emotion, subjects rated the cause of the events on the three causal dimensions. For pity, 71% of the causes were classified as external and
uncontrollable. For the emotion of anger, 86% of the situations involved causes that were external and controllable. This study indicated that the distinction between pity and anger is primarily a function of the control dimension.

Weiner et al. (1982) also investigated the generation of pity and anger in a series of manipulated situations. Four story themes were created involving fictional characters and eight different causes were assigned to each. For the 32 conditions (4 themes X 8 causes), subjects were asked to rate the degree of pity or anger that they would feel toward the characters in question. The findings indicated that when the cause was classified as uncontrollable, reports of pity were greater than those of anger. When the cause was considered controllable, the opposite was true. Furthermore, stable causes were found to maximize feelings of pity following uncontrollable causes and feelings of anger following controllable causes. Therefore, stability as well as control appears to influence these emotional responses.

The causal dimension of control is also the main predictor of guilt and shame. Unlike anger, which follows external blame, guilt and shame result from negative outcomes that are blamed on the self. There is general agreement that guilt is produced following personal responsibility for a negative outcome (Izard, 1987). Guilt is expected, for instance, if failure to reach an athletic goal is attributed to a lack of personal effort. Thus, the main causes for guilt can be classified as internal and controllable. Wicker, Payne and Morgan (1983) have noted that the emotions of guilt and shame have much in common. First, some similarity between these emotions is expected since both result from internal attributions and lower feelings of self-esteem. Second, both follow negative outcomes and should
coexist with the outcome-dependent emotion of sadness. The difference between the two emotions is that shame results from a failure outcome that is attributed to internal and uncontrollable (rather than controllable) causes. For example, shame may be experienced when one fails in a sporting event because of physical limitations or lack of natural ability as opposed to poor effort.

The proposed research will examine two important issues concerning attribution theory. First, each causal dimension is hypothesized to predict specific individual emotions in attribution theory. For example, locus of causality is expected to be the main predictor of pride while control is primarily responsible for anger. To this point, however, sport attribution research has not adequately addressed these relationships. Several studies (McAuley, 1991; McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987) have focused on the causal dimensions that best predict different groups of emotions including the general, self-related, time-related and social emotions mentioned earlier. Unfortunately, the main causal predictors of specific emotions such as pride and anger have not been tested in a sport setting. The current research proposes to examine this issue.

A second concern with sport research is that overall attributional patterns for each individual emotion have not been examined. Attributional patterns reflect the three dimensional signature of each emotion. While certain causal dimensions are primarily responsible for certain emotions, all dimensions are expected to influence individual emotions in some way. Weiner (1986) has emphasized that fundamental linkages such as locus-pride and control-anger must be considered within this larger dimensional context. The following attributional patterns have been outlined for the individual emotions included
in the proposed research. These associations, however, have not been properly tested in
dynamic physical activity settings.

Success:

Happiness (joviality)-dependent on the attainment of a chosen goal.

Pride (self-assurance)-primarily dependent on ability attributions. Ability is
classified as internal, stable and uncontrollable.

Failure:

Sadness-dependent on the nonattainment of a chosen goal.

Guilt-primarily dependent on personal effort. Personal effort is classified as
internal, unstable and controllable.

Anger (hostility)-primarily dependent on the effort of others. The effort of others is
classified as external, unstable and controllable.

1.3 Statement of the Purpose

The purpose of this research is to integrate goal importance, goal-performance
discrepancy and causal attributions in an effort to better understand emotional experience in
youth sport participants. The primary objectives of the proposed research are as follows.

1. To construct and provide initial validation of a goal importance scale for an adolescent
   sporting population (Study 1, pp. 43-62).

2. To evaluate the model properties of the Revised Causal Dimension Scale (CDSII) in an
   adolescent sporting population (Study 2, pp. 62-76).

3. To test the theoretical relationships between specific causal dimensions and emotional
   responses following success and failure outcomes (Studies 3 and 4, pp. 76-127).
4. To determine if goal characteristics predict individual emotions beyond causal attributions (Studies 3 and 4, pp. 76-127).

All studies addressing stated objectives were approved by the Ethics Committee of the College of Graduate Studies and Research at the University of Saskatchewan.

Implicit in the fourth objective is a need to investigate the specific nature of the relationship between attributions, goal characteristics and emotion. Lazarus’ ideas on emotions imply that goal characteristics might moderate any relationship between attributions and emotions. Lazarus argued that emotions only occur if the person appraises something is at stake (important) in an situation. Further, the goal characteristics of goal importance and goal congruence (is the goal being attained or frustrated) are thought to interact. Goal characteristics then interact with causal attributions to produce specific emotions. Let’s use anger as an example of such a model. First, the athletic situation must be judged to have some goal importance. The athletic outcome is then perceived to be negative (goal incongruent). Goal discrepancy and goal importance interact to produce emotional intensity. A large discrepancy combined with a highly important goal will result in a strong negative emotion. If the goal is not so important there will be a weaker negative emotion. If the goal is extremely important, even a small discrepancy can produce intense negative emotions. The discrete emotion of anger will only occur, however, if the athlete perceives someone else was responsible for the outcome (external locus) and could have produced a more favourable outcome if they had wanted (controllable).

Baron and Kenny (1986) have indicated that researchers can consider various types of models including direct effects, mediator and moderator models. The direct effects model
is shown in Figure 1.1. This model would be supported in the current research if both causal attributions and goal characteristics accounted for significant variance in emotional responses. Further, goal characteristics should not interact with causal attributions. The mediator model holds that the effects of specific predictors on emotions are mediated through other predictor variables. Attrbutions would mediate the goal characteristic-emotion relationship if three conditions hold. First, variations in goal characteristics must significantly account for variations in attributions (path a). Second, variations in attributions must significantly account for variations in emotion (path b). Third, when paths a and b are accounted for, a previously significant relationship between goal characteristics and emotional responses must lose its significance. Thus, causal attributions are a mediator to the extent that they account for the relation between a predictor and a criterion. In the current research, the mediator model would be supported if attributions account for significant variance in emotional responses and goal characteristics make no significant contribution beyond this. However, a mediator model should only be tested based on theory. Neither Lazarus’s cognitive-motivational-relational model nor Weiner’s attribution model advocate mediator effects. Therefore, this model was not evaluated in this project.

The moderator model proposed for the present research is more complex than typically presented by sport researchers. First, there are three basic predictor variables: (a) goal importance, (b) goal discrepancy, and (c) causal attributions. However, Lazarus (1991a) argued that goal importance and goal characteristic combine to generate the direction and intensity of positive and negative emotions. Although this interaction variable could be calculated and entered as a single predictor variable, it seems warranted to
Figure 1.1 Direct effects model based on attributions and goal characteristics.
empirically evaluate if the interaction variable is necessary beyond the main effects of the two independent goal characteristics variables. The moderator variables of theoretical interest are the interactions between goal characteristics and causal attributions. The basic moderator model is shown in Figure 1.2. The moderator model would be supported only if the three-way interactions were significant. There may be significant main effects for attributions and goal characteristics, but these do not directly test the moderator hypothesis.

When using multiple regression techniques, the moderator model would only be supported if the interaction terms produced a significant increase in variance accounted for beyond that predicted by the main effects.

Investigating these research issues raises several methodological challenges. Measures for two of the proposed predictors required development or possible modification with youth. First, the measurement of goal importance has been problematic. Therefore, the first objective of the current research is to construct and provide initial validation of a goal importance scale for youth sport participants (page 37). A second methodological concern is that existing measures of causal attributions have not been adequately tested with youth sport participants. Thus, evaluating the model properties of the CDSII with youth sport participants is the second objective of this research (page 37).
Figure 1.2. Moderator model based on attributions and goal characteristics.
Chapter 2

2.1 Introduction to Study 1.1

The objective of Study 1 was to construct and provide initial validation of a goal importance scale for an adolescent sporting population. Evaluating the role of goal characteristics in the emotion process is contingent upon adequate instrumentation. Although both objective (Lewthwaite, 1990) and subjective (Biddle & Hill, 1992; McAuley & Duncan, 1990; Vallerand, 1987) measures of goal-performance discrepancy have been applied in physical activity research, an appropriate goal importance instrument has yet to be developed. Assessment of goal importance has traditionally been limited to single item questions that lack reliability (e.g. Williams & Widmeyer, 1991). Despite the presence of several non-sport specific scales that measure the related construct of goal commitment (e.g. Hollenbeck, Williams & Klein, 1989), a psychometrically sound measure that allows participants to rate the importance of personal goals is needed. One measure employed by Lewthwaite (1990) classified goal importance according to motivational orientation. Items reflected mastery achievement, competitive achievement, effort, affiliation, acceptance and experiential goals. Although this instrument was developed to evaluate trait-like goal importance in physical activity, its psychometric properties have not been published. Furthermore, to understand an athlete’s emotional response requires knowing what specific goals are at stake in a particular athletic encounter. Therefore, the first objective of the current research was to construct and provide initial validation of a goal importance scale for an adolescent sporting population.
Specifically, this investigation sought to develop a goal importance scale and assess the scale’s internal consistency, factor structure and construct validity. Internal consistency is concerned with intercorrelations among scale items. If items have a strong relationship to the construct they represent, they should have a strong relationship to each other. In turn, a set of items that correlates well is more likely to result in a unidimensional or single factor scale. However, internal consistency is not necessarily a measure of scale homogeneity. Factor analysis provides a better assessment of scale homogeneity. Factor validity implies that the items in a scale load on corresponding a priori factors in an instrument. If an instrument is developed to be a single scale then all items in the scale should load on a single factor when the data is subjected to factor analysis. Further, all items should have substantial factor loadings (> .40).

The evaluation of scale validity was considered a central part of this research section. The three main types of validity include content, criterion-related and construct validity (DeVellis, 1991). Content validity concerns whether scale items reflect the domain of interest. In the current research, scale items should adequately represent the parameters of the goal importance domain. Lazarus (1991) argued that goal importance (goal relevance) refers to whether something of value is at stake in an encounter. If a specific goal is important then an athlete should attempt to attain such a goal with vigour. Therefore, goal importance should involve a cluster of behaviours and cognitions related to the determination and dedication associated with achieving a significant goal. To establish content validity an expert review process was employed to maximize the appropriateness of items. Content validity also includes the assessment of personal motivations, such as social
desirability, that may influence responses to scale items. Including a social desirability scale allows researchers to assess how individual items are influenced by this response tendency. Items correlating strongly with social desirability measures are generally excluded from the scale in question.

Criterion-related validity concerns how a scale relates to accepted or criterion measures of the same construct. The most common type of criterion validity is concurrent validity. This requires that a newly developed instrument be compared to a previously validated instrument (indicator) measuring the same construct. Because there are no validated goal importance scales, this form of validity was not assessed.

Construct validity is a global term that reflects how an instrument correlates to theoretically related constructs. Convergent validity refers to finding moderate correlations between indicators of constructs that are theoretically linked. For example, goal importance and goal commitment are conceptually similar. Therefore, a goal commitment scale should be moderately related to a goal importance scale. A goal importance scale should also be moderately related to single item measures of goal importance and value that have been empirically evaluated in previous sport and exercise studies (e.g., Maddux, Norton & Stoltenberg, 1986; Williams & Widmeyer, 1991). Discriminant validity, however, refers to establishing a lack of relationship between theoretically unlinked constructs. For example, competitive trait anxiety is a construct that reflects an athlete’s predisposition to perceive athletic situations as threatening and to exhibit specific somatic and cognitive complaints related to worry. Since trait-like anxiety and situational goal importance are distinct, distally related constructs, these two constructs should be weakly correlated.
2.1.1 Preliminary Item Development

The methods used for instrument development followed guidelines proposed by DeVellis (1991). Initially, 18 items were developed based on related scales (e.g., Smith, Novacek, Lazarus & Pope, 1992) and the theoretical framework of Lazarus (1991a). This pool of items was sent to experts who provided two forms of feedback (see Appendix B for this package). First, they rated how each item matched the construct of goal importance as stated. Five response categories were anchored at the ends by "poor match" and "excellent match." Second, they commented on wording, clarity and additional ways of tapping the construct. This feedback was aggregated in terms of match and decisions were made to retain, modify or delete items from the pool.

Following expert feedback, nine items were retained and modified. The experts indicated that different terms used across items might vary in their correspondence to the construct of goal importance. As a result, general modifications involved the standardization of terms. For example, the situations and performance situations referred to in the original items were modified and simply called situations. In addition, the original items made reference to a goal, a performance goal, goals, personal goals and personal concerns. These terms were standardized and called goals in the items that were retained (Appendix C outlines the feedback that led to the modifications). The nine retained and modified items are listed below.

1. Something important to me is happening in this situation

2. This situation touches upon my important goals.

3. I am committed to pursuing my goals in this situation.
4. This situation has nothing to do with my important goals.

5. The goals I have chosen in this situation are important to me.

6. My goals in this situation are not important to me.

7. I am enthusiastic about achieving my goals in this situation.

8. I could easily give up on my goals in this situation.

9. I am determined to reach my goals in this situation.

All items were then shown to 18 adolescent athletes between the ages of 14 and 18 years. An interview was conducted with each athlete immediately before a practice session to determine if the meaning of each item was clear (see Appendix D for the interview guide). A structured interview was chosen. Structured interviews allow the same questions and elaboration probes to be asked in the same order, helping to ensure comparable data across participants (Lincoln and Guba, 1985). This was an important consideration when identifying general themes for the purposes of item modification. Two interview questions were developed for each item. The first question pertained to the overall meaning of the item. The second question pertained to the meaning of key words or phrases. All interviews were audiotaped and transcribed verbatim. The researcher read and reread all transcripts until he was completely familiar with them. The items were then examined to identify comprehension problems. If either interview question was answered inappropriately, the item was considered to be poorly understood by the participant. No recurrent problems appeared. Specifically, a maximum of only three participants expressed difficulty with any single item. At this point, the nine items and six spurious items were randomly ordered to form a 15-item preliminary scale. Spurious items were included to help prevent categorical
responses by participants (DeVellis, 1991). The preliminary goal importance instrument was given a 7 point Likert-type response scale (1=strongly agree to 7=strongly disagree) and a brief set of instructions that asked respondents to rate the importance of personal goals in comparison to their most important goals in sport.

2.2 Method

2.2.1 Participants

Participants were 198 (97 male and 101 female) sport participants between 14 and 18 years of age (M=15.28, SD=1.08). These athletes were drawn from minor hockey and soccer organizations in a western Canadian city. Participants were recruited by first contacting the organizations by phone and then providing a letter outlining the purpose of the study and the responsibilities of the researcher and participants (see Appendix E for this letter). Organizations provided a contact list of coaches. Coaches were contacted by phone, informed about the nature of the study and asked to participate. The researcher then set meeting times with each team to discuss the project, answer questions and disseminate the cover letters and consent forms to the athletes. Each athlete was a volunteer and provided informed consent along with parents or guardians (see Appendix F for the cover letter and consent form). The researcher then attended a regularly scheduled competition and collected data on those subjects who returned completed consent forms.

2.2.2 Measures

2.2.2.1 Goal Importance. The preliminary 15-item (9 scale items plus 6 spurious
items) Goal Importance Scale was employed to measure goal importance.

2.2.2.2 Goal Commitment. The 7-item scale developed by Hollenbeck et al., (1989) and validated by Hollenbeck, Klein, O'Leary & Wright (1989) served as the goal commitment measure in this study. In the latter study, items showed adequate internal consistency ($\alpha=.71$). In addition, the scale was significantly correlated with two alternative measures of goal commitment ($r=.30, -.59$). Nonsignificant correlations between goal commitment and various demographic variables supported the discriminant validity of the scale. The response scale associated with the items is a 5 point Likert scale (1=strongly agree to 5=strongly disagree).

2.2.2.3 Task Value. A single item employed by Maddux, Norton and Stoltenberg (1986) was adapted to assess value. The task value item was worded "I place a lot of value on attaining my goals in this situation" and scored on a 7 point Likert scale (1=strongly agree to 7=strongly disagree). No psychometric evidence was reported for this item.

2.2.2.4 Task Importance. An importance item utilized by Williams and Widmeyer (1991) was adapted to read "It is important to me personally to achieve this goal." Response categories were identical to those used with the task value item and the GIS. No psychometric evidence was found for this item.

2.2.2.5 Trait Anxiety. The Sport Competition Anxiety Test (Martens, 1977) is a 10-item inventory designed to identify levels of trait anxiety in competitive sport situations. Research demonstrating the acceptable psychometric qualities of the SCAT has been
reported by Martens and his colleagues (Martens, 1977; Martens, Vealey & Burton, 1990).

2.2.2.6 Social Desirability. A short form of the Marlowe-Crowne Scale (Reynolds, 1982) was selected to assess the impact of social desirability on completion of the GIS. This scale contains 13 items and has demonstrated acceptable internal consistency ($\alpha=.76$) and strong correlations ($r=.93$) with the standard 33-item Marlowe-Crowne instrument (Reynolds, 1982).

2.2.3 Procedure

Participants began completing measures 25-30 minutes before a regularly scheduled league competition. The social desirability scale was administered first followed by the preliminary GIS, items of task value and task importance, the goal commitment scale and the SCAT. Groups of participants ranged from eight to fourteen individuals.

2.3 Results

2.2.1 Descriptives

The nine items in the preliminary scale were examined for item properties. All negatively worded items were reverse scored. Mean and standard deviations are shown in Table 1. There are clear differences in item parameters across the nine items. Mean values ranged from 1.7 to 3.6 ($M=2.44$) and standard deviations ranged from .96 to 1.86 ($M=1.35$). Inter-item correlations (Table 2) ranged from $r=.05$ to $r=.68$ ($M=.32$).
Table 1.

Descriptive statistics for nine preliminary items for goal importance scale.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1: Something important to me is happening in this situation</td>
<td>3.28</td>
<td>1.68</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G2: This situation touches upon my important goals</td>
<td>2.68</td>
<td>1.25</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G3: I am committed to pursuing my goals in this situation</td>
<td>1.80</td>
<td>0.98</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G4: This situation has nothing to do with my important goals</td>
<td>3.61</td>
<td>1.84</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G5: The goals I have chosen in this situation are important to me</td>
<td>1.90</td>
<td>0.99</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G6: My goals in this situation are not important to me</td>
<td>2.34</td>
<td>1.63</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G7: I am enthusiastic about achieving my goals in this situation</td>
<td>1.89</td>
<td>1.03</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G8: I could easily give up on my goals in this situation</td>
<td>2.80</td>
<td>1.86</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>G9: I am determined to reach my goals in this situation</td>
<td>1.73</td>
<td>0.96</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Mean Values:</td>
<td>2.44</td>
<td>1.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2.

Pearson product moment correlations among nine preliminary items for goal importance scale.

<table>
<thead>
<tr>
<th></th>
<th>g1</th>
<th>g2</th>
<th>g3</th>
<th>g4</th>
<th>g5</th>
<th>g6</th>
<th>g7</th>
<th>g8</th>
</tr>
</thead>
<tbody>
<tr>
<td>g1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g2</td>
<td>.41*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g3</td>
<td>.26*</td>
<td>.41*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g4</td>
<td>.17*</td>
<td>.24*</td>
<td>.05</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g5</td>
<td>.41*</td>
<td>.53*</td>
<td>.59*</td>
<td>.11</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g6</td>
<td>.05</td>
<td>.18*</td>
<td>.25*</td>
<td>.22*</td>
<td>.21*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g7</td>
<td>.28*</td>
<td>.42*</td>
<td>.67*</td>
<td>.12</td>
<td>.59*</td>
<td>.24*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>g8</td>
<td>.23*</td>
<td>.29*</td>
<td>.20*</td>
<td>.12</td>
<td>.29*</td>
<td>.14</td>
<td>.26*</td>
<td>-</td>
</tr>
<tr>
<td>g9</td>
<td>.24*</td>
<td>.57*</td>
<td>.62*</td>
<td>.09</td>
<td>.68*</td>
<td>.28*</td>
<td>.64*</td>
<td>.28*</td>
</tr>
</tbody>
</table>

Note: * Correlations > .15, p<.05 two-tailed. (N=197).
2.3.2 Exploratory Factor Analysis

Factor analysis is one of the most commonly used procedures in the development and refinement of psychological measures. For instrument development, exploratory factor analysis (EFA) is most often used. The purpose of EFA is to identify latent factors that represent larger sets of observed variables or items. The latent factors then serve as subscales for the instrument. The procedure is exploratory because there are no firm expectations based on theory or prior research about scale composition (Floyd and Widaman, 1995). Consequently, in EFA, a detailed model relating latent and observed variables is not specified in advance. The analysis is used to discover these latent or underlying factors. An important step in EFA is establishing the number of factors. Several methods (e.g. principal axis, maximum likelihood) do this by examining the eigenvalues associated with each factor. The larger the eigenvalue, the greater the capability of the underlying factor to account for correlations between observed variables. Typically, researchers rank the eigenvalues and use a cutoff of one to determine the number of factors. For the current study, this statistical criteria was used to identify factors.

To reduce the number of items, a principal axis EFA with oblique rotation was computed. Initial estimates (principal components) found a three factor solution. After extraction, however, only one factor had an eigenvalue exceeding 1.0 (see Table 3). Four items had factor loadings over .64 on the pattern matrix. Another item, originally on factor three, had a factor loading of .32. Examining the structure matrix found this item (G2) correlated .54 with the first factor.

Retaining items for a scale based on EFA involves some judgement since the final
Table 3.

**Exploratory factor analysis (principle axis) with oblique rotation of nine preliminary items for goal importance scale.**

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G3</td>
<td>.812</td>
<td>-.029</td>
<td>.027</td>
</tr>
<tr>
<td>G9</td>
<td>.776</td>
<td>.040</td>
<td>-.095</td>
</tr>
<tr>
<td>G7</td>
<td>.770</td>
<td>.023</td>
<td>-.029</td>
</tr>
<tr>
<td>G5</td>
<td>.649</td>
<td>-.051</td>
<td>-.328</td>
</tr>
<tr>
<td>G4</td>
<td>-.147</td>
<td>.516</td>
<td>-.186</td>
</tr>
<tr>
<td>G6</td>
<td>.243</td>
<td>.475</td>
<td>.180</td>
</tr>
<tr>
<td>G1</td>
<td>.083</td>
<td>-.004</td>
<td>-.580</td>
</tr>
<tr>
<td>G2</td>
<td>.320</td>
<td>.152</td>
<td>-.473</td>
</tr>
<tr>
<td>G8</td>
<td>.166</td>
<td>.114</td>
<td>-.247</td>
</tr>
</tbody>
</table>

**Initial Eigenvalue**  
3.81  
1.13  
1.02

**Final Eigenvalue**  
3.38  
0.53  
0.39

**Final % of variance**  
37.6  
5.92  
4.27
solution will involve error due to sampling. The item G2 (This situation touches upon my personal goals) was judged to be central to the construct of goal importance. Based on this rationale and the EFA output, five items were retained for the goal importance scale.

The internal consistency for the five item scale was $\alpha=.87$. Removing item G2 did not improve the internal consistency. Descriptives revealed moderate variability in goal importance scores with responses distributed toward the higher goal importance end of the 7-point scale ($M=2.00$, $SD=1.05$). Correlations between goal importance items ranged from $r=.41$ to $r=.68$ (mean $r=.57$).

The five items were subjected to factor analysis using principal axis rotation (Table 4). Analysis yielded a single goal importance factor with an eigenvalue of 2.90, accounting for 58% of the total variance in item scores. Factor results satisfied an important criterion for exploratory solutions. All factor loadings were large enough to be meaningful. When sample size is above five participants per item, factor loadings at the .40 level are considered significant on practical grounds (Floyd & Widaman, 1995). All factor loadings exceeded .60.

### 2.3.3 Construct Validity of the Five-Item GIS

It was predicted that the goal importance scale would be related to goal commitment and single item measures of goal importance. Pearson product moment analysis showed significant positive relationships between the GIS and single items of task value ($r=.80$) and task importance ($r=.76$). The GIS was also moderately correlated with the Hollenbeck et al. (1989) goal commitment scale ($r=.67$) suggesting that the scales measure related constructs.
Table 4.

**Exploratory factor analysis (principal axis) of five items retained for goal importance scale.**

<table>
<thead>
<tr>
<th>Items</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>G9</td>
<td>.850</td>
</tr>
<tr>
<td>G5</td>
<td>.797</td>
</tr>
<tr>
<td>G7</td>
<td>.773</td>
</tr>
<tr>
<td>G3</td>
<td>.756</td>
</tr>
<tr>
<td>G2</td>
<td>.612</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initial Eigenvalue</th>
<th>3.30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final Eigenvalue</td>
<td>2.90</td>
</tr>
<tr>
<td>Final % of variance</td>
<td>58.02</td>
</tr>
</tbody>
</table>
A significant but weak relationship (r=.29) emerged with the SCAT (Martens, 1977) providing tentative support for the discriminant validity of the scale. Finally, there was a nonsignificant relationship (r=-.02) between the GIS and the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). In addition, individual goal importance items did not correlate significantly with overall social desirability scores. These results indicate that the GIS was relatively resistant to social desirability response bias with this sample. In conclusion, the factor analysis, internal consistency value, and the construct validity data provide preliminary support for the validity of the five item goal importance scale. Nevertheless, the construct findings needed to be verified in a second study.

2.4 Introduction to Study 1.2

A limitation of the first study is that it was completed in a team sport setting and the results may be sample and situation specific. The purpose of this study was to test the generalizability of the GIS in an individual achievement setting with a different sample.

2.5 Method

2.5.1 Participants

Participants were 102 (50 male and 52 female) soccer players between the ages of 14 and 18 years (M=15.51, SD=1.30). Participants were drawn from winter training programs in a western Canadian province. Winter training programs were comprised exclusively of athletes who had been identified for age-class provincial teams. Informed consent was obtained for participating athletes. The informed consent package was the same
one used in Study 1.1 with the exception that reference was made to an individual achievement task.

2.5.2 Measures

Measures were identical to those used in Study 1 with the exception that the 5-item GIS replaced the preliminary scale.

2.5.3 Procedure

Measures were completed immediately before a regularly scheduled Leger 20 metre shuttle stage fitness test (Leger & Boucher, 1980). This test is a standard measure used by the provincial soccer association to predict aerobic power. All athletes were aware of the importance of the Leger test in assessing fitness and the great majority had previous experience in completing the fitness test. A Leger test involves running between points set 20 metres apart, then reversing direction in time with a metronome. The cadence of the metronome and the demands placed on the athletes increase as the test progresses. When athletes disengage voluntarily or fail to run far enough between tones, the trial ends for that individual. Personal performance is measured by the stage in the test each athlete has accomplished. With respect to the GIS, participants were asked to state their performance goal prior to physical activity, then rate goal importance by completing the scale.

2.6 Results

Descriptives and item-total statistics for the scale are presented in Table 5. Moderate
Table 5.

**Descriptives and item-total statistics for GIS items-Study 1.1**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>Corrected item-total correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am committed to pursuing my goals in this situation</td>
<td>1.85</td>
<td>0.94</td>
<td>.81</td>
</tr>
<tr>
<td>I am enthusiastic about achieving my goals in this situation</td>
<td>2.01</td>
<td>0.97</td>
<td>.70</td>
</tr>
<tr>
<td>The goals I have chosen in this situation are important to me</td>
<td>2.01</td>
<td>0.97</td>
<td>.81</td>
</tr>
<tr>
<td>I am determined to reach my goals in this situation</td>
<td>1.82</td>
<td>0.89</td>
<td>.80</td>
</tr>
<tr>
<td>This situation touches upon my important goals</td>
<td>2.37</td>
<td>1.14</td>
<td>.65</td>
</tr>
</tbody>
</table>
variability in response to goal importance items was consistent with the results of Study 1. All means and standard deviations were moderately low (M=2.05, SD=.98). The internal consistency of the 5-item GIS was satisfactory (α=.90). Assessment of construct validity produced results comparable to those found in Study 1. Positive correlations were found with task value (r=.82), task importance (r=.80) and goal commitment (r=.71). A nonsignificant relationship between the GIS and SCAT (r=.11) confirmed earlier evidence for the discriminant validity of the scale. Lastly, the correlation between the GIS and social desirability was nonsignificant (r=-.09).

2.7 Discussion

The purpose of Study 1 was to construct and provide initial validation of a goal importance scale for an adolescent sporting population. To this end, data was collected in two performance situations. Scale development procedures involved the assessment of preliminary items and checks on internal consistency, factor structure and construct validity. A five-item scale was developed that displayed stable properties across settings. Internal consistency was high (α=.86 and .90) and construct validity findings indicated moderate to strong relationships between the GIS and measures of task value, task importance and goal commitment. Discriminant validity was supported through low correlations with the construct of trait anxiety. Finally, nonsignificant correlations were found with social desirability. In summary, the research findings appear to be consistent and in the desired direction across studies. However, the validity results must be tempered by the fact that the goal importance scale contains items that capture a cluster of behaviours related to values,
importance, and commitment. Still, the newly developed scale is better than measurement attempts that have been used previously in the sport literature.

Results revealed important qualities about the GIS. First, all scale items are positively worded. Several negatively worded preliminary items were rejected during expert review. Those that remained showed low correlations with the remainder of the item pool and were subsequently dropped. Traditionally, self-report scales have included negatively worded items in efforts to control response bias. A number of investigations, however, indicate that method effects associated with such items tend to offset the benefits of including them. Importantly, these effects are related to age and reading ability. Specifically, Marsh (1986) demonstrated that young students (grades 2-5) have difficulty responding appropriately to negatively worded items. In follow-up work, Marsh (1996) found that negative-item effects remained evident in 10th grade high school students. Given a comparable age range in the current research (14-18 years) and possible use of the GIS in studies involving young people, the absence of negatively worded items seems justifiable.

A potential weakness of the GIS is that responses to scale items showed relatively low variability. According to DeVellis (1991), this is often associated with a number of problems. First, items with low variances are less likely to discriminate effectively between different levels of the measured construct. Second, extreme means or limited variances tend to reduce correlations with the remaining items in a scale. In the current research, however, all items displayed lower means and variances, indicating that most athletes attach importance to personal goals. As a result, both internal consistency, a measure of the relationship between items, and item-total correlations were high. Further evidence that low
variance was attributable to perceived importance rather than scale deficiencies was found in the goal importance-goal commitment relationship. Measures of the two constructs were clearly related in this research and goal commitment means and variances were also low. While findings indicate that individual goals are generally important to most athletes, future research should examine GIS properties in physical settings that afford a greater range of goal importance scores.

2.8 Introduction to Study 2

The objective of Study 2 was to evaluate the model properties of the Revised Causal Dimension Scale (CDSII; McAuley, Duncan, & Russell, 1992) in an adolescent sporting population. The CDSII was developed to measure causal dimensions that represent the properties of the specific reasons individuals give for an achievement outcome. The CDSII was based on Weiner's (1985) attribution theory that holds causal attributions can be classified under three general causal dimensions. Locus of causality is concerned with whether the cause is perceived to be due to internal or external reasons. Stability refers to whether the cause can change over time. Controllability reflects whether the individual or another person has control over the cause.

The original CDS developed by Russell (1982) consisted of three 3-item scales that corresponded to Weiner's three causal dimensions. Although the CDS has been used in numerous physical activity studies (e.g., Duncan & McAuley, 1987; McAuley & Duncan, 1989; Morgan, Griffin, & Heyward, 1996; Robinson & Howe, 1989), several studies questioned the validity of the control scale (McAuley et al., 1992; McAuley &
Gross, 1983; Vallerand & Richer, 1988). Vallerand and Richer found the control dimension had values of coefficient alpha lower than .50. They suggested the control dimension had problems with scale homogeneity, with the items representing constructs of control, responsibility, and intentionality. The wording of scale items also created a potential confound in that a cause might be “controllable by you or others (McAuley et al., 1992). Consequently, McAuley et al. (1992) argued that control should be differentiated into personal control and external control.

The revised Causal Dimension Scale (CDSII) consists of four 3-item scales that assess locus of causality, stability, personal control and external control. McAuley et al. (1992) evaluated the CDSII using data from four studies to assess scale reliability and factor structure. They reported scale reliability ranging from .60 to .92 and, based on interpretation of Confirmatory Factor Analysis, the four factor correlated structure provided an acceptable fit to the data. There were high interfactor correlations between locus and the person and external control scales (r=.71, r=-.65; respectively) and between the two control scales (r=-.56). Nevertheless, the four factor structure was superior to models that combined various factors. There were, however, some inconsistencies in the article concerning the reporting of four samples. Study two uses data from McAuley & Duncan (1989). However, this article reports using the original CDS, not the CDSII. Further, in the original article for study four (McAuley & Tammen, 1989), there is no mention of measuring causal attributions.

The revised CDSII has become a popular instrument to assess Weiner’s theory in adult and college populations involved in physical activity settings (e.g., McAuley, 1991;
McAuley & Duncan, 1990; Prapavessis & Grove, 1994). There is little evidence, however, that the psychometrics of the CDSII have been assessed in adolescent sporting populations. Understanding how psychological processes, such as causal attributions, influence motivated behaviour and emotion is critical given the psychological and physiological benefits of sport and exercise in adolescents (Duncan, 1993; Weiss, 1995). It is dangerous to assume the CDSII is valid in these populations because adolescents may respond differently than adults due to cognitive and social differences. Therefore, the primary purpose of this study was twofold. First, the ability of adolescents to understand the items was assessed through interviews. If there were comprehension problems, additional items were to be constructed. Second, final analysis assessed the reliability and factor structure of the CDSII in adolescents involved in sport.

2.8.1 Preliminary Item Assessment and Development

Individual interviews were conducted with 18 competitive athletes between 14 and 18 years of age (see Appendix G for the interview guide). Interviews were audiotaped and analyzed for recurrent comprehension problems as well as suggestions on the wording of additional items. Three questions were developed for each item. The first question pertained to the overall meaning of the item. The second question pertained to the meaning of key words or phrases contained in the item. If either question was answered inappropriately, the item was considered to be poorly understood by the participant. A third question asked participants to suggest alternative wording for such items. Additional items would be used as replacements only if final analysis revealed problems with original items.
For locus of causality, comprehension problems were found with item 1 (Is the cause something that: Reflects an aspect of yourself - reflects an aspect of the situation). Specifically, the eight athletes who experienced difficulty with this item had concerns with the word "aspect". For stability, item 7 presented the most difficulty (Is the cause something that is: Stable over time-variable over time). Specifically, concerns with the words "stable" and "variable" were reported by 6 and 8 athletes, respectively. For personal control, comprehension problems were found with item 4 (Is the cause something that: You can regulate-you cannot regulate). The term "regulate" was implicated by all 11 athletes who experienced difficulty with this item. Similar problems were experienced for external control with item 12 (Is the cause something that: Other people can regulate-other people cannot regulate).

Based on feedback from the athletes, a single item was developed and added to each of the CDSII subscales. Following suggestions by the athletes, the additional item (Is the cause something that is: Part of you-not part of you) was added to the locus of causality subscale. For stability, the item (Is the cause something that: Stays the same over time-does not stay the same over time) was added. The additional item (Is the cause something that: You can control-you cannot control) was added to the personal control subscale. For external control the term "control" was employed in another external control item, so it could not be used again. When the athletes had difficulty suggesting an alternative, terms from a thesaurus such as "direct" and "manage" were presented by the researcher. Eight of the 11 athletes who indicated concerns with the item preferred the term "manage". As a result, a fourth item (Is the cause something that: Other people can manage-other people cannot manage) was added.
cannot manage) was added to the external control subscale. New items were added to the end of the CDSII to form a modified scale. The order of the original 12-item instrument remained intact (see Table 6).

2.9 Method

2.9.1 Participants

Participants were the same as in the first study of the goal importance scale. One hundred and ninety-eight (97 male and 101 female) youth sport participants were recruited. Due to missing data, the final sample consisted of 188 participants (97 male and 91 female) ranging in age from 13 to 18 years (M=15.09, SD=1.30). Participants were involved in minor hockey and soccer leagues in a western Canadian city.

2.9.2 Procedure

The modified CDSII was administered to each participant immediately after a regularly scheduled league competition. Participants were asked to write an open-ended attribution for reaching or not reaching personal goals and then classify the cause using the modified instrument. All participants completed the scale within ten minutes of the competition.

2.9.3 Data Analysis

Properties of original CDSII items were examined and scale reliability was calculated for the sample using Cronbach coefficient alpha (Cronbach, 1951). Confirmatory factor analysis (AMOS 3.6) employing maximum likelihood procedures
<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. That reflects an aspect of yourself</td>
<td>987654321</td>
<td>Reflects an aspect of the situation</td>
</tr>
<tr>
<td>2. Manageable by you</td>
<td>987654321</td>
<td>Not manageable by you</td>
</tr>
<tr>
<td>3. Permanent</td>
<td>987654321</td>
<td>Temporary</td>
</tr>
<tr>
<td>4. You can regulate</td>
<td>987654321</td>
<td>You cannot regulate</td>
</tr>
<tr>
<td>5. Over which others have control</td>
<td>987654321</td>
<td>Over which others have no control</td>
</tr>
<tr>
<td>6. Inside of you</td>
<td>987654321</td>
<td>Outside of you</td>
</tr>
<tr>
<td>7. Stable over time</td>
<td>987654321</td>
<td>Variable over time</td>
</tr>
<tr>
<td>8. Under the power of other people</td>
<td>987654321</td>
<td>Not under the power of other people</td>
</tr>
<tr>
<td>9. Something about you</td>
<td>987654321</td>
<td>Something about others</td>
</tr>
<tr>
<td>10. Over which you have power</td>
<td>987654321</td>
<td>Over which you have no power</td>
</tr>
<tr>
<td>11. Unchangeable</td>
<td>987654321</td>
<td>Changeable</td>
</tr>
<tr>
<td>12. Other people can regulate</td>
<td>987654321</td>
<td>Other people cannot regulate</td>
</tr>
</tbody>
</table>

Note: The items comprising the four CDSII subscales are as follows: 1, 6, 9 = locus of causality; 3, 7, 11 = stability; 2, 4, 10 = personal control; 5, 8, 12 = external control.
was used to evaluate the fit of the four factor oblique model to the data. The CDSII model is considered to fit the observed data of the two samples to the degree that the implied covariance matrix is equivalent to the observed covariance matrix (Hu & Bentler, 1995). To determine the adequacy of fit of the four factor model to the data, a number of indices were examined including $\chi^2$, $\chi^2/df$ ratio, goodness of fit index (GFI), comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The $\chi^2$ is the most common absolute fit index but is complicated by sample size. An alternative index is the $\chi^2/df$ ratio, with values under 2 indicating a close fit and values between 2-5 considered to represent adequate fit. The GFI indicates the relative amount of variance and covariance jointly accounted for by the model. The CFI is an adjunct fit index that compares the relative reduction in the lack of fit as estimated by the target model (i.e. four factor oblique CDSII) versus a baseline or null model (Bentler, 1990; Hoyle & Panter, 1995). The baseline or null model specifies no relations among variables. For both GFI and CFI values over .90 are recommended (Hoyle & Panter, 1995). The RMSEA assess the fit function of the target model adjusted by the degrees of freedom (Steiger, 1990). RMSEA values less than .05 indicate close fits, with values less than .08 considered to represent reasonable fits (Browne & Cudeck, 1993). The factor structure of the CDSII was further examined by inspecting standard factor loadings and standardized residuals.

2.10 Results

2.10.1 Descriptives and Scale Reliabilities
Descriptives are shown in Table 7. The use of maximum likelihood (ML) estimators in CFA can be affected by substantial deviations from multivariate normality, although ML estimates have been found to be good even when multivariate normality is violated (Chou & Bentler, 1995). An examination of distributional properties of items revealed that no substantial problems were present in either univariate skewness (range from -.52 to .53) or kurtosis (range from -1.13 to -.33).

Scale reliability (Table 8) ranged from \( \alpha = .58 \) to \( \alpha = .81 \). The stability scale had low internal consistency values (\( \alpha < .60 \)). McAuley et al. (1992) found the stability scale to consistently have low reliability across four adult/college student samples (\( \alpha = .65 \) to .68). Studies using the CDSII with adolescents have not reported scale reliability.

2.10.2 Confirmatory Factor Analysis

Standardized factor loadings and factor correlations for the model are shown in Figure 2.1. Most factor loadings are good, with all values except one (item 11 - stability) over 0.6. Some factor correlations, however, are high. Locus of causality showed high correlations with personal control (.91) and external control (-.63). Global indices of fit (Table 9) also suggest the four factor oblique model provides a good fit for the data, with GFI (.93) and CFI (.92) exceeding the recommended criteria of .90. Given that the CFA suggested a good fit for the CDSII, the additional four items were not evaluated. Thus, the intact CDSII was considered suitable for use with youth sport participants.
Table 7.

Descriptive statistics for CDSII items for adolescent athletes

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
<th>Kurtosis</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.14</td>
<td>2.26</td>
<td>-.60</td>
<td>-.15</td>
</tr>
<tr>
<td>2</td>
<td>5.82</td>
<td>2.35</td>
<td>-.57</td>
<td>-.47</td>
</tr>
<tr>
<td>3</td>
<td>4.10</td>
<td>2.71</td>
<td>-1.13</td>
<td>.37</td>
</tr>
<tr>
<td>4</td>
<td>5.90</td>
<td>2.53</td>
<td>-.75</td>
<td>-.52</td>
</tr>
<tr>
<td>5</td>
<td>5.54</td>
<td>2.28</td>
<td>-.50</td>
<td>-.36</td>
</tr>
<tr>
<td>6</td>
<td>5.20</td>
<td>2.43</td>
<td>-.86</td>
<td>-.20</td>
</tr>
<tr>
<td>7</td>
<td>4.07</td>
<td>2.48</td>
<td>-.87</td>
<td>.46</td>
</tr>
<tr>
<td>8</td>
<td>5.25</td>
<td>2.36</td>
<td>-.83</td>
<td>-.14</td>
</tr>
<tr>
<td>9</td>
<td>5.41</td>
<td>2.19</td>
<td>-.33</td>
<td>-.26</td>
</tr>
<tr>
<td>10</td>
<td>5.87</td>
<td>2.15</td>
<td>-.39</td>
<td>-.44</td>
</tr>
<tr>
<td>11</td>
<td>3.89</td>
<td>2.73</td>
<td>-.99</td>
<td>.53</td>
</tr>
<tr>
<td>12</td>
<td>5.51</td>
<td>2.35</td>
<td>-.71</td>
<td>-.30</td>
</tr>
</tbody>
</table>
Table 8.

**Internal consistency reliability for the four causal dimension scales**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Cronbach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>alpha</td>
</tr>
<tr>
<td>Locus of causality</td>
<td>.67</td>
</tr>
<tr>
<td>Stability</td>
<td>.58</td>
</tr>
<tr>
<td>Personal Control</td>
<td>.81</td>
</tr>
<tr>
<td>External Control</td>
<td>.65</td>
</tr>
</tbody>
</table>
Figure 2.1. Confirmatory factor analysis of the CDSII
<table>
<thead>
<tr>
<th>Sample</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$/df</th>
<th>GFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>94.6</td>
<td>48</td>
<td>1.97</td>
<td>.93</td>
<td>.92</td>
<td>.072</td>
</tr>
</tbody>
</table>
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74

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CDSII scales. Using traditional statistical measures that do not correct for measurement error (i.e., correlation and regression analyses) may result in underestimating the predictive relationship between causal attributions and other variables of interest. Another possible danger is interpreting the attributional research when employing techniques such as multiple regression. Entering multiple CDSII scales simultaneously might produce problems of multicollinearity due to high correlations between personal control and causality. Choosing step-wise procedures, on the other hand, will capitalize on sample error. Given the high correlation between personal control and locus of causality, interpreting predictive equations must be done with caution.

One solution to the measurement limitations of the CDSII in adolescents might be to modify the instrument to improve its measurement properties. Vlachopoulos and colleagues (Vlachopoulos et al., 1996, 1997) attempted such a modification for early adolescents. They reduced the number of items from three to two. They argued their new instrument (CDSII-C) had good psychometric properties on the basis of CFA analyses. There were, however, serious measurement flaws in assessing the CDSII-C. First, correlations between the paired items for specific scales suggested low common variance for factors, especially locus of causality ($R^2=.102$) and external control ($R^2=.109$) (Vlachopoulos et al., 1996). They decided to drop the external control scale. Second, having only two item per factor means the measurement model has no degrees of freedom related to the items and the factors. In CFA, one item per factor must be constrained for scaling. It is not surprising the indices of fit were high. Vlachopoulos et al. (1996, 1997) provided little evidence that the CDSII-C is an improvement over the CDSII. Given the
present findings, use of the 12-item CDSII in adolescent sporting populations appeared to be justified.

2.12 Introduction to Study 3

The purpose of this study reflected the third and fourth research objectives. The third objective was to test the theoretical relationships between specific causal dimensions and emotional responses. The fourth objective was to determine if goal characteristics predict individual emotions beyond causal attributions. With respect to the fourth objective, both the direct effects and moderator models discussed earlier in the dissertation were tested. To evaluate these models, this study attempted to control the number of potential personal goals within the achievement setting. It was necessary that the sport situation had personal significance. The achievement setting chosen was a Leger fitness test, a field based evaluation of aerobic capacity. The Leger task requires individual athletes to run between points set 20 metres apart, then reverse direction in time with a metronome. The cadence of the metronome and the demands placed on the athletes increase as the test progresses.

The Leger test was chosen for several reasons. First, the stages attained in the test represent ratio level data which is suitable for precise measurement of outcome and goal-performance discrepancy. Second, the internal validity of the study should be strengthened through the use of an achievement task that has substantive relevance for the athletes involved. Leger tests are part of the regular provincial winter training program for soccer and are an evaluation of fitness or conditioning. Finally, the Leger test is a real achievement situation. A number of attribution studies (Russell & McAuley, 1986; Weiner et al., 1978,
1979) have involved simulation. In this methodology, participants are asked to imagine themselves in achievement settings and indicate what their emotional responses might be. Questions have been raised (Rejeski & Brawley, 1983; Russell & McAuley, 1986) concerning the generalizability of findings in such studies to actual achievement situations. Specifically, imagined and actual situations are not expected to be equivalent in terms of personal significance. As a result, the influence of attributional processes on emotion has received little attention in these studies.

2.12.1 Testing the Model: Statistical Testing Issues

The contributions of causal dimensions and goal characteristics to emotional experience were analyzed using multiple regression techniques. There are various procedures to enter predictor variables in regression analyses. Hierarchical regression is preferred when testing models because the order of entry is directed by the researcher. In the present research, several factors needed to be considered when entering variables including testing the moderator model and correlations among predictors. The results of Study 2 indicated that specific scales for the CDSII instrument were highly correlated. This was consistent with the original CDSII model (McAuley et al., 1992) that showed high correlations between locus of causality and the personal control (.71) and external control (.64). Entering all causal predictors together is problematic because of multiple collinearity. Consequently, the original attribution theory (Weiner, 1985) was used to determine the order of variable entry. Locus of causality and stability were the original attribution theory factors and have accounted for most of the variance in sport research. Controllability was
added later and has less utility as a causal descriptor. Thus, a choice was made to enter locus of causality and stability on the first step. On the second step, personal control and external control were entered using the stepwise method because of strong correlations of personal and external control with locus of causality. Stepwise regression is the most frequently used regression method when correlations among predictor variables are moderate to strong (Norusis, 1997). Personal control or external control will only enter the equation if their partial correlation (after controlling for locus and stability) can produce a significant increase in variance accounted for in a particular emotion. On the third step, goal importance and goal-performance discrepancy were entered stepwise to determine how individual goal characteristics affect emotion. On the fourth step, the interaction of goal importance and goal-performance discrepancy was entered as the moderator variable. Finally, three-way interactions involving causal dimensions and the goal characteristic interaction were entered stepwise on the fifth step. As mentioned, significant three-way interactions indicate support for the moderator hypothesis.

2.13 Method

2.13.1 Participants

Participants were 132 (67 males and 65 females) soccer players between the ages of 14 and 18 years. The participants were involved in Saskatchewan Soccer Association winter training programs in the cities of Saskatoon and Prince Albert, Saskatchewan. The recruitment process began with a letter to the provincial soccer coordinator (see Appendix H for this letter) who then contacted the coaches of each provincial team. The researcher
then set meeting times with each team to discuss the project, answer questions and disseminate the cover letters and consent forms to the athletes. Each athlete was a volunteer and provided informed consent along with parents or guardians.

2.13.2 Measures

Data was collected before and after a Leger fitness test (Leger & Boucher, 1980). Personal performance is measured by the stage each athlete has accomplished on the test.

2.13.2.1 Goal importance. The goal importance scale developed in the first research section of this document was used to measure goal importance. Subjects were asked to assess how important their goals were for the Leger test in comparison to their most important goals in sport. Responses were made on a 7-point Likert-type scale (1=strongly disagree, 7=strongly agree). Note that the scoring scale is reversed from the preliminary studies so that relationships with other variables are intuitively consistent (higher scores associated with “more” of the attribute).

2.13.2.2 Objective Goal Discrepancy. Each athlete was asked to indicate what stage on the Leger test they were trying to attain. Athletes could indicate full or half stages (e.g., 7.5). The stage goal was used in the calculation of the goal-performance discrepancy measure. For each athlete, discrepancy was measured by a difference score between the action goal and the actual Leger stage. Difference scores are considered appropriate when expected and actual performance can be measured in a precise manner.

2.13.2.3 Causal attributions. The CDSII was administered to participants who
were asked to write an open-ended attribution to measure the main cause for reaching or not reaching goals on the Leger test. Athletes then completed all items on the original 12-item CDSII.

2.13.2.4 Emotion. The Positive and Negative Affect Schedule-Expanded Form (PANAS-X: Watson & Clark, 1991) was used to evaluate emotion in this study. This instrument requires subjects to indicate how much they feel each of 32 different emotion items. Each item was scored on on a 5-point scale (1=very slightly or not at all, 5=extremely). The PANAS-X is strongly correlated with other measures of short term or state emotion. Watson and Clark (1991) demonstrated that the PANAS-X scales were strongly correlated with similar scales from the Profile of Mood States (POMS: McNair, Lorr & Droppleman, 1971). These results also indicated that the PANAS-X scales showed better discriminant validity than those of the POMS.

A second reason for using the PANAS-X is that it adequately represents the individual emotions associated with attribution theory. Specifically, the PANAS-X measures 11 individual emotional states. Investigators, however, are encouraged to select and assess only those scales that are relevant to their research (Watson & Clark, 1991). The following scales (totalling 37 items) were included in the current study because they contain emotions relevant to attribution theory (see Appendix I). These emotions are underlined for the readers’ information and the remaining items that comprise each scale are presented.

Joviality-happy, joyful, delighted, cheerful, excited, enthusiastic, lively, energetic.
Sadness-sad, blue, downhearted, alone, lonely.
Self-assurance—proud, strong, confident, bold, daring, fearless.

Hostility—angry, hostile, irritable, scornful, disgusted, loathing.

Guilt—guilty, ashamed, blameworthy, angry at self, disgusted with self, dissatisfied with self.

2.13.3 Procedure.

When setup of the Leger test was complete, each athlete received a package including a cover sheet for recording test results and the battery of measures for the research. Each athlete was asked to write their name, age and gender on the package. With respect to the performance of the test, the following instructions were given:

The objective is to follow the progressively increasing pace over the 20 metre course as long as possible. At every tone, you must have reached one of the 20 metre lines. Then, upon hearing the signal, reverse your direction by pivoting on the line and get to the other line for the next signal. If, twice in a row, you can't reach the line, remember the last number announced on the tape. This is the stage level for you on the Leger test. As quickly as you can after the test, record this on the front page of your package. Are there any questions?

Immediately before the test, each athlete was asked to identify his/her action goal (performance goal in terms of Leger stage) and completed the goal importance scale. Upon completion of the scale, they were escorted by the researcher to the starting line in preparation for the Leger test. Each participant placed their package behind the line where it could be easily located following the test. The researcher then started the audiotape which repeated the instructions mentioned earlier and the test followed immediately afterward. During the test, research assistants stood at the four corners of the test area. They offered general encouragement, prompted athletes who had missed a line and terminated those who
had missed two lines in succession. As athletes finished the test, they were reminded of the stage they attained and asked to record it as quickly as possible. After all athletes had completed the Leger test, the PANAS-X and the CDSII were explained and administered in that order.

2.13.4 Data Analysis. The contributions of goal characteristics and causal attributions to emotions in adolescent athletes were examined using multiple regression. Multiple regression analyses can be negatively affected by a number of factors such as outliers and violations of statistical assumptions such as multivariate normality, linearity, and homoscedasticity. Multiple regression can be sensitive to outliers. Following procedures suggested by Stevens (1992) outliers were identified. Before the analysis, outliers can occur because of unreasonable completion of data by participants or recording errors by investigators. Consequently, two steps were taken to edit the data. First, frequencies for all predictor and criterion variables were calculated. Second, a histogram was generated for each frequency distribution. Based on this information, the occurrence of each data point was counted and possible errors were noted. Unexpected values were checked against the original data and changes were made as necessary.

At this point, standardized residuals, Mahalanobis distance and Cook's distance were saved as variables and examined for outliers. Standardized residuals were used to find participants whose predicted and actual scores on criterion variables were substantially different. Any standardized residual exceeding 3 was considered unusual and examined for significance using a Weisberg test (Weisberg, 1980). The formula for the Weisberg statistic
is:

\[ ti = ri \ (\sqrt{n - k - 1/n - k - r_i^2}) \]

where \( ri \) is the standardized residual, \( n \) is sample size, \( k \) is the number of predictors and degrees of freedom = \( n - k - 1 \). Cook and Weisberg (1982) gives critical values at the .05 level. For an investigation with 130 participants and 11 predictors, the critical value is 3.65. Cases with a Weisberg value exceeding 3.65 were identified as significant outliers and deleted from final regression analysis.

Mahalanobis distance detects outliers on the predictor variables. Specifically, it uses predictor values to compute the distance of each case from the mean of all cases. A large distance indicates an outlier on the predictors. Critical values for this statistic are provided by Barnett and Lewis (1978). For 130 participants and 11 predictors, the critical value is 21.80. Any cases exceeding this value were flagged and examined for influence. Influential data points are those that produce a substantial change in at least one of the regression coefficients. Cook's distance is very useful for identifying these influential points. Cook and Weisberg (1982) have indicated that a Cook's distance exceeding 1 is considered large and should be deleted from subsequent analysis.

Each observation in regression analysis has a fixed component and a random error component. Several important assumptions of regression are concerned with the errors (Pedhazur, 1982; Stevens, 1992; Tabachnick & Fidell, 1984) and were examined. These assumptions include:

1. Normality. The errors must be normally distributed with a mean of zero.
2. Linearity. The errors must form a straight line.
3. Homoscedasticity. The errors must have constant variance.

Screening for normality is an important initial step in every multivariate analysis. Multivariate normality is the assumption that all linear combinations of variables are normally distributed. When this assumption is met, the errors or residuals of an analysis (the differences between predicted and obtained values) are distributed normally around a mean value of zero. Thus, one way to screen for normality is to examine multivariate residuals. Residuals are generally assessed by graphical methods. Specifically, the plotting of standardized residuals against standardized predicted values is recommended (Pedhazur, 1982; Stevens, 1992; Tabachnick & Fidell, 1984).

The assumption of linearity is that there is a straight line relationship between variables. Linearity is fundamental to multiple regression since regression solutions are based on a general linear model (Tabachnick & Fidell, 1984). Non-linearity can be diagnosed from standardized residual plots. In residual analysis, non-linearity is indicated when most of the residuals are above the zero line at some predicted values and below the zero line at other predicted values.

The assumption of homoscedasticity is that the variance in scores for one variable is roughly the same at all values of a second variable. Homoscedasticity is related to the assumption of normality. When multivariate normality is satisfied, the relationship between the variables involved is homoscedastic (Tabachnick & Fidell, 1984). Although heteroscedasticity (unequal variance) is not fatal to a regression analysis, there is more predictability in an equation if homoscedasticity as well as normality and linearity is present. Homoscedasticity can be evaluated through plots of standardized residuals. In this

84
evaluation, the vertical bands extending from the x-axis should be examined. These bands should be roughly the same width across the plot. If the spread of scores in a dependent variable is similar across all values of a predictor, the distribution is considered homoscedastic. If the spread of scores is considerably larger at one side of the plot than the other, the distribution is heteroscedastic.

If residuals depart from normality, distributions of individual variables should be examined (Tabachnick & Fidell, 1984). Although normality of individual variables is not always required for regression analysis, the solution is usually compromised if this is not the case. Importantly, a variable with a restricted range of scores cannot correlate highly with other variables. This is particularly true if variables are non-normal in different directions (e.g. one is positively skewed and another is negatively skewed). Very simply, regression analysis is a correlational model and variables that are skewed in different directions do not correlate well with each other.

Univariate normality can be assessed through a number of graphical and statistical tests. Stevens (1992) has advocated statistical tests as a safe and consistent way to identify non-normality in individual variables. Among the statistical tests are skewness and kurtosis coefficients. Skewness is concerned with distributional symmetry. With skewed variables, the mean is not in the centre of the distribution. With positive skewness, most cases are grouped to the left side of the distribution. With negative skewness, most cases are grouped to the right side. Kurtosis is concerned with the peakedness of a distribution. A distribution may be too peaked resulting in too few cases in the tails or too flat resulting in too many cases in the tails. Skewness or kurtosis coefficients greater than 2 are considered high
(Tabachnick & Fidell, 1984; Vlachopoulos et al., 1996) and should be checked for significance by dividing the coefficient in question by its standard error. Stevens (1992) recommends the use of skewness and kurtosis coefficients in part because they allow the researcher to separate skewness and kurtosis as indices of non-normality. This separation is useful since kurtosis has been shown to affect multivariate power more than skewness. Thus, the researcher should be more concerned about violations of normality due to kurtosis.

Multiple regression can be robust to violations of assumptions. However, the literature has not established when violations can be safely ignored (Tabachnick & Fidell, 1984). Consequently, several sources have recommended distributional transformation when violations are found among either residuals or individual variables (Norusis, 1997; Stevens, 1992; Tabachnick & Fidell, 1984). Specifically, efforts should be made to detect non-normality on the criterion variables, one or more of the predictor variables or both types of variables and transform to normality. Thus, the purpose of univariate transformation is to bring the joint distribution closer to normality. The case for transformation is particularly strong when some variables are skewed and others are not, or variables are skewed differently prior to transformation.

Tabachnick and Fidell (1984) have suggested that it is generally best to transform non-normal variables to normality. The exception is when interpretation is difficult with transformed scores. An analysis is interpreted from the variables that are in it and transformed variables are sometimes harder to interpret. Consequently, a decision was made to avoid the transformation of predictor variables in the current research. Only criterion
variables would be transformed as necessary. There were several reasons for this decision. First, the current research employs 11 predictor variables, five of which involve interactions. Of the five interaction terms, four are three-way interactions testing a moderator hypothesis. Aiken and West (1991) have recommended against the transformation of individual variables if three-way interactions are involved. Although a case could be made for the interpretability of individual predictors following transformation, the interpretation of interactions is problematic. Second, scales associated with predictor variables in this research are meaningful in terms of their psychometric development and representation of theoretical constructs. If a scale is meaningful, transformation often hinders interpretation more than it would with weaker instrumentation (Tabachnick & Fidell, 1984).

Each multiple regression analysis produces output containing important statistics or coefficients. For multiple regression models, $R^2$ is a commonly used measure for assessing model fit. Besides being the squared correlation between variables $X$ and $Y$, it is the squared correlation between actual and predicted values on a criterion variable. Although the sample $R^2$ is often reported in sport and physical activity research, it tends to overestimate how well a model generalizes to the population (Norusis, 1997). Adjusted $R^2$ compensates for this bias by accounting for the number of variables in the model and sample size. In the current research, which employs a number of predictor variables with a limited sample size, this is an important consideration.

A main goal of multiple regression analysis is to establish the relative contribution of predictor variables. Unfortunately, predictor variables are generally correlated in
behavioural research and the unique contribution of each is difficult to assess. Thus, any statement about an individual predictor is contingent upon other variables in the equation. Nevertheless, there are several approaches to assessing the role of predictor variables. One way is to consider the increase in $R^2$ when a variable enters an equation containing other predictors. A large change indicates that a variable provides unique information about the criterion that is not available from other predictors in the equation. A second way to evaluate the contribution of predictor variables is the part or semipartial correlation coefficient. This coefficient represents the correlation between $X$ and $Y$ when the linear effects of other predictors are removed from $X$. The first predictor to enter the equation accounts for unique variance. The contribution of added predictors is expressed without duplicating this first contribution. Consequently, the second coefficient, $r^2'y$ (2.1), represents the correlation between the second predictor and criterion with the shared variance among predictors partialed out. A third means of assessing the role of predictors also involves statistical control. The partial correlation coefficient is the correlation between a predictor and criterion when the linear effects of other predictors are removed from both $X$ and $Y$. A final way to assess the contribution of predictor variables is to calculate beta weights. Beta weights are the coefficients of the predictors expressed in standardized or z-score form. More specifically, each beta value represents the unit increase in a predictor variable for every unit increase in the criterion.

Collinearity diagnostics help assess the integrity of a regression analysis. Multicollinearity is a problem that occurs when predictor variables are too highly correlated (Tabachnick & Fidell, 1984). This condition has several adverse effects on regression
equations (Stevens, 1992). First, it increases the standard error of the estimate in regression analysis. Second, it severely limits the size of $R^2$ since predictors share a great deal of variance. Third, effects are confounded due to the correlations among predictor variables. This makes determining the contribution of a given predictor difficult. Collinearity diagnostics contain tolerance and variance inflation factor statistics. For each predictor, tolerance is equal to:

$$1 - R^2_i$$

where $R^2_i$ is the squared multiple correlation of a given predictor with all other predictors in the equation. Tolerance values range from 0 to 1 with high values being preferable. Tolerance values close to 0 are associated with multicollinearity and unstable estimates of the regression coefficient for that predictor. The variance inflation factor is simply the reciprocal of tolerance. As the variance inflation factor increases, so does the variance of the regression coefficient.

2.14 Results

2.14.1 Scale Descriptives and Reliabilities

Initial descriptive statistics for the goal importance scale, CDSII scales, and emotion scales are presented in Table 10. The internal consistency for all scales were acceptable. Means for locus of causality ($M=6.73$) and personal control ($M=7.02$) were comparable and much higher in magnitude than those of stability ($M=3.90$) and external control ($3.46$). Descriptives for these CDSII subscales reflect a strong incidence of internal locus and personally controllable causes in this sample. Consistent with the first study, goal
importance scores were concentrated near the high end of the seven-point response scale (M=6.07). This indicates that goals associated with Leger test performance were generally important to the participants. Variability was low (SD=.69) indicating that the importance of the activity was common across participants. Means for positive emotions (M=2.51 to 2.73) were much higher than those of negative emotions (M=1.44 to 1.78).

Unfortunately, it was not possible to compare scale means to previously published values in sport and physical activity research. For the PANAS-X, Watson and Clark (1991) reported descriptives for general positive and negative affect scales only in non-sport situations. Crocker (1997) examined the PANAS in physical activity settings, but the purpose was to test the hypothesized two-factor structure of the general affect scales. The discrete emotion scales used in the current research were not addressed. Although the CDSII has been used in the physical domain (e.g. McAuley & Duncan, 1990; McAuley et al., 1992), this investigator could find no evidence of reported means and standard deviations.

2.14.2 Gender Differences

To determine if there were gender differences on any of the variables, multivariate analysis of variance (MANOVA) was conducted. All four causal attributions, goal importance, goal discrepancy, and the five emotion variables were entered as dependents. Results indicated no significant gender effect, (Wilks' Lambda = .934, F(10, 121) = .853, p>.4. The data were subsequently collapsed across gender for the main analysis.
Table 10.

Initial descriptive statistics for goal importance scale, CDSII scales and emotion scales.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Internal Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Importance (1-7)</td>
<td>6.07</td>
<td>0.69</td>
<td>0.86</td>
</tr>
<tr>
<td>CDSII-Locus (1-9)</td>
<td>6.73</td>
<td>1.57</td>
<td>0.67</td>
</tr>
<tr>
<td>CDSII-Stability (1-9)</td>
<td>3.90</td>
<td>2.30</td>
<td>0.80</td>
</tr>
<tr>
<td>CDSII-Pers. Control (1-9)</td>
<td>7.02</td>
<td>1.88</td>
<td>0.85</td>
</tr>
<tr>
<td>CDSII-Ext. Control (1-9)</td>
<td>3.46</td>
<td>1.99</td>
<td>0.73</td>
</tr>
<tr>
<td>Joyality (1-5)</td>
<td>2.73</td>
<td>1.20</td>
<td>0.93</td>
</tr>
<tr>
<td>Self-assurance (1-5)</td>
<td>2.51</td>
<td>1.14</td>
<td>0.85</td>
</tr>
<tr>
<td>Sadness (1-5)</td>
<td>1.44</td>
<td>0.76</td>
<td>0.75</td>
</tr>
<tr>
<td>Hostility (1-5)</td>
<td>1.61</td>
<td>0.90</td>
<td>0.80</td>
</tr>
<tr>
<td>Guilt (1-5)</td>
<td>1.78</td>
<td>1.01</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Note: Emotion, CDSII, and Goal Importance scales were corrected for number of items in each scale.

Emotion scales ranged from 1 to 5, CDSII scales ranged from 1 to 9, and the goal importance scale ranged from 1 to 7.
2.14.3 Success - Failure Differences in Attributions

A goal discrepancy code was assigned based on whether the athlete failed to reach the action goal (1) or reached or exceeded the action goal (2). A multivariate analysis of variance (MANOVA) entering all four causal dimensions as predictors found no significant effect for success/failure (Wilks Lambda=.943, p>.05 (eta^2=.057)). Univariate analysis found that successful athletes had higher internal locus scores compared to athletes that failed to reach their action goal (F=7.39, p<.01). However, the effect size (.054) indicated that locus of causality was a weak predictor of success and failure outcomes.

2.14.4 Preliminary Regression Analysis

The data were examined for outliers based on the process described in the data analyses section. This process revealed two participants with goal performance discrepancy values of -4. Examination of all entries for these participants indicated that the data was completed inconsistently. These cases were subsequently deleted, reducing the data set to 130 participants. In the next step, the Weisberg test (with standardized residuals) was used to detect significant outliers on the criterion variables. Mahalanobis distance was used to detect outliers on the predictor variables. Such outliers are not necessarily influential data points. Those that are influential will have a Cook's distance greater than 1. As such, outliers on the predictors were deleted from final analysis only if identified by Cook's distance.

For hostility, joviality and self-assurance, no standardized residuals greater than 3 were found. In addition, Mahalanobis distance values were all under the critical value of
21.82, indicating no outliers on the predictor variables. Consequently, final regression analysis on these emotions included all 130 cases. Guilt showed three standardized residuals greater than 3 (3.37 to 3.75). Weisberg tests revealed that two of the residuals were significant outliers on this emotion (t=3.97, t=3.97). One significant outlier was found on sadness (t=3.73). Deletion of these cases left 128 and 129 cases, respectively, for final analysis on these emotions. Mahalanobis distance showed no outliers on the predictor variables for guilt or sadness.

2.14.5 Analysis of Regression Assumptions

Following the deletion of outliers, preliminary regression analysis was conducted on each criterion emotion and the data was examined for regression assumptions. The current research employed two steps in a checklist proposed by Tabachnick and Fidell (1984) for screening assumptions. First, standardized residual plots were examined for multivariate violations. Second, skewness and kurtosis coefficients for the individual (dependent) variables were examined when necessary. For positive emotions, the assumptions were satisfied. The distributions showed normality, linearity and equality of variance. For negative emotions, systematic patterns were found in the distributions. Specifically, residual plots for guilt, hostility and sadness were characterized by both non-normality and heteroscedasticity. All distributions showed a concentration of cases below the 0-point and a larger spread of residuals with ascending predicted values.

Due to patterns in the residual plots, distributions for individual negative emotions were examined. With all negative emotions, responses were clustered toward the low end of
the 5-point scale (M=1.44 to 1.78, SD=.54 to .83), indicating generally low levels of negative emotion. Although all skewness coefficients were acceptable (1.36 to 1.60), the kurtosis coefficients for negative emotions were high (guilt=2.92, hostility=2.08, sadness=1.70). To try to achieve normality, guilt, hostility and sadness were transformed. Norusis (1993) and Tabachnick and Fidell (1984) have recommended square root and logarithmic transformations with positively skewed variables. In the current research, logarithmic transformations produced preferable distributions for each variable. Specifically, skewness coefficients (.63 to .77) were lower in comparison with non-transformed or square root transformed variables. Kurtosis coefficients for guilt (.29), hostility (.01) and sadness (.47) were non-significant.

Following transformation, the data were examined once more for multivariate outliers. For guilt, two standardized residuals were greater than 3 (3.06, 3.08). One standardized residual greater than 3 was found on sadness (3.05). Subsequent Weisberg tests revealed that none of the outliers were significant on these emotions (t=3.18, 3.23 and 3.12, respectively). No standardized residuals larger than 3 were found on hostility and all Mahalanobis distance values were lower than the cutoff of 21.80. Based on this information, no further cases were deleted from the data set for final regression analysis.

Correlations for predictor variables and each criterion variable are shown in Table 11. Correlations between the two positive emotions (r=.84) and among the three negative emotions (r=.70 to r=.79) were high, indicating that the PANAS-X scales were tapping two general affective domains in this sample. With one exception, all predictor variables were significantly correlated with positive emotions at the .05 level (r=.17 to r=.34). Correlations
Table 11.

**Pearson product moment correlations among causal dimensions, goal characteristics, and discrete emotions.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ext. Control</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Locus</td>
<td>-.10</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pers. Control</td>
<td>-.07</td>
<td>.52*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Stability</td>
<td>.27*</td>
<td>.41*</td>
<td>.19*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Importance</td>
<td>-.16</td>
<td>.12</td>
<td>.22*</td>
<td>.04</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Discrepancy</td>
<td>-.03</td>
<td>.25*</td>
<td>.11</td>
<td>.19*</td>
<td>.01</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Guilt</td>
<td>-.20</td>
<td>-.05</td>
<td>-.08</td>
<td>-.30*</td>
<td>-.01</td>
<td>-.23*</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Hostility</td>
<td>-.12</td>
<td>-.01</td>
<td>-.09</td>
<td>-.19*</td>
<td>-.03</td>
<td>-.18*</td>
<td>.79*</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Sadness</td>
<td>-.13</td>
<td>.18*</td>
<td>-.01</td>
<td>-.06</td>
<td>-.05</td>
<td>-.10</td>
<td>.70*</td>
<td>.73*</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>10. Joyality</td>
<td>.19*</td>
<td>.17*</td>
<td>.34*</td>
<td>.30*</td>
<td>.27</td>
<td>.22*</td>
<td>-.46*</td>
<td>-.50*</td>
<td>.32*</td>
<td></td>
</tr>
<tr>
<td>11. Self-assurance</td>
<td>.19*</td>
<td>.15*</td>
<td>.24*</td>
<td>.32*</td>
<td>.28*</td>
<td>.21*</td>
<td>-.40*</td>
<td>-.35*</td>
<td>-.24*</td>
<td>.84*</td>
</tr>
</tbody>
</table>

Note: * Correlations > .15, p<.05 two tailed (N=132).
showed less uniformity with negative emotions. While stability, goal discrepancy and the interaction of goal characteristics were significantly correlated with both guilt and hostility ($r=.18$ to $r=.30$), only locus of causality was significantly correlated with sadness ($r=.18$). Consistent with previous research, the highest correlations between predictors were found with locus of causality and personal control ($r=.52$).

2.14.6 Testing the Models-Positive Emotions

Results for joviality are presented in Table 12. On the first step, stability was the only significant predictor, accounting for 9.3% of the variance in criterion scores. On the second step, personal control entered the equation, producing an $R^2$ change of 9.3%. Both goal importance and goal-performance discrepancy entered the equation on the third step, predicting 6.7% of the variance beyond causal attributions. The overall model predicted 25.3% of the total variance associated with joviality. Adjusted for the number of variables and sample size, the model predicted 22.3% of the variance in this emotion ($F= 9.6$, $p<.01$). Tolerance values ranged from .72 to .95, indicating that significant predictors in this equation were accounting for unique as well as shared variance. No moderator (interaction) terms entered the equation.

The regression model for self-assurance is presented in Table 13. The results were similar to those of joviality in terms of both significant predictor variables and variance predicted. On the first step, stability was the only significant predictor, accounting for 10.3% of the variance. Personal control entered the equation on the second step, predicting an additional 4.1% of the variance in self-assurance scores. On the third step, both goal
importance and goal-performance discrepancy entered the equation. These variables predicted 8.2% of the variance beyond causal attributions. The overall model accounted for 22.6% of the variance while the adjusted model predicted 19.4% of the variation in this emotion (F= 7.29, p<.01). Tolerance values ranged from .72 to .95, indicating no serious collinearity problems. No moderator (interaction) terms entered the equation.

2.14.7 Testing the Models-Negative Emotions

Regression analysis for the three negative emotions produced simpler but weaker solutions predicting less overall variance compared to the positive emotions. The model summary for guilt is shown in Table 14. Stability was again the only significant predictor on the first step, accounting for 8.4% of the variance. Goal-performance discrepancy then entered the equation and predicted an additional 5.3% of the variance. No other variables were significant. The overall model predicted 13.7% of the total variance in scores for guilt while the adjusted model accounted for 10.9% (F= 5.71, p<.05). Tolerance values (.84 and .92) were again acceptable and indicated no multicollinearity concerns.

Results for hostility are shown in Table 15. On the first step, stability entered the equation, predicting 4.5% of the variance in hostility scores. This was the only significant predictor in the model. Adjusted R² indicated that only 3.0% of the variance in this emotion was predicted by the corrected model (F=2.97, p<.06).

The regression model for sadness is presented in Table 16. The only significant predictor in the equation was locus of causality. This variable entered on the first step instead of stability and predicted 5.3% of the variance in sadness. The adjusted model
accounted for 3.8% of the variance in this emotion (F=3.53, p<.05).
Table 12

Regression analysis for joviality-Study 3

<table>
<thead>
<tr>
<th>Model</th>
<th>Predictors</th>
<th>Beta</th>
<th>$R^2$</th>
<th>$R^2$ change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Locus</td>
<td>.058</td>
<td>.093</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stability</td>
<td>.276*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Locus</td>
<td>-.134</td>
<td>.186</td>
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<td></td>
<td>Discrepancy</td>
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* p<.05
Table 13

Regression analysis for self-assurance-Study 3

<table>
<thead>
<tr>
<th>Model</th>
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<th>$R^2$</th>
<th>$R^2$ change</th>
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<td>.041*</td>
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<td>Stability</td>
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* p<.05
Table 14

Regression analysis for guilt-Study 3

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<td>Stability</td>
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<td></td>
<td>Importance</td>
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<td>Discrepancy</td>
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* p<.05
Table 15

*Regression analysis for hostility-Study 3*

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<th>$R^2$</th>
<th>$R^2$ change</th>
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</thead>
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* p<.05
Table 16

Regression analysis for sadness-Study 3

<table>
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<th>Model</th>
<th>Predictors</th>
<th>Beta</th>
<th>$R^2$</th>
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</thead>
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<td>Stability</td>
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</table>

* p<.05
2.15 Discussion

The purpose of this study was to integrate causal attributions and goal characteristics in an effort to better understand emotional experience in youth sport participants. To this end, data were collected in an individual achievement situation. Several important findings were revealed in this research. First, the level of intensity for positive emotions was much higher than that of negative emotions. A possible reason is the nature of the achievement task. The Leger test is a fitness test that requires maximal effort. It involves physical failure, high levels of discomfort and is regarded by participants with trepidation. As such, feelings of relief accompanying completion of the test may moderate any negative emotions associated with substandard performance.

Second, regression results failed to support a moderator model. In this study, a moderator model would be supported only if three-way interactions involving causal attributions and goal characteristics reached significance. No interactions of any kind were found. Instead, attributions and sometimes goal characteristics had direct effects on emotional responses. Direct effects were different across positive and negative emotions. For positive emotions, both stability and personal control were significant predictors. Only one causal predictor (either stability or locus of causality) entered the equation for negative emotions. In addition, the contribution of goal characteristics was more important for positive emotions than for negative emotions. Specifically, both goal importance and goal-performance discrepancy accounted for significant variance on joviality and self-assurance. With negative emotions, the only goal characteristic to enter an equation was goal-performance discrepancy on guilt.
Third, the results of this study failed to support theoretical links between specific causal attributions and individual emotions. Weiner (1986) has argued that each emotion has a main theoretical predictor. For happiness, it is the attainment of an achievement goal. In this study, goal-performance discrepancy was the weakest variable to enter the equation and personal control was the main causal predictor. For pride (self-assurance), the main theoretical predictor is locus of causality. Locus of causality failed to enter the equation in this study and the main causal predictor was stability. For guilt, the main theoretical predictor is personal control. With the current sample, personal control did not enter the model. The main causal predictor was stability. For anger (hostility), the main theoretical predictor is external control. In the current study, external control failed to enter the equation and stability was again the main causal predictor. Finally, the main theoretical predictor for sadness is non-attainment of an achievement goal. In this study, goal-performance discrepancy did not enter the equation and locus of causality was the main causal predictor. The attribution-emotion relationships and the incidence of stability as a primary cause are interesting results. Both may be a function of the achievement domain. Specifically, athletes may consider their fitness level, the work required to improve and the nature of the Leger evaluation and regard conditioning as a relatively stable property. Nevertheless, the results of this study suggest that the links between attributions and emotion should be explored in a variety of achievement settings.

2.16 Introduction to Study 4

The purpose of the final study was to investigate the direct effects and moderator
models during athletic competitions. While the Leger test represents a meaningful scenario because of the relevance of personal fitness to soccer, it may not be as salient to athletes as competition. This is an important consideration because goal importance is expected to influence the extent to which emotions are experienced.

In this study, the type of sport was limited to individual sports (swimming and track and field). This was done to control for possible differences in attributional reactions in individual versus team sport. Rejeski and Brawley (1983) have suggested that the nature and structure of specific sports may make certain attributions more probable than others. Individual sports such as high jumping may encourage athletes to attribute performance more often to internal causes. In contrast, a team sport such as soccer is characterized by constant interaction between teams and teammates and may foster more external attributions.

In addition to the controlling the type of sport context, one predictor variable was changed for the proposed study. Specifically, subjective outcome was included as the measure of goal-performance discrepancy. There are two reasons for including this predictor. First, most early studies in the sport attribution literature treated objective and subjective outcome as analogous. Maehr and Nicholls (1980), however, noted that objective and subjective outcome may lead to different perceptions of success or failure. For example, if an athlete played well personally, an objective loss might be regarded subjectively as a successful experience. McAuley (1985) found that attributions made by intercollegiate gymnasts were influenced more by subjective outcome than by actual score. These results suggest that relationships between attributions and perceived success may be as important
to emotion as relationships between attributions and objective goal-performance discrepancy. As a result, subjective outcome was included as the measure of goal-performance discrepancy in the final study.

There is a second reason for including subjective outcome in emotion research. Measuring objective discrepancy size presents problems in between-subject analysis. In a 100 metre sprint event, one athlete may set a goal of 11 seconds and achieve 10.8 seconds. A second athlete may set a goal of 10.8 seconds and achieve 10.6. Although the discrepancies are similar in size, equating them on this basis for research purposes is problematic. It will be more difficult to improve performance by the same amount as the level of performance improves. Therefore, the perception of subjective performance level might be more critical to emotions than the actual performance discrepancy. This information is lost if objective outcome is the only measure of goal-performance discrepancy. Furthermore, it is not possible to compare discrepancies across various sports or even within a sport. For example, how does a 1.0 metre positive discrepancy in shot-put compare to a 1.0 second positive discrepancy in a 400 metre run? Even within the same event, one athlete may evaluate performance on the basis of performance time whereas a second athlete might use final placing.

2.17 Method

2.17.1 Participants

Participants for Study 3 were 174 (84 male and 90 female) swimming and track and field athletes between the ages of 14 and 18 years (M=15.13, SD=1.08). All athletes were
members of club teams in a western Canadian city. Recruitment began by contacting club coaches by phone and providing a letter outlining the purpose of the study and the responsibilities of the researcher and participants. Following approval by coaches, meet organizers were contacted in a similar manner. Please refer to Appendix J for the introductory letter.

2.17.2 Measures

Participants were asked to complete questionnaires measuring causal attributions, goal importance and emotion in conjunction with an athletic competition. In addition, a measure of subjective outcome was taken.

2.17.2.1 Goal Importance. Goal importance was measured by the five-item goal importance scale used in the previous study.

2.17.2.2 Goal-Performance Discrepancy. A single item measure used by Vallerand (1987) was employed to assess subjective outcome. Subjects were asked to what extent they had a good or a bad performance in their athletic competition. This was scored on a 7-point scale ranging from 1 (very bad performance) to 7 (very good performance).

2.17.2.3 Causal Attributions. The CDSII was employed to measure attributions.

2.17.2.4 Emotion. Five scales from the PANAS-X were used to assess emotion in the proposed study. Scales included joviality, sadness, self-assurance, guilt and hostility.
2.17.3 Procedure

Data collection occurred at a competition for both swimming and track and field athletes. Prior to the competition, the researcher met twice with each participating team. Both meetings occurred after regularly scheduled practice sessions. The purpose of the first meeting was to explain the general nature of the study and to disseminate the cover letters and informed consent forms to the athletes. The cover letter specified a second meeting at which the consent forms would be collected. During the second meeting, the informed consent forms were collected and the data collection protocol for the meet was outlined. Finally, athletes were asked to record their name, age, gender and their most important event for the meet on their data collection packages. Upon completion of all meetings, data collection packages were organized into files by event. At this point, the researcher obtained a master schedule for the meet and each file was labeled with the name and time of the event.

Five research assistants were recruited to help with the data collection process. Each was responsible for a number of events and given the appropriate files. Their duties on the day of competition included the following. An assistant met with each team prior to the start of competition and reminded them of their research responsibilities. As part of these responsibilities, athletes were asked to muster for their event ten minutes early. At the muster point, they identified a personal goal for their chosen event and completed the goal importance scale. Immediately following competition, the athletes were called together by name. They then recorded their score for the event and the subjective measure of outcome. Completion of the PANAS-X and the CDSII followed in that order.
2.17.4 Data Analysis

The data were analyzed using the same multiple regression procedure outlined in the third study. To check for recording errors, procedures suggested by Stevens (1992) were followed. Frequencies and histograms were generated for all predictor and criterion variables. The occurrence of each data value was counted and possible errors were noted. Unexpected values were then checked against the original data. This process indicated that the data was entered conscientiously by both participants and the investigator.

Standardized residuals, Mahalanobis distance and Cook’s distance were saved as variables and examined for multivariate outliers. Any standardized residual greater than 3 was considered unusual and examined for significance using a Weisberg test. Weisberg (1980) gives critical values for the test at the .05 level. For a study with 174 participants and 11 predictors, the critical value is 3.70. Cases with a Weisberg value exceeding 3.70 were considered significant outliers and deleted from final analysis. Critical values for Mahalanobis distance are provided by Barnett and Lewis (1978). For 174 participants and 11 predictor variables, the critical value is 21.79. Any cases exceeding this value were noted and examined for influence using Cook’s distance.

For both hostility (3.05) and self-assurance (3.02), one standardized residual greater than 3 was found. Weisberg tests revealed that neither was a significant outlier (t=3.11, t=3.06, respectively). Mahalanobis distance identified one case as a consistent outlier across emotions. Mahalanobis values for this case ranged from $D^2=31.67$ to $D^2=32.49$. Cook’s distance values were all greater than 1, indicating an influential data point on each emotion. This case was subsequently dropped leaving 173 cases for final analysis on each emotion.
2.18 Results

2.18.1 Scale Descriptives and Reliabilities

Initial descriptive statistics for the goal importance scale, CDSII scales and emotion scales are presented in Table 17. The internal consistency of the goal importance scale and emotion scales were acceptable. The CDSII scales for locus of causality and stability, however, fell below the accepted level (α=.70) suggested by Nunally (1978). Consistent with earlier results, means for locus of causality (M=6.31) and personal control (M=6.35) were much higher than those of stability (M=3.31) and external control (M=3.32). Descriptives again suggest a strong incidence of internal and personally controllable causes with this sample. Goal importance scores (M=6.14, SD=.65) were high and showed little variability in the individual competitive setting. Means for positive emotions (M=2.49, 2.63) were again higher than those of negative emotions (M=1.62 to M=1.98). Average mean scores were 2.56 for positive emotions and 1.82 for negative emotions. Variability was comparable (SD=1.01 and SD=.94, respectively).

2.18.2 Gender Differences

The multivariate analysis of all variables found a significant but weak gender effect (Wilks' lambda=.887, p<.05, eta²=.11). However, follow-up univariate analysis revealed that none of the individual variables reached statistical significance. Only external control approached significance (p<.067, eta²=.02). Therefore, the data were collapsed across gender for testing of the model.
Table 17

Initial descriptive statistics for goal importance scale, CDSII scales and emotion scales.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Internal Consistency</th>
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<tr>
<td>Goal Importance (1-7)</td>
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<tr>
<td>Locus (1-9)</td>
<td>6.31</td>
<td>1.87</td>
<td>0.63</td>
</tr>
<tr>
<td>Stability (1-9)</td>
<td>3.31</td>
<td>1.84</td>
<td>0.57</td>
</tr>
<tr>
<td>Personal Control (1-9)</td>
<td>6.35</td>
<td>2.42</td>
<td>0.87</td>
</tr>
<tr>
<td>External Control (1-9)</td>
<td>3.32</td>
<td>2.09</td>
<td>0.78</td>
</tr>
<tr>
<td>Joviality (1-5)</td>
<td>2.63</td>
<td>1.11</td>
<td>0.95</td>
</tr>
<tr>
<td>Self-Assurance (1-5)</td>
<td>2.49</td>
<td>0.91</td>
<td>0.84</td>
</tr>
<tr>
<td>Sadness (1-5)</td>
<td>1.62</td>
<td>0.81</td>
<td>0.85</td>
</tr>
<tr>
<td>Hostility (1-5)</td>
<td>1.88</td>
<td>0.92</td>
<td>0.87</td>
</tr>
<tr>
<td>Guilt (1-5)</td>
<td>1.98</td>
<td>1.10</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Note: Emotion, CDSII and Goal Importance scales were corrected for number of items in each scale.

Emotion scales ranged from 1 to 5, CDSII scales ranged from 1 to 9, and the goal importance scale ranged from 1 to 7.
2.18.3 Perceived Success-Failure Differences in Attributions.

Attributional patterns were examined for those participants who perceived their performance as successful versus nonsuccessful based on the subjective measure of performance. Sixty-eight subjects perceived their performance to be unsuccessful (scores 1 to 3) whereas 93 perceived their performance as successful (scores 5 to 7). Participants with a score of 4 (neither good nor bad performance) were not included in the analysis. A MANOVA entering all four causal dimensions found a significant effect, Wilks Lambda = .890, p < .01 (eta^2 = .11). Follow-up univariate analysis found that successful performers had higher perceptions of stability, personal control, and external control. However, the overall effect size suggested that attributions were a weak predictor of success and failure conditions.

2.18.4 Preliminary Regression Analysis

Following the deletion of outliers, preliminary regression analysis was conducted on each criterion emotion and the output was examined for regression assumptions. This research again followed suggestions by Tabachnick and Fidell (1984). First, standardized residual plots were examined for multivariate violations. Second, skewness and kurtosis coefficients for individual criterion variables were examined when multivariate violations appeared. For positive emotions, the distributions showed normality, linearity and equality of variance. For negative emotions, however, a common pattern was found across distributions. Specifically, residual plots for guilt, hostility and sadness were characterized by heteroscedasticity. All distributions showed a larger spread of residuals with ascending
predicted values.

Due to patterns in the residual plots, distributions for individual negative emotions were examined. With all negative emotions, responses were nearer the low end of the 5-point response scale (M=1.62 to 1.98, SD=.81 to 1.10). All skewness coefficients, however, were acceptable (1.06 to 1.67). Kurtosis coefficients for guilt and hostility were also satisfactory (-.01 and 1.00). The kurtosis value for sadness, however, was high (2.65). To try to achieve normality in this distribution, sadness was transformed. This variable was positively skewed and both square root and logarithmic transformations were calculated. The logarithmic transformation produced the better result. Specifically, the kurtosis coefficient (.16) was lower in comparison to non-transformed or square root transformed variables with no adverse effect on skewness. Following transformation, the data were examined again for multivariate outliers. No standardized residuals greater than 3 were found on sadness and no Mahalanobis distance values exceeded the cutoff of 21.79. Based on this information, all sadness cases were retained for final analysis.

Correlations are presented in Table 18. Consistent with the results of the previous study, correlations between the two positive emotions (r=.82) and among the three negative emotions (r=.73 to r=.85) were high. The PANAS-X scales for positive emotions appear to be measuring similar constructs, as do the scales for negative emotions. Stability was the only causal dimension significantly correlated with joviality (r=.24) and self-assurance (r=.21). Subjective performance was strongly correlated with both positive emotions (r=.70 and r=.57) and negative emotions (r=.52 to r=.69). Correlations between causal predictors
Table 18

Pearson product moment correlations among causal dimensions, goal characteristics and discrete emotions

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</tr>
<tr>
<td>6. Discrepancy</td>
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<td>.15*</td>
<td>.19*</td>
<td>-.02</td>
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<td>7. Guilt</td>
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<td>.05</td>
<td>-.12</td>
<td>-.12</td>
<td>.14</td>
<td>-.69*</td>
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<tr>
<td>8. Hostility</td>
<td>-.02</td>
<td>.08</td>
<td>-.12</td>
<td>-.12</td>
<td>.10</td>
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<td>.85*</td>
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<tr>
<td>9. Sadness</td>
<td>.03</td>
<td>.05</td>
<td>-.04</td>
<td>-.04</td>
<td>.13</td>
<td>-.52*</td>
<td>.73*</td>
<td>.79*</td>
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<tr>
<td>10. Joviality</td>
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<td>.12</td>
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</tr>
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<td>11. Self-assurance</td>
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<td>.01</td>
<td>.21</td>
<td>-.02</td>
<td>.57*</td>
<td>-.49*</td>
<td>-.43*</td>
<td>-.35*</td>
<td>.82*</td>
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</table>

Note: * Correlations > .15, p<.05 two tailed (N=174).
and negative emotions were all nonsignificant. The strongest correlations among causal predictors occurred between locus of causality and personal control ($r=.62$). The only other significant relationship among causal dimensions was between stability and external control ($r=.22$).

2.18.5 Testing the Models-Positive Emotions

The regression results for joviality are presented in Table 19. On the first step, stability was the only significant predictor, accounting for 5.9% of the variance on the criterion. On the second step, personal control entered the equation, accounting for an additional 2.8% of the variance. Subjective performance entered the equation on the third step and was the dominant predictor in the equation. Specifically, this variable predicted 41.1% of the variance beyond causal attributions. The $R^2$ change, beta coefficient ($\beta=.67$) and part and partial correlation coefficients ($r=.64$ and $r=.67$, respectively) provide converging evidence for the strength of this predictor. The overall model predicted 49.8% of the variance associated with joviality. Adjusted for the number of predictors and sample size, the model showed little shrinkage (adjusted $R^2=.48$). Analysis of variance results showed highly significant linear relationships for all predictors that entered the equation ($F=28.08, p<.01$). Tolerance values ranged from .69 for personal control to .98 for stability and indicated no serious collinearity problems.

The regression model for self-assurance is presented in Table 20. The results are similar to those of joviality in terms of significant predictor variables. On the first step, stability was again the only significant predictor, accounting for 4.7% of the variance. No
significant predictors appeared on step two. On the third step, subjective performance entered the equation and predicted 28.6% of the variance beyond causal attributions. The beta weight ($\beta = .54$) and part and partial correlation coefficients (.53 and .55, respectively) indicated that subjective performance was again the main predictor in this equation. The overall model accounted for 33.3% of the variance while the adjusted model predicted 32.3% of the variance in this emotion. Results of analysis of variance showed that all linear relationships between predictors entering the equation and the criterion were highly significant ($F = 17.39$, $p < .01$). Tolerance values were .96 for subjective performance and .96 for stability.

2.18.6 Testing the Models-Negative Emotions

The first set of regression analyses for guilt and hostility produced unusual models that were confounded by multicollinearity for the attribution predictors. Specifically, neither locus of causality nor stability reached significance on the first step. Due to the nature of using forced entry on step one and step-wise on step two, both predictors remained in the equation and entered along with personal control on step two ($\beta = .24$ to $\beta = -.32$). When goal characteristics entered on the third step, all causal predictors were again non-significant for both emotions. Following examination of the output, a decision was made to exclude locus of causality and stability from the analysis after step one. The decision was made for several reasons. First, these predictors were not significant on step one for guilt and hostility. Second, correlations between causal predictors and the negative emotions in question were low ($r = -.02$ to $r = -.12$) indicating no appreciable relationship. Third,
tolerance values for locus of causality (.58) and personal control (.59) suggest multicollinearity. Although partial correlations entered the equation, the actual contribution is difficult to assess because of shared variance. Consequently, locus of causality and stability were excluded from the analysis of guilt and hostility beyond step one. The order and method of entry for other predictors remained the same.

The model summary for guilt is shown in Table 21. No predictor variable reached significance on either the first or second step. On the third step, both goal importance and subjective performance were significant and predicted 50.1% of the variance in guilt scores. The beta coefficient ($\beta = -.69$) and part and partial correlation coefficients ($r = -.69$ and $r = -.70$, respectively) indicated the primacy of subjective performance in this equation. The adjusted model accounted for 49.3% of the variance in guilt scores. For analysis of variance, F values were significant for goal characteristics (56.68, $p < .01$). Tolerance values for goal importance (.97) and subjective performance (.90) were high.

Results for hostility are shown in Table 22. On the first two steps, no predictor variable reached significance. Subjective performance entered the equation on step three and accounted for 47.0% of the variance. The beta coefficient ($\beta = -.68$) and part and partial correlations ($r = -.68$ and $r = -.68$) indicated that subjective performance was the main predictor of hostility. The corrected model predicted 46.9% of the variance. Analysis of variance results indicated that the relationship between goal characteristics and hostility was significant (F=51.30, $p < .01$). The tolerance value for subjective performance (1.00) was high.
The model summary for sadness is shown in Table 23. On the first two steps of the equation, no causal predictor reached significance. On the third step, both goal importance and subjective performance entered the equation. Together, these predictor variables accounted for 28.6% of the variance. The beta weight (β=-.53) and part and partial correlations (r=-.52 and r=.52, respectively) suggested that subjective performance was again the main predictor for this emotion. The adjusted model accounted for 28.5% of the variance in sadness responses. Analysis of variance revealed a significant F value for goal characteristics (F=14.60, p<.01). Tolerance values for goal importance and subjective performance were both high.
Table 19
Regression analysis for joviality-Study 4

<table>
<thead>
<tr>
<th>Model</th>
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<th>Beta</th>
<th>R²</th>
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<td>Stability</td>
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<td></td>
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<td></td>
<td>Pers. Control</td>
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<td></td>
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<tr>
<td>3</td>
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<td></td>
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<tr>
<td></td>
<td>Discrepancy</td>
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* p<.05
Table 20
Regression analysis for self-assurance-Study 4

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<tr>
<td></td>
<td>Stability</td>
<td>.110</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Importance</td>
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<td></td>
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<tr>
<td></td>
<td>Discrepancy</td>
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* p<.05

121
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p < .05
Table 22
Regression analysis for hostility-Study 4

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P<.05
Table 23
Regression analysis for sadness-Study 4

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<th>Predictors</th>
<th>Beta</th>
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P<.05
2.19 Discussion

The purpose of the final study was to test direct effects and moderator models involving causal attributions and goal characteristics as predictors of emotion in youth sport participants. Data were collected in individual competitive settings. Several findings were consistent with those of the third study. First, the moderator model was not supported in the final study. Significant three-way interactions involving causal attributions and goal characteristics would indicate support for the moderator model. No interactions were found in this investigation. Instead, direct effects were evident for all emotions.

For positive emotions, the effects of causal attributions were relatively consistent with those found in the third study. Specifically, stability entered the equation for both positive emotions. This finding indicates that athletes who experienced positive emotions expected success in similar situations. The other causal predictor to enter an equation was personal control for joviality. Nevertheless, causal attributions were relatively weak predictors of positive emotions. For negative emotions, no causal predictor reached significance.

Goal characteristics were significant across all emotions, with goal importance implicated in only sadness and guilt. Subjective performance accounted for a prohibitive majority of the predicted variance and was the main predictor variable for all emotions. In this study, attributions predicted limited variance in emotional responses when compared with performance appraisal. Indeed, a review of the correlations (Table 19) clearly indicates that all emotions are moderately to strongly related to subjective evaluation of performance (discrepancy).
A key finding was the lack of theoretical links between attributions and individual emotional responses. According to attribution theory, joviality (happiness) and sadness are considered general emotions. They are predicted by goal attainment and non-attainment, respectively. These relationships were supported when subjective performance was identified as the main predictor variable for general emotions. Guilt, hostility and pride are considered individual emotions and have main causal predictors. No support was found in the present study for these proposed relationships. Specifically, no causal predictors were significant for individual emotions. Instead, subjective performance accounted for the vast majority of predicted variance in individual as well as general emotions. This finding is inconsistent with attribution theory proposals.

Several findings indicate that athletes may not have experienced individual emotions in this sample. First, correlations between positive emotions and between negative emotions were strong. For positive emotions, the general emotion of joviality was highly correlated ($r=.82$) with self-assurance. For negative emotions, the general emotion of sadness was highly correlated with both guilt ($r=.73$) and hostility ($r=.79$). The strength of the correlations raise questions about the number of distinct emotional constructs and suggest that athletes may not be discriminating between related emotions. Second, subjective performance was the main predictor variable for both general and individual emotions. Theoretically, goal performance is linked to general emotions while attribution theory proposes that causal predictors should be associated with individual emotions. This association was not the case in the fourth study. In summary, the homogeneity of related emotions and the utility of subjective performance indicate that general emotions were
prevalent in this study.
Chapter 3

3.1 General Discussion

The purpose of this thesis was to integrate key theoretical elements related to causal attributions and personal goals in an effort to better understand emotion in youth sport participants. There is a consensus among cognitive psychologists that emotions are generated primarily through cognitive appraisal (Lazarus, 1991a; Weiner, 1995). The cognitive appraisal process includes the evaluation of personal and situational variables and is at the core of emotional experience. Accordingly, appraisal is a central construct in several cognitive-emotional theories. These theories include Weiner's (1986) attribution theory and the cognitive-motivational-relational theory proposed by Lazarus (1991a). Attribution theory holds that individual emotions are dependent on the perceived causes for success and failure outcomes. Some researchers and theorists, however, have argued that other appraisal factors affect emotion as well. According to Lazarus (1991a), goal importance and goal-performance discrepancy are critical to emotional experience. As antecedents of emotion, goal characteristics are not well understood in physical activity and have not been addressed in detail by attribution theorists or researchers. The current research was conducted to determine if goal characteristics predict emotion in youth sport participants beyond causal attributions.

Investigation of this research issue was contingent upon reliable and valid instrumentation. The first research objective was to construct and provide initial validation of a goal importance scale for an adolescent sporting population. Two studies were
completed in team and individual achievement situations. Factor analysis produced a unidimensional five item scale which showed satisfactory internal consistency in both investigations. The Goal Importance Scale (GIS) was significantly correlated with the Hollenbeck, Williams and Klein (1989) goal commitment scale and single items of task value and task importance used in previous sport and exercise research. Weak correlations with Martens' (1977) Sport Competition Anxiety Test supported the discriminant validity of the scale. These findings provide preliminary psychometric evidence that the GIS is better than existing measures of goal importance. Single item measures (e.g. Biddle & Hill, 1992) lack reliability and reduce the integrity and generalizability of research findings. For the purposes of this research, the GIS was also preferable to the goal commitment scale (Hollenbeck Williams & Klein, 1989). Goal commitment is considered a trait construct while goal importance is considered a state construct (Lazarus, 1991a). Studies 3 and 4 employed state measures of emotion and it was important that state measures of predictors were used as well.

The second research objective was to evaluate the model properties of the Revised Causal Dimension Scale (CDSII) in an adolescent sporting population. The initial development and validation of this instrument was conducted exclusively with adults (McAuley et al., 1992). Consequently, it was important to examine the CDSII with youth sport participants to determine if scale modifications were necessary. Data were collected in a single study following athletic competition. Based on results of confirmatory factor analysis, the CDSII was retained for use in the main investigations. Several concerns, however, were found in common with earlier research (McAuley et al., 1992). First, the
internal consistency of the stability subscale was low (α=.58). Second, high interfactor correlations between locus of causality and personal control (τ=.91) indicated that these subscales may be tapping the same construct. The implications for regression analysis have been previously outlined (pp 77-78). Specifically, multicollinearity occurs when two or more predictor variables are highly correlated. Problems include an increased standard error of the estimate and a decreased $R^2$ since correlated predictors share variance.

The third research objective was to test the theoretical relationships between specific causal dimensions and emotional responses. Weiner (1986) has argued that the main predictors of emotion include the following:

- **Happiness** (joviality)-primarily dependent on attainment of a chosen goal.
- **Pride** (self-assurance)-primarily dependent on locus of causality.
- **Sadness**-primarily dependent on nonattainment of a chosen goal.
- **Guilt**-primarily dependent on control.
- **Anger** (hostility)-primarily dependent on control.

No support for these proposed relationships was found. In study three, stability was the main predictor of self-assurance, guilt and hostility. Personal control predicted joviality while locus of causality was the main predictor of sadness. In study four, subjective performance was the dominant predictor of all emotions. Proposed linkages between goal attainment or specific attributions and different emotions were not found. Instead, results corroborate previous sport research which failed to support attribution theory relationships (Mark et al., 1984; McAuley & Duncan, 1990; Robinson & Howe, 1989: Vallerand, 1987).

The fourth research objective was to determine if goal characteristics predict
individual emotions beyond causal attributions. Because it was important to establish the specific nature of this relationship (Baron & Kenny, 1986), both direct effects and moderator models were tested. The direct effects model would be supported if both causal attributions and goal characteristics made significant contributions to emotional experience with no interaction between the two. Results supported the direct effects model. Across the two main investigations, both causal attributions and goal characteristics made significant contributions to each individual emotion. No support was found for the moderator model. Moderator effects would be supported only if interactions involving attributions and goal characteristics were significant. No interactions reached significance in either study. The findings indicate that causal attributions and goal characteristics made independent rather than shared contributions to emotion in this research.

To determine if integration was warranted, several key theoretical constructs were tested. First, the individual contributions of goal importance and goal-performance discrepancy were examined. According to Lazarus (1991a), these variables determine the direction and intensity of emotional responses. Second, Lazarus has argued that goal characteristics interact to influence emotional experience and, thus, it was necessary to test the interaction. Accordingly, goal characteristics were entered individually on the third step of the analysis while the two-way interaction term was entered on the fourth step. Across the main studies, goal importance was an ineffectual and inconsistent predictor of emotion. In the third study, it predicted positive emotions only. Explained variance was low ($R^2=.067$ to $.082$, $\beta=.20$ to $.25$) as were simple correlations with joviality and self-assurance ($r=.27$ and $r=.28$, respectively). In the fourth investigation, goal importance predicted negative

131
emotions only. Although goal characteristics accounted for a large portion of the variance in guilt, hostility and sadness, goal importance was a weak predictor in comparison to subjective performance ($\beta=.09$ to $.13$). Simple correlations between goal importance and negative emotions were low ($r=.10$ to $r=.14$).

A possible reason for the limited utility of goal importance was low variability in goal importance scores. Participants in the two main investigations were involved in either athletic competition or testing that was an instrumental part of their athletic preparation. With few exceptions, athletes in both achievement situations felt their personal goals were important. Means were high ($M=6.07$, 6.14) and standard deviations were low ($SD=.069$, .065) for studies three and four, respectively. For the purpose of analysis, the restricted variance presents a problem. According to DeVellis (1991), a variable will act effectively as a constant if the range of scale scores is sufficiently truncated. Consequently, the variable will correlate poorly with other variables in an analysis. Not surprisingly, correlations between goal importance and individual emotional responses were low across the main investigations ($r=.02$ to $r=.28$). Multiple regression is a correlational analysis and the lack of variance in goal importance scores may explain the poor performance of this predictor.

The most striking finding in the current research was the relative contributions of objective and subjective goal discrepancy. In the third study, objective discrepancy accounted for significant but modest variance for the emotions of joviality, self-assurance and guilt. In the fourth study, subjective performance was the dominant predictor of all five emotions. The latter finding is consistent with results of earlier sport attribution research (McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987) indicating that
subjective performance accounted for the majority of variance in both general and individual emotions. Results do not support the attribution theory position that outcome appraisal is associated with general emotions only. Results of the fourth study suggest that each emotion depended on subjective performance appraisal to the virtual exclusion of other considerations. For positive emotions, attributions explained little variance in comparison with a more important subjective appraisal process. For negative emotions, attributions made no significant contribution beyond subjective performance.

Earlier research (Maehr & Nicholls, 1980; McAuley, 1985) indicated that objective and subjective measures of outcome lead to different interpretations of success and failure. This appears to have been the case in the current research. Objective measures assume that athletes regulate only to an identified performance standard. This method ignores the possibility that other salient goals are appraised. In the Leger test situation, for instance, athletes may regulate to their own performance goal, their performance relative to others and the superordinate goal of making the team. Thus, both performance and ego related goals may be involved. While objective measures of outcome reflect a single performance goal, subjective measures reflect the more global concept of multiple goals.

The current research provides tentative evidence that relations between attributions and subjective outcome may predict positive and negative emotions better than relations between attributions and objective outcome. This result extends earlier research by Biddle and Hill (1992) indicating that subjective outcome was the main predictor of positive emotions only. Given the present research design, however, this point should be interpreted with caution. Conceivably, differences in achievement situations or sample characteristics

133
rather than measures of outcome could account for the change in predicted variance across investigations. Unfortunately, neither the third nor fourth studies contained statistically useful measures of both objective and subjective goal discrepancy. Consequently, no direct comparison was possible. Future research on emotion in sport should include both measures to determine the main predictor variable in different achievement settings.

The interaction of goal importance and goal-performance discrepancy was not supported. Cognitive-motivational-relational theory proposes that the two factors interact so that emotional experience is a function of achieving or failing to achieve important individual goals (Lazarus, 1991a). In regression analysis, a two-way interaction indicates that the regression on each predictor varies as a function of the other predictor (Aiken & West, 1991). No two-way interactions involving goal characteristics appeared in the main investigations. Instead, goal importance and goal-performance discrepancy showed independent effects on emotional responses.

In addition to goal characteristics, it was necessary to test the role of causal attributions. Attribution theory proposes two main types of emotion. Outcome-dependent emotions are general positive or negative states. These are expected as a result of achievement success or failure. Attribution-dependent or individual emotions are expected after the cause for success or failure is evaluated. In the current research, the effects of causal attributions on emotion varied across the main investigations. In the third study, attributions significantly predicted all five emotions. With the introduction of subjective performance in the fourth study, the role of attributions was less impressive. Although attributions significantly predicted positive emotions in this situation, they made no
contribution to negative emotions. Nevertheless, the overall results corroborate earlier evidence (McAuley & Duncan, 1990; Robinson & Howe, 1989; Vallerand, 1987) that attributions are involved in general emotions (such as happiness and sadness) as well as individual emotions (such as pride, guilt and anger). This indicates that both attributions and goal discrepancy are contributors across a range of emotional experience.

Several conceptual and measurement issues arose during the current research. The main issue was whether the context of the research was appropriate for testing the integrated model. In the integrated model, three conditions are considered necessary for emotional experience. Specifically, the presence of goal importance, goal-performance discrepancy and causal attributions were needed to properly test the model. The achievement situations had to be appropriate enough and the measurement instruments sensitive enough to allow expression of these factors in youth sport participants.

First, importance or personal significance was considered a necessary condition of emotion. Lazarus (1991a) has maintained that goal importance influences emotional intensity. Although participants obviously felt that the achievement situations were important, the variance in goal importance scores was clearly limited. There are several potential reasons for this. One possibility is that all athletic goals are important to athletes. In addition to personal improvement, inherent ego involvement and social evaluation may make a range of athletic goals salient (Burton, 1992). Another possible reason for the restricted variance was the sensitivity of the scale itself. While the internal consistency, content validity and construct validity of the scale appeared solid, the instructions may need to be changed. Currently, the instructions ask participants to compare goal importance to
their most important goals in sport. A likely result is that the importance of current goals will be compared only to the importance of other current goals. The importance of past goals may not be included as a basis for comparison. To encourage more variability in the future, participants should be asked to compare current goal importance to their most important goal ever in sport. As previously mentioned, goal importance might contribute more to emotional responses if the range of associated scores was higher. The current results should not be taken as evidence that goal importance is not critical to emotion. Because goal importance scores were consistently high, however, it did not explain emotion in this research.

Second, discrepancy between personal goals and performance was considered a necessary condition of emotion. According to Lazarus (1991a), goal discrepancy affects both the direction and intensity of emotional responses. In the main investigations, discrepancy between personal goals and objective or subjective performance showed reasonable variability. Third, Weiner (1985) has argued that attributions determine the type of emotion, so a range of causal attributions was needed to adequately test the integrated model. All causal dimensions were represented and variability was adequate across CDSII subscales. Although the locus and stability subscales showed questionable internal consistency, the results of confirmatory factor analysis supported the overall model. This indicates that the CDSII is suitable for use with young athletes.

A final issue concerns measurement of the emotions examined in this research. Across investigations, means (M=1.44 to 1.98) and standard deviations (SD=.81 to 1.10) for negative emotions were much lower than those for positive emotions (M=2.49 to 2.63,
SD=0.91 to 1.20). The reasons for the lower incidence of negative emotions are unclear. In study three, it was speculated that feelings of relief following completion of the Leger test might compromise the expression of negative emotions. In the fourth study, however, means for negative emotions were also relatively low. Another potential reason for low levels of emotion is measurement timing. In this research, assessment of emotions occurred after the achievement task. This method has several inherent limitations. First, there is no assurance ahead of time that athletes will experience the emotions of interest. The emotions under investigation may simply fail to appear. Second, emotions are complex states of limited duration (Lazarus, 1991a). As such, it is possible that emotions generated during the event could disappear before the measurement instrument is applied. These concerns raise questions about whether participants should be asked to rate emotion post-event or recall critical events that produced the emotions of interest. Several sport studies have measured affective states after a specific event (McAuley & Duncan, 1989, 1990; Vallerand, 1987; Vlachopoulos et al., 1996) or after longer-term exercise and sport involvement (McAuley, 1991; Robinson & Howe, 1989). To this point, however, few studies have used critical event recall to examine emotion in sport. Although the limitations of retrospective introspection have been documented (Rejeski & Brawley, 1983), this method may help produce a consistent range of emotional responses in future research.
Chapter 4

4.1 Summary and Conclusions

This research project integrated key elements from two contemporary theories in an effort to better understand emotional experience in youth sport participants. Specifically, the research examined the contribution of causal attributions, goal importance and goal-performance discrepancy in predicting individual post-event emotions. The thesis included a series of four studies. Two preliminary studies addressed the initial development and validation of instruments (pp. 43-76). The third study involved 132 youth soccer players in a training situation. Attributions, goal importance, objective goal discrepancy and five emotions were measured. The fourth study involved 174 swimming and track and field athletes in a competitive setting. In this investigation, subjective rather than objective goal discrepancy was assessed while other measures remained the same. There were two main research objectives associated with the third and fourth studies. The first main objective was to test the theoretical relationships between specific causal dimensions and emotional responses. The second main objective was to determine if goal characteristics predict individual emotions in adolescent sport beyond causal attributions.

With respect to these research objectives, results showed general consistency across studies. First, no support was found for theoretical links between specific attributions and individual emotions. For each emotion, main predictors were different than those proposed by Weiner (1985, 1986). This finding supports inconsistent attribution-emotion relationships found in previous sport research (McAuley & Duncan, 1990; Vallerand,
1987). Second, data from both investigations supported a direct effects model. Specifically, both attributions and goal characteristics predicted emotional experience. No interactions were found in support of the moderator model. While the direct effects model was consistent across studies, the main predictors of emotion were not. In the third study, causal dimensions explained limited variance but were the main predictors of emotion. In study four, subjective performance was the dominant predictor, explaining up to 50% of the variance in emotional responses. Causal dimensions assumed a secondary role and, in the case of negative emotions, were not significant contributors.

4.2 Recommendations

Future research should further examine research issues associated with causal attributions, goal characteristics and emotion in sport. First, the measurement of causal attributions must be addressed. Low internal consistency and high correlations between subscales present conceptual and analytical problems. Second, goal importance, requires more research attention as an emotion-related construct. The GIS was developed and validated out of necessity. Lazarus (1991a) has indicated that popular trait measures describe personal characteristics, not persons adapting to their world. Consequently, suitable measures of the changing personal and environmental factors responsible for emotion are required. According to Lazarus, researchers wishing to study emotion as a process should start by creating measures of these system variables. A related issue concerns the range of goal importance scores. Although properties of the GIS were satisfactory, goal importance scores were high and showed consistently low variability. This
may have compromised the findings of the current research. Specifically, significant interactions are possible only when the predictors involved are correlated at least moderately with the criterion (Aiken & West, 1991). In the current research, correlations between goal importance and criterion emotions were low (r = -.02 to .28) and the range of importance scores may have been a primary reason. As indicated earlier, different instructions may provide a solution to this concern. However, further research must be conducted with different achievement situations and samples to determine the sensitivity of the scale.

Third, future research should employ objective and subjective goal discrepancy measures in the same investigations. This was not done in the current series of studies. Instead, objective discrepancy was assessed in one study and subjective discrepancy was assessed in another. Given differences in achievement situations and samples, the relative contribution of each form of goal discrepancy to emotion remains in doubt. Although both objective and subjective discrepancy have been used in past research (Biddle & Hill, 1992), measures were questionable in terms of reliability. Consequently, the results of this investigation should be interpreted cautiously as well. In summary, both objective and subjective discrepancy should be incorporated along with reliable and valid measures of importance and attributions in an effort to better understand the main antecedents of sport emotion.

Emotion is a complex process. Because many variables in this process are interdependent, investigators have been encouraged to consider them together. According to Lazarus (1991a), ideal research on emotion would involve measurement of all or most of
the relevant variables. A barrier to research of this scope is the lack of a comprehensive theory of emotion applicable to sport. Recently, the joint use of theory has been advocated as a means of examining complex phenomena in physical activity (Crocker & Graham, 1995; Rodgers & Brawley, 1993). The purpose of the current research was to integrate key aspects of attribution theory and cognitive-motivational-relational theory in an effort to better understand emotion in sport. It should be emphasized that not all relevant variables were assessed. Coping, for instance, is a central appraisal variable in cognitive-motivational-relational theory. Coping has two main regulating functions. First, it may be used to change the situation responsible for an emotion. Second, it may be aimed at managing the emotion itself. To understand the emotion process and its interdependencies more completely, future research should continue to address theoretical constructs.
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142


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Appendix A

Glossary of Terms
Glossary of Terms

Emotion:
Complex psychophysiological states characterized by relatively short duration, cognitive appraisal, distinctive physiological patterns, subjective feeling and facial or bodily expression.

Appraisal:
Individual evaluation of events that involve the person and the environment.

Goal Importance:
The extent to which personal goals are significant in an achievement situation.

Objective Goal-Performance Discrepancy:
The difference between personal goals in an achievement situation and subsequent outcome or performance.

Subjective Goal-Performance Discrepancy:
The perception of how successful or unsuccessful a performance has been. Subjective performance may involve the appraisal of goals other than objective outcome.

Causal Attributions:
Causes used to explain achievement outcomes. Common attributions include ability, effort, task difficulty and luck.

Causal Dimensions:
General categories for classifying causal attributions. Causal dimensions include locus of causality, stability and controllability.

General (Attribution-Independent) Emotions:
Emotions experienced in response to success or failure outcomes. General emotions include happiness and sadness.

Individual (Attribution-Dependent) Emotions:
Emotions experienced in response to attributions made for success or failure outcomes. Individual emotions include pride, guilt and anger.

Direct Effects:
The independent effects of two or more predictor variables on a criterion. Direct effects involve no interaction among predictors.
Moderator Effects:
The joint effects of two or more predictor variables on a criterion. Moderator effects involve an interaction among predictor variables.
Appendix B

Expert Evaluation of Preliminary Goal Importance Scale Items
Dear:

My name is Tom Graham and I'm a doctoral student with Peter Crocker at the University of Saskatchewan. My thesis will address the role of attributions and goal characteristics in emotion in physical activity. A necessary hurdle is the development of a scale measuring goal importance in this domain. Thus far, the construct has been defined and a pool of items has been generated. The next step is to have the initial item pool reviewed by experts in the area. I hope that you'll be able to assist in this part of the process.

If you're agreeable, I would ask you to evaluate the items and offer suggestions with the following questions in mind. First, how relevant do you think each item is to the construct of goal importance as stated? Second, how is the clarity and conciseness of the items? For your information on this point, the participants will be 14-18 year old athletes involved in soccer, swimming and track and field. Finally, are there additional ways of tapping goal importance that are not included in the current list of items?

I would like to begin a pilot test of this scale as soon as possible. If you could direct your feedback to me at the address or fax number below by the end of the first week in October, I'd appreciate it very much. Thank you in advance for your assistance.

Sincerely,

Tom Graham
(306) 966-6498 (O)
(email) graham@sask.usask.ca
Please read all of the items carefully to get an idea of the themes for assessing goal importance in each statement.

1) Something important to me is happening in this performance situation.
2) The ambition I feel toward reaching this goal is very weak.
3) This performance situation touches upon my personal concerns.
4) My will to reach my goal in this performance situation is not very strong.
5) I am strongly committed to pursuing this performance goal.
6) Quite frankly, I don’t care if I achieve this goal or not.
7) I am willing to put forth a great deal of effort to achieve this goal.
8) This performance situation has nothing to do with my important personal goals.
9) The goal I have chosen in this performance situation is very important to me.
10) My goal in this performance situation is not very important to me.
11) This performance situation is relevant to my important personal goals.
12) There is not much to be gained by trying to achieve this goal.
13) I am enthusiastic about achieving my goal in this situation.
14) It wouldn’t take much to make me abandon this performance goal.
15) I am determined to reach my goal in this performance situation.
16) This performance situation is totally irrelevant to my concerns.
17) I fully intend to achieve my goal in this situation.
18) I don’t care at all about what is happening here.

NOW THAT YOU ARE FAMILIAR WITH THE ITEMS, PLEASE COMPLETE THE REMAINING PAGES.
The definition of the construct of goal importance is “The extent to which a situation touches on personal goals – that is, whether or not there are issues in the situation about which the person cares or in which there is a personal stake.”

Please indicate (by circling one option on each five-point scale) how well you feel the 18 items reflect this construct. Judge each item solely on the basis of the match between its content and the definition of goal importance provided above. If you have any comments about the content, clarity, conciseness or wording of the items, please record them in the spaces provided. Recognize that there are no right or wrong answers and that all your responses are extremely valuable.

<table>
<thead>
<tr>
<th>Item 1</th>
<th>“Something important to me is happening in this performance situation.”</th>
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<tbody>
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Comments:

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<tr>
<td>Match</td>
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Comments:
Item 4
"My will to reach my goal in this performance situation is not very strong."

| Poor Match | Fair Match | Good Match | Very Good Match | Excellent Match |

Comments:

Item 5
"I am strongly committed to pursuing this performance goal."

| Poor Match | Fair Match | Good Match | Very Good Match | Excellent Match |

Comments:

Item 6
"Quite frankly, I don’t care if I achieve this goal or not."

| Poor Match | Fair Match | Good Match | Very Good Match | Excellent Match |

Comments:

Item 7
"I am willing to put forth a great deal of effort to achieve this goal."

| Poor Match | Fair Match | Good Match | Very Good Match | Excellent Match |

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### Item 16

"This performance situation is totally irrelevant to my concerns."

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Comments:

### Item 17

"I fully intend to achieve my goal in this situation."

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Comments:

### Item 18

"I don’t care at all about what is happening here."

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Comments:
Expert Feedback on Preliminary Goal Importance Items

The definition of the construct of goal importance is "The extent to which a situation touches on personal goals—that is, whether or not there are issues in the situation about which the person cares or in which there is a personal stake."

Item 1
"Something important to me is happening in this performance situation."

Degree of match:
Good, excellent, excellent

Comments:
"High match as item and criterion both pertain to valuation or importance."

Item 2
"The ambition I feel toward reaching this goal is very weak."

Degree of match:
Poor, good, fair

Comments:
"I'm not sure "ambition" is the right word here. Not a term likely to be used by young athletes in this context."
"Lower match as item 2 pertains to behavioural action (motivation to pursue a goal) while the criterion pertains to valuation/importance."

Item 3
"This performance situation touches upon my personal concerns."

Degree of match:
Fair, very good, excellent

Comments:
"The use of the term "performance situation" makes it difficult to rate this item. Do you plan to describe particular scenarios with a heavy goal orientation or, if not, what does this "performance situation" imply? Equally, what are "personal concerns"?"
"Personal concerns" need to be made more explicit."
Item 4
"My will to reach my goal in this performance situation is not very strong."

Degree of match:
Fair, good, good

Comments:
"I think it may be too delimiting to assume than an individual has only one goal in any given situation."
"Perhaps substitute the term “commitment” for “will” and delete the term “performance”.

Item 5
"I am strongly committed to pursuing this performance goal."

Degree of match:
Fair, very good, excellent

Comments:
"The relationship to the definition of goal importance is not clear. Is it possible to be committed to something in which there is little personal stake?"

Item 6
"Quite frankly, I don’t care if I achieve this goal or not."

Degree of match:
Very good, very good, excellent

Comments:
"Why quite frankly? Not sure what it adds other than excess baggage which you don’t want or need."
"Potential conflict/confusion in goal reference. What does “this goal” refer to? It is different from “touches on personal goals” or “personal concerns”. The various stimulus objects for the questionnaire may be somewhat problematic. They vary in their degree of correspondence to the definition of goal importance."

Item 7
"I am willing to put forth a great deal of effort to achieve this goal."

Degree of match:
Fair, good, very good

Item 8
"This performance situation has nothing to do with my important personal goals."

Degree of match:
Fair, very good, very good

Comments:
"Again, the concern for me is "what is this performance situation?"
"Sometimes you use goals, sometimes other terms such as concerns. Are they intended to be the same things?"

Item 9
"The goal I have chosen in this performance situation is very important to me."

Degree of match:
Very good, very good, excellent

Comments:
"Sometimes it’s goal, other times it’s goals. Does this create problems?"

Item 10
"My goal in this performance situation is not very important to me."

Degree of match:
Fair, good, excellent

Comments:
"Not sure you need to use the term “performance” in these items if the questionnaires are administered in a performance situation."

Item 11
"This performance situation is relevant to my important personal goals."

Degree of match:
Fair, fair, excellent

Comments:
The term “personal goals” needs to be clarified.”
“Don’t like the word “relevant” but don’t have a good alternative.”

Item 12
“There is not much to be gained by trying to achieve this goal.”
Degree of match:
Fair, fair, good
Comments:
“Although there may be significant gains for someone, these gains may not be relevant to the individuals’ goals.”

Item 13
“I am enthusiastic about achieving my goal in this activity.”
Degree of match:
Fair, very good, excellent
Comments:
Not sure “enthusiastic” captures what you are after.”

Item 14
“It wouldn’t take much to make me abandon this performance goal.”
Degree of match:
Good, good, good
Comments:
Substitute “give up on” for “abandon”.

Item 15
“I am determined to reach my goal in this performance situation.”
Degree of match:
Fair, very good, excellent
Item 16
“This performance situation is totally irrelevant to my concerns.”

Degree of match:
Poor, fair, excellent

Comments:
“Again, not sure how this would be interpreted by the participant.”
“Don’t like the terms “irrelevant” and “concerns”.
“You seem to be assuming that athletes consciously identify things such as personal concerns. I’m not so sure.”

Item 17
“I fully intend to achieve my goal in this situation.”

Degree of match:
Poor, good, good

Comments:
“Goal attainment is influenced by other factors as well as goal importance.”
“This looks more like a confidence question.”
“As it stands, there seems to be some confusion as to whether it is one goal, multiple goals, personal goals, athletic goals etc. This may cause confusion in interpreting the results.”

Item 18
“I don’t care at all about what is happening here.”

Degree of match:
Poor, poor, good

Comments:
“No specific reference to goals.”
“Too vague as subjects may not be thinking of goal importance.”
“Relevance to goal importance unclear.”
Appendix D

Interview Guide for Goal Importance Scale
Goal Importance Interview Guide

Hypothetical situation: (read by all athletes participating in the interview)

Athletes often set goals for sport and physical activity. Imagine that, in a few minutes, you will be participating in a field test. This test is part of your training program and is an evaluation of fitness or conditioning for your sport.

Item 1
“I am committed to pursuing my goals in this situation.”

a) What does this statement mean to you?

b) What does the term “committed” mean to you in this statement?

c) What does the phrase “pursuing my goals” mean to you?

d) What does the term “goals” mean to you?

Item 2
“I am confident I can meet the challenge in this situation.”

a) What does this statement mean to you?

b) What does the term “confident” refer to?

c) What does the phrase “meet the challenge” mean to you?

Item 3
“This situation has nothing to do with my important goals.”

a) What does this statement mean to you?

b) What does “important goals” mean to you in this statement?

Item 4
“I am a good sport when I compete.”

a) What does this statement mean to you?

b) What does the phrase “I am a good sport” mean to you?

c) What does the term “compete” mean to you?

Item 5
“I am enthusiastic about achieving my goals in this situation.”

a) What does this statement mean to you?
b) What does the term “enthusiastic” mean to you?

c) What does the phrase “achieving my goals” mean to you?

Item 6
"Before I compete I am calm."

a) What does this statement mean to you?

b) What does the term “calm” mean to you?

Item 7
"I feel at ease about this situation."

a) What does this statement mean to you?

b) What does the phrase “I feel at ease” mean to you?

Item 8
"The goals I have chosen in this situation are important to me."

a) What does this statement mean to you?

b) What does the term “important” mean to you in this statement?

Item 9
"I am determined to reach my goals in this situation."

a) What does this statement mean to you?

b) What does the term “determined” mean to you in this statement?

c) What does the phrase “reach my goals” mean to you?

Item 10
"My goals in this situation are not important to me."

a) What does this statement mean to you?

Item 11
"Something important to me is at stake in this situation."

a) What does this statement mean to you?

b) What does the phrase “something important is at stake” mean to you?

Item 12
"I have self-doubts about this situation."
a) What does this statement mean to you?

b) What does the term “self-doubts mean to you?

**Item 13**  “This situation touches upon my important goals.”

a) What does this statement mean to you?

b) What does the phrase “touches upon my important goals mean to you?

**Item 14**  “I could easily give up on my goals in this situation.”

a) What does this statement mean to you?

b) What does the phrase “give up on my goals” mean to you?

**Item 15**  “Before I compete, I worry about not performing well.”

a) What does this statement mean to you?

b) What does the phrase “worry about not performing well” mean to you?
Appendix E

Draft Letter to Sport Organizations
Dear:

Thank you for your receptivity over the phone the other day. As per our conversation, I would like to outline my Ph.D thesis for your information.

The research will examine the contributions of goals and the perceived causes for reaching or not reaching goals to emotion in youth sport. Ultimately, a group of 14-18 year old athletes will complete a number of questionnaires to determine what these contributions are.

Two of the questionnaires need to be tested in a sport setting. If you are agreeable, I would ask a number of your athletes to complete one of the questionnaires before competition and the other questionnaire following the game. Each questionnaire contains about fifteen items and takes about five minutes to complete. I would administer these instruments to approximately 12 of your teams in the 14-18 year old age range. Each athlete would be asked to complete the questionnaires once.

If you agree to participate, please be assured that consent forms will be completed by the athletes prior to their involvement. In addition, the results of the study will be sent directly to you on completion.

I hope that this letter provides you with the necessary information. I will contact you by phone shortly to address any questions you might have. Thank you for considering this request.

Sincerely,

Tom Graham, M.Sc.
Home Phone: 343-8071
Office Phone: 966-6498
Email: Graham@sask.usask.ca
Appendix F

Cover Letter and Volunteer Consent Form
Draft Consent Form for Preliminary Study

Researchers: Tom Graham, M.S. Peter Crocker, Ph.D

We are conducting a study on emotion in youth sport and physical activity. Emotion has been identified as an important factor in this area. Positive emotions have been associated with the enjoyment of exercise and participation in youth sport programs. Negative emotions often result in decreased performance and avoidance of competition.

Specifically, the present study will address the influence of goals and the causes for reaching or not reaching these goals on emotion in physical activity. Its procedures have been approved by the University of Saskatchewan advisory committee on ethics in human experimentation.

Two of the questionnaires that will be used in this study need to be tested in a sport setting. We would like you to approve the participation of your child in this portion of the research. If you are agreeable, your child will be asked to complete the questionnaires in conjunction with one of their athletic competitions. Questionnaires measuring goal importance and the causes for reaching or not reaching personal goals will need to be completed. These measures take about five minutes each to complete. Your child would be asked to participate in this procedure once.

The purpose of this study will be clearly explained to your child. All information will remain confidential. That is, no person outside the research team will be able to identify your child's data. The findings of this project will be made available to you at your request upon completion.

Your consent is necessary before your child can participate in the study. He or she may withdraw from the study after this consent form has been completed. There will be absolutely no penalty for doing so. Thank you for your cooperation. If you have any questions at any time, please do not hesitate to contact me at my office or home.

Yours sincerely,

Tom Graham
Home Phone: 652-1172
Office Phone: 966-6498
CONSENT FORM

My signature on this sheet will allow my child, ________, to participate in a study by Thomas Graham and Peter Crocker on **The Contribution of Goal Characteristics and Causal Attributions to Emotional Experience in Youth Sport Participants.**

It indicates that I understand the following:

1. My child is a volunteer and can withdraw at any time from the study without any fear of penalty.

2. I have received explanations about the nature of the study, its purpose and procedures.

3. There is no risk of physical or psychological harm.

4. The individual data my child provides will remain confidential from sources outside of the study.

5. I will receive a summary of the project, upon request, following the completion of the project.

PARENT'S SIGNATURE _____________

CHILD'S SIGNATURE _____________

DATE

178
Appendix G

Interview Guide for Revised Causal Dimension Scale
Interview Guide for Revised Causal Dimension Scale

Each item is prefixed by the phrase “Is the cause something (that is)…”

**Item 1**
“That reflects an aspect of yourself / reflects an aspect of the situation.”

a) What does this question mean to you?

b) What does the phrase “reflects an aspect of yourself refer to?”

c) What does the phrase “reflects an aspect of the situation” mean to you?

**Item 2**
“Manageable by you / not manageable by you.”

a) What does this question mean to you?

b) What does the phrase “manageable by you” refer to?

**Item 3**
“Permanent / temporary.”

a) What does this question mean to you?

b) What do the terms “permanent” and “temporary” mean to you?

**Item 4**
“You can regulate / you cannot regulate.”

a) What does this question mean to you?

b) What does the term “regulate” mean to you?

**Item 5**
“Over which others have control / over which others have no control.”

a) What does this question mean to you?

b) What does the term “control” mean to you.

**Item 6**
“Inside of you / outside of you.”

a) What does this question mean to you.

b) What do “inside” and “outside” of you refer to?

**Item 7**
“Stable over time / variable over time.”
a) What does this question mean to you?

b) What do "stable" and "variable" over time mean to you?

Item 8 "Under the power of other people / not under the power of other people."

a) What does this question mean to you?

b) What does the phrase "under the power of other people" mean to you?

Item 9 "Something about you / something about others."

a) What does this question mean to you?

b) What does the phrase "something about you" refer to?

Item 10 "Over which you have power/ over which you have no power."

a) What does this question mean to you?

b) What does the phrase "over which you have power" mean to you?

Item 11 "Unchangeable / changeable."

a) What does this question mean to you?

b) What does the term "unchangeable" mean to you?

Item 12 "Other people can regulate / other people cannot regulate."

a) What does this question mean to you?

b) What does the term "regulate" mean to you?

Additional Items

Item 13 "Stays the same over time / does not stay the same over time."

a) What does this question mean to you?

b) What does the phrase "stays the same over time" mean to you?
Item 14  "You can control / you cannot control."

a) What does this question mean to you?

b) What does the term "control" mean to you?

Item 15  "Other people can manage / other people cannot manage."

a) What does this question mean to you?

b) What does the term "manage" mean to you?

Item 16  "Part of you / not part of you."

a) What does this question mean to you?

b) What does the phrase "part of you" refer to?
Appendix H

Draft Letter to Sport Organization
Draft Letter to Provincial Soccer Coordinator

Dear:

With respect to our conversation last week thank you for considering the involvement of your winter training program athletes in my doctoral research. Hopefully, this letter will provide the information you'll need to make your decision.

The project will be entitled "The Contribution of Goal Characteristics and Causal Attributes to Emotional Experience in Youth Sport Participants." Briefly, it will examine the role of goal importance, goal-performance discrepancy and the perceived causes for success and failure in activity-related emotion. The study will be done under the direction of Dr. Peter Crocker from the College of Physical Education.

If you decide to become involved, the idea is to make the relationship mutually beneficial. The specifics are as follows:

1) We would like to begin running Leger tests free of charge in early January. Each player would have a single exposure to the test and this would provide the fitness information you've paid for in the past. We can run about fifteen players at a time and would like to test all your winter training athletes.

2) In return, athletes would complete three paper and pencil scales in conjunction with the test. The first is a goal importance scale which I'm validating now. The second instrument is the Causal Dimension Scale which will measure the causes behind reaching or not reaching personal goals on the Leger test. The final scale is the Positive and Negative Affect Schedule. This will measure the emotions that the athletes experience following the Leger test. I expect that the scales will take about fifteen minutes to complete in total.

I'll leave this letter with you until early December. At that time, I will contact you by phone and try to answer any questions that you might have. Thank you again for considering this request.

Yours sincerely,

Tom Graham
(H) 652-1172  (O) 966-6498
Appendix I

Positive Affect Negative Affect Schedule-Expanded Form
The Positive and Negative Affect Schedule-Expanded Form

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent you feel this way following the Leger test you've just completed. Use the following scale to record your answers.

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Appendix J

Draft Letter to Sport Organization
Draft Letter to Sport Organizations

Dear:

With respect to our conversation last week, thank you for considering the involvement of your athletes in my doctoral research. Hopefully, this letter will provide you with the information you'll need to make your decision.

The project will be entitled "The Contribution of Goal Characteristics and Causal Attributions to Emotional Experience in Youth Sport Participants." Briefly, it will examine the role of goal characteristics and the perceived causes for success and failure in activity-related emotion. The study will be done under the direction of Dr. Peter Crocker from the College of Physical Education.

If you are agreeable, your athletes will be asked to complete several questionnaires in conjunction with a regularly scheduled swimming (track and field) meet. These questionnaires are part of the study and are completely voluntary. They include measures of emotion, the types of goals that are set, goal importance and the causes for reaching or not reaching goals during competition. Each questionnaire takes about five minutes to complete. Two will be administered before competition and two will be completed immediately following competition.

The purpose of the study will be clearly explained to your athletes before the competition date. As well, all information will remain confidential. That is, no person outside the research team will be able to identify your athletes' data. Please be advised that the results of this study will be published in a Ph.D thesis and, perhaps, in academic journals. The findings of this project will be made available to you at your request upon completion.

Thank you for considering this request. If you have any questions at any time, please do not hesitate to call me at my office or at home.

Yours sincerely,

Tom Graham
Home Phone: 652-1172
Office Phone: 966-6498