ABSTRACT

Predicting the use of Aggressive Behaviour Among Canadian Amateur Hockey Players: A Psychosocial Examination

CHRIS J. GEE
Doctor of Philosophy, 2010
Department of Exercise Sciences, University of Toronto

In the wake of 21 year old Don Sanderson’s death (January 1st, 2009), the direct result of head injuries sustained during an on-ice hockey fight, the social and political appetite for eliminating violence in amateur hockey appears to be at an all time high. Unfortunately, due to a variety of methodological and conceptual limitations previous research is currently unable to provide a unified and valid explanation for sport-specific aggression (Kirker, Tenenbaum, & Mattson, 2000). One of the primary impediments facing our understanding of sport-specific aggression is the descriptive and fragmented nature of the current body of literature. Over the years a number of independent lines of research have been undertaken, through which several psychological and social factors have been identified as potential determinants. However, in many cases these constructs have yet to be tested against athletes’ actual aggressive behaviour in sport and thus their predictive contribution to our understanding is still unknown. Consequently, the purpose of the current investigation was to assess the predictive influence of several commonly cited psychosocial constructs on amateur hockey players actual within-competition use of aggressive behaviour over a competitive season. A trait aggressive personality disposition emerged as the strongest and most stable predictor of athletes’ aggressive behaviour, accounting for 10 – 40% of the statistical variance depending upon the age and competitive level of the athletes under investigation. Differences in the overt expression
of the this trait aggressive disposition between age cohorts (bantam / midget) and
competitive levels (house league / rep) suggests that environmental and contextual factors
also play a significant role in facilitating or repressing athletes’ aggressive behaviour. As
such, the results of the current study support an interactive explanation for hockey-related
aggression, whereby situational (e.g., team norms, perceived reinforcement) and personal
factors (e.g., trait aggressive disposition, ego orientation) interact to either increase or
decrease an athlete’s likelihood for committing aggressive penalty infractions over a
competitive season. The current results are plotted and discussed within the parameters of
Anderson and Bushman’s (2002) General Aggression Model (GAM), which is a
frequently cited interactionist framework used in the broader study of human aggression.
ACKNOWLEDGEMENTS

This document represents the culmination of six years of my life and certainly would not have come to fruition without the help and support of a number of people. I would like to thank my committee members Dr. Gretchen Kerr, Dr. Margaret MacNeill, and Dr. Philip Sullivan for their guidance and tutelage along the way. Their unique insights and varied perspectives added significant layers of understanding to this project while also challenging me to step back and question many of the assumptions and opinions that influence my interpretation.

I would like to thank my mentor and supervisor Dr. Larry Leith. I feel extremely fortunate to have had the opportunity to work under such an exemplary academic, and for the opportunities bestowed upon me as a result. Thank you Larry for always smiling, always having a kind word to say, and for being as much my friend as you were my supervisor.

I would like to thank my parents Robert and Cathy, my in-laws Bonnie and Dennis, as well as my sister Ashleigh and sister-in-law Deanne, for their unwavering support throughout my academic career. I would also like to thank my wife Jenna, who without question is my rock. I am certainly blessed to have such a supportive and loving family around me, from which I draw a great deal of my energy and resiliency.

Finally, thank you to all of the athletes, parents and coaches who took the time out their busy schedules to participate in this research endeavor. Your support and generosity will not soon be forgotten.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Abstract………………………………………</td>
<td>ii</td>
</tr>
<tr>
<td></td>
<td>Acknowledgements…………………………..</td>
<td>iv</td>
</tr>
<tr>
<td></td>
<td>Personal Reflection………………………...</td>
<td>viii</td>
</tr>
<tr>
<td></td>
<td>List of Tables………………………………</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>List of Figures……………………………..</td>
<td>xi</td>
</tr>
</tbody>
</table>

I  
**INTRODUCTION**  
1.1 Terminology……………………………………… | 7    |
1.2 Conceptual Definition………………………….. | 10   |
1.3 Operational Definition…………………………. | 11   |
1.4 Ecological Validity……………………………. | 11   |

II  
**REVIEW OF LITERATURE**  
2.1 Theoretical Frameworks………………………… | 13   |
2.1.1 Instinctual Theory……………………………. | 14   |
2.1.2 Catharsis Hypothesis…………………………. | 15   |
2.1.3 Frustration-Aggression Hypothesis……………… | 18   |
2.1.4 Reversal Theory……………………………… | 22   |
2.1.5 Social Learning Theory………………………. | 27   |
2.1.5.1 Personality as a Learned Construct……….. | 32   |
2.2 Empirical Research Findings…………………… | 36   |
2.2.1 Intrapersonal………………………………… | 38   |
2.2.1.1 Gender / Masculinity……………………. | 38   |
2.2.1.2 Trait Aggressiveness…………………….| 41   |
2.2.1.3 Moral Reasoning…………………………. | 44   |
2.2.1.4 Achievement Motivation…………………..| 47   |
2.2.1.5 Attitudes and Perceptions………………… | 48   |
2.2.2 Interpersonal……………………………….. | 51   |
2.2.2.1 Parents………………………………….. | 51   |
2.2.2.2 Coaches………………………………….. | 57   |
2.2.2.3 Teammates……………………………… | 61   |
2.2.3 Conclusion…………………………………. | 65   |

III  
**METHODS**………………………………………. | 67   |
3.1 Review of Previous Methodologies……………….| 67   |
3.1.1 Self-report Measures……………………….| 67   |
3.1.2 Archival Penalty Records………………….| 69   |
3.1.3 Other Methods……………………………. | 71   |
3.3.3.1 Interviews……………………………. | 72   |
3.3.3.2 Direct Observation………………………..| 73   |
3.2 Rationale for Current Study………………….. | 75   |
3.3 Research Questions………………………….. | 77   |
3.4 Current Methodology…………………………| 77   |
| 3.4.1 | Recruitment | 78  |
| 3.4.2 | Administration | 78  |
| 3.4.3 | Consent | 79  |
| 3.4.4 | Archival Data Collection | 80  |
| 3.4.5 | Questionnaires | 81  |
| 3.4.5.1 | TEOSQ | 81  |
| 3.4.5.2 | JAMBYSQ | 82  |
| 3.4.5.3 | BAAGI | 83  |
| 3.4.5.4 | TNQ | 84  |
| 3.4.5.5 | PAQ | 85  |
| 3.4.5.6 | Indices of Aggressive Behavior | 86  |

**IV RESULTS**

| 4.1 | Sample | 88  |
| 4.1.1 | Explanation of Age and Competitive Level Differences | 88  |
| 4.1.1.1 | Differences According to Age | 88  |
| 4.1.1.2 | Differences According to Competitive Level | 89  |
| 4.2 | Cleaning Up the Data | 91  |
| 4.2.1 | Scale Internal Reliability | 92  |
| 4.2.2 | Univariate Normality | 92  |
| 4.2.3 | Multicollinearity | 93  |
| 4.2.4 | Multivariate Outliers | 93  |
| 4.2.5 | Missing Data | 94  |
| 4.3 | Individual Athlete Results | 94  |
| 4.3.1 | Predicting Athletes’ Aggressive Behaviour | 95  |
| 4.3.1.1 | Subsequent Regression Analyses on IVs | 96  |
| 4.3.1.2 | Athlete’s Reactive and Parents Task Scores | 97  |
| 4.3.1.3 | Athletes’ Ego, Team Norm, Preconventional Scores | 97  |
| 4.3.1.4 | Parents’ Team Norm Scores | 98  |
| 4.3.1.5 | Parents’ Ego and Reactive Scores | 98  |
| 4.3.2 | Regression Model by Age and Competitive Level | 99  |
| 4.3.2.1 | Bantam Age Group | 100  |
| 4.3.2.2 | Midget Age Group | 100  |
| 4.3.2.3 | Local League | 101  |
| 4.3.2.4 | Representative League | 101  |
| 4.3.2.5 | Bantam – Rep Players | 101  |
| 4.3.2.6 | Midget – Rep Players | 102  |
| 4.3.3 | Interactive Influence on Athletes’ Aggressive Behaviour | 102  |
| 4.3.3.1 | Parent and Child’s Achievement Orientation | 103  |
| 4.3.3.2 | Athletes Ego Score and Parents Team Norms | 104  |
| 4.3.3.3 | Athletes Reactive Score and Parents Team Norms | 104  |
| 4.4 | Coaches Results | 105  |
| 4.4.1 | Coach as a Predictor of Teams Aggressive Behaviour | 106  |

**V DISCUSSION**

<p>| 5.1 | Predicting Aggression With All Participants | 108  |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.1</td>
<td>Subsequent Regression Models</td>
<td>113</td>
</tr>
<tr>
<td>5.2</td>
<td>Competitive Level and Aggression</td>
<td>116</td>
</tr>
<tr>
<td>5.3</td>
<td>Athlete Age and Aggression</td>
<td>118</td>
</tr>
<tr>
<td>5.4</td>
<td>Interactive Effects</td>
<td>122</td>
</tr>
<tr>
<td>5.5</td>
<td>The General Aggression Model as a Working Framework</td>
<td>124</td>
</tr>
<tr>
<td>5.5.1</td>
<td>Strengths of the General Aggression Model</td>
<td>127</td>
</tr>
<tr>
<td>5.5.2</td>
<td>Future Directions With the General Aggression Model</td>
<td>130</td>
</tr>
<tr>
<td>5.6</td>
<td>The Coach and Aggression in Ice Hockey</td>
<td>132</td>
</tr>
<tr>
<td>5.7</td>
<td>Future Recommendations</td>
<td>134</td>
</tr>
<tr>
<td>5.8</td>
<td>Limitations</td>
<td>138</td>
</tr>
<tr>
<td>5.9</td>
<td>Applied Outcomes</td>
<td>143</td>
</tr>
<tr>
<td>5.9.1</td>
<td>Social Applicability</td>
<td>143</td>
</tr>
<tr>
<td>5.9.2</td>
<td>Scientific Applicability</td>
<td>148</td>
</tr>
</tbody>
</table>

REFERENCES                                                                                   152

APPENDICES                                                                                     194

Appendix A: Athletes’ Questionnaire Package                                               194
Appendix B: Parents’ Questionnaire Package                                                   209
Appendix C: Coaches’ Questionnaire Package                                                   226
PERSONAL REFLECTION

In qualitative research circles it is well understood that a researcher’s interactions and relationships with participants, combined with the conceptual lens through which they gather and interpret data, have a direct bearing on the outcome of the study (Sword, 1999). Interestingly, such biases are not commonly acknowledged in quantitative and positivistic research designs, yet appear to be just as likely to exist. This is especially true in the design and interpretation aspects of a given study, as both components are directly influenced by the researcher’s interests, anticipated outcomes, and personal background. As such, I would like to present a brief biography at this point in the manuscript in order to provide the reader with some additional context.

I am a 30 year old Caucasian male from a middle class Canadian family. I played competitive hockey my entire childhood, and continue to play recreational hockey to this day. I am still actively involved in organized youth hockey as a head coach of a Toronto-area sledge hockey team as well as the assistant coach of a regional sledge hockey team that competes in the provincial championships. I watch professional hockey on television at least a couple of times a week, and try to attend as many Ontario Hockey League (OHL) and National Hockey League (NHL) games as possible (e.g., approximately 12 – 15 year).

My interest in hockey-related aggression started during my master’s degree when I read the following quote:

Outside of wartime, sports is perhaps the only setting in which acts of interpersonal aggression are not only tolerated but enthusiastically applauded by large segments of society. It is interesting to consider that if the mayhem of the ring or gridiron were to erupt in a shopping mall, criminal charges would inevitably follow (Russell, 1993).
The hypocritical acceptance of sport aggression by society, and the impervious nature of competitive sport to legal consequences, quickly grabbed my attention and peaked my curiosity. As I delved deeper into this area of inquiry I began to learn about the historical and social implications of aggressive behaviour in sport, and the role that these behaviours played, and currently play, in the male character building experience. I began to see aggressive behaviour as a socialized and multifactoral construct, and not simply as “part of the game”, yet quickly realized that there was a substantial disconnect between my interpretation and the broader social understanding of these behaviours. It became apparent to me that a component of this disconnect was the result of the current state of the sport-aggression literature (e.g., micro-analytical, fragmented), and its inability to provide a holistic, concise and reliable explanation. As such, the general social understanding of aggressive behaviour in my opinion is still heavily dominated by antiquated naturalistic explanations (e.g., “boys will be boys”; hockey is an inherently violent game) which serve to legitimize and naturalize aggression within the confines of competitive hockey. These beliefs have become so heavily ingrained in the game of ice hockey that most people treat them as factual. Consequently, my research efforts to-date have been focused on bridging this knowledge gap, which I hope to do through the development of a preliminary framework that policy makers and academics alike can reference and expand upon moving forward. It is my opinion that until an empirical framework is established concerning the etiology of aggressive behaviour, which places individual athletes at the centre of this issue and thus holds them and their immediate sources of influence accountable, the use of aggressive behaviour in competitive ice hockey will continue to subsist as an unquestioned and legitimized “part of the game.”
# LIST OF TABLES

1. Athlete Descriptives ......................................................... 180
2. Internal Reliability Coefficients ........................................... 181
3. Univariate Statistics ......................................................... 182
4. Correlation Matrix – Athlete / Parent .................................... 183
5. Correlation Matrix – Coach .................................................. 184
6. Correlation Matrix – IVs and DV .......................................... 184
7. Overall Regression on Athlete’s Aggression ............................. 185
8. Regression – Athletes’ BAAGI – Reactive Score ...................... 186
9. Regression – Athletes’ Team Norm Score ............................... 186
10. Regression – Athletes’ Preconventional Score ......................... 186
11. Regression – Parents’ Team Norm Score ............................... 187
12. Regression – Parents’ Ego Score ......................................... 187
13. Regression – Parents’ Preconventional Score ......................... 187
14. Regression – Bantam Aged Players ........................................ 188
15. Regression – Midget Aged Players ....................................... 188
16. Regression – Rep Players .................................................... 188
17. Regression – Midget Rep Players ......................................... 189
18. Aggressive acts according to age and competitive level ............ 189
19. Athlete and parent data by competitive level .......................... 190
20. Athlete and parent data by age cohort ................................. 191
21. Coach data by competitive level ......................................... 192
22. Coach data by age cohort .................................................... 193
LIST OF FIGURES

Figure 1. Synthesizing our understanding of aggression in sport....................... 5
Figure 2. Relationship between stimuli and aggression................................... 19
Figure 3. Frustration – aggression cycle....................................................... 22
Figure 4. Impulses influencing aggressive drive............................................. 24
Figure 5. Metamotivational states in reversal theory....................................... 28
Figure 6. Metamotivational combinations and emotions.................................. 29
Figure 7. Distribution of athlete sample....................................................... 88
Figure 8. Preliminary model for aggressive behaviour..................................... 99
  8.1 Predictors of Bantam Aggression.......................................................... 100
  8.2 Predictors of Midget Aggression.......................................................... 101
  8.3 Predictors of Rep Aggression............................................................... 101
  8.4 Predictors of Midget Rep Aggression.................................................... 102
Figure 9. Interaction – athlete ego / parent team norm.................................... 104
Figure 10. Interaction – athlete reactive / parent team norm............................. 105
Figure 11. General Aggression Model (GAM)............................................... 124
Figure 12. Current Findings Entered into GAM.............................................. 127
I. INTRODUCTION

The presence of violence and aggression within Canadian amateur ice hockey is unquestionably a popular and contentious topic of social conversation. Widely publicized acts of on-ice violence, coupled with the perceived problem of rink rage among amateur hockey parents, has ensured that the topic of hockey-related aggression has never travelled far from front page news. Consequently, it should come as little surprise that the popular consensus among Canadians is that the level of violence and aggression within amateur hockey is problematic (Pascall, 2000). In fact, an Angus Reid poll conducted in 2000 showed that roughly 75% of Canadians perceived the level of violence in youth ice hockey to be at an unhealthy level. These figures have likely risen significantly in the past year following the December 14, 2008 death of twenty-one year old Don Sanderson from a head injury sustained during a hockey fight. This incident has reignited the debate pertaining to the prevalence and relevance of violence within the game of ice hockey, and has resulted directly in several rule changes pertaining to fighting during a competitive contest. This incident has also put violence in youth hockey back on the political radar, aligning both the social and political agendas towards “clean up the sport.” This heightened and pressing demand for answers and a deeper understanding has forced academics to examine the current body of literature on aggressive behaviour in sport more critically. Unfortunately, this has led to the realization that we currently lack a reliable and comprehensive understanding of these within-competition transgressions and that several methodological concerns must be addressed in order to move this understanding forward in the future (Kerr, 2008; Kirker, Tenenbaum, & Mattson, 2000; Maxwell & Moores, 2007; Stephens, 1998).
First, the bulk of the research on aggressive behaviour in ice hockey, most of which was conducted in the late 1970s and early 1980s, was concerned with the transgressions themselves and their subsequent distribution across a variety of proposed environmental catalysts (e.g., period of play, score differential, game location). In doing so, these studies removed the human and volitional component from the behaviour and simply chose to describe the frequency and distribution of aggressive penalties in hockey rather than understanding the social and psychological factors that precipitate them. These studies were commonplace in the sport sciences at the time, with the descriptive trending results commonly being discussed in relation to the popular frustration-aggression explanation (e.g., losing team would have significantly more penalties [Glamser, 1990; Neave & Wolfson, 2003], away teams would commit more aggressive acts [Goginsky, 1989]). Regrettably, these studies positioned aggression within a very simplified stimulus-response framework, and subsequently supported the popular naturalistic arguments (fighting and aggression are natural components of ice hockey) being espoused by hockey administrators like Colin Campbell and John Ziegler (Smith, 1983). These justifications for aggressive behaviour can still be heard today in arenas around the country, highlighting the degree to which this naturalistic and legitimized explanation has become ingrained within the culture of hockey. However, since these studies did not directly assess frustration, yet their results rely on its association with aggressive behaviour, their reliability, validity and overall contribution to the study of aggressive behaviour has been questioned (Kerr, 2008; Kirker, Tenenbaum, & Mattson, 2000; Widmeyer, Dorsch, Bray, & McGuire, 2002). Moreover, such a naturalistic explanation inevitably fails to account for the large inter-athlete, inter-team and
international differences witnessed in the use of aggressive behaviour in ice hockey (Gee & Leith, 2007). If aggressive behaviour is indeed a natural by-product of the speed and physicality inherent within the game (as these studies have purported), then its overt expression should be relatively consistent across all participants. Since a great deal of inter-athlete variability has been shown to exist in the use of aggression, a more athlete-centered psychosocial methodology has been recommended (Kerr, 2008; Maxwell & Moores, 2007; Stephens, 1998; Widmeyer, Dorsch et al., 2002). Such an approach not only aligns more closely with our current understanding of human behaviour, but also has the potential to shift the study of aggressive behaviour away from the descriptive and towards the predictive (Bushman & Wells, 1998; Maxwell & Moores, 2007).

Many of the most recent investigations into the etiology of aggressive behaviour have heeded this advice and have focused directly on the athlete as the unit of analysis. These studies have sought to uncover and understand the psychosocial factors that make an athlete more susceptible to behaving aggressively during competition. Some of the more popular lines of recent athlete-focused research include: athlete’s achievement orientation (Lemyre, Roberts, & Ommundsen, 2002; Stephens & Kavanagh, 1997), their moral reasoning level (Guivernau & Duda, 2002; Stephens, 2001), and their team norm perceptions (Stephens, 2000; Stephens & Bredemeier, 1996). Unfortunately, these studies have overwhelmingly failed to include an ecologically valid behavioural criterion (this term will be used throughout to refer to actual observed instances of aggression that transpired during actual competitive contests), thus calling into question the generalizability of their findings to an actual competitive climate. Rather, they have relied on other cognitive constructs (e.g., self-reported likelihood to aggress, legitimacy
perceptions) as proxy measures of an athlete’s aggressiveness, with the assumption that these constructs are strongly correlated with an athlete’s on-ice deportment. Unfortunately, this assumption has received scant attention in the sport sciences literature, with the few studies attempting to bridge this gap reporting weak and sometimes negative correlations (Loughead & Leith, 2001; Worrell & Harris, 1986).

Therefore, when the two previous criticisms of the literature are combined, we can see that the bulk of aggression-based studies to-date either do not take the athlete or perpetrator into account, or do not actually include overt acts of aggressive behaviour. Consequently, it has been recommended that future behavioural sciences studies concerned with the etiology of sport-specific aggression employ a valid behavioural indicator as the dependent variable and be conducted at the individual level of analysis (Maxwell & Moores, 2007; Stephens, 1998).

Other cited limitations of the aggression literature, and ones that certainly exacerbate the previous points, are the fragmented and micro-analytic nature of the psychosocial studies to-date on aggression. With respect to fragmentation, Bergin and Habusta (2004) looked specifically at how parents influence their children’s goal orientations in sport, whereas Stuntz and Weiss (2003) focused on the role of the teammates. Loughead and Leith (2001) on the other hand isolated the coach as an independent source of influence. These studies in no way should be criticized for limiting the scope of their research focus; however, they do highlight the need for future exploratory studies to begin assessing multiple constructs and various sources of influence in a collective and interactive manner (Stephens, 1998). Doing so will not only provide a more ecologically valid assessment of each source’s predictive capacity with
respect to aggressive behaviour, but will also begin to consolidate and synthesize the current body of literature, thus providing a more holistic and comprehensive understanding of aggressive behaviour in sport (see Figure 1).

**Figure 1. Synthesizing Our Understanding of Aggression in Sport**

This same process of consolidation also appears necessary at the construct level. Currently there are numerous independent lines of research being conducted on intrapersonal factors believed to be determinants of athletes’ aggressive behaviour (e.g., achievement motivation, moral reasoning, legitimacy perceptions) with no study to-date examining their collective or interactive influence simultaneously. Similar to the
comment made in the preceding section, these factors do not exist in isolation and thus should be examined simultaneously in relation to aggressive behaviour. Not only will this multifactor design provide a more realistic assessment of each construct’s importance to the understanding of aggression, it will also highlight the lines of research with the most promise to advance our current body of knowledge. Overall, a multifactor and multisource exploratory study will help consolidate the current fragmented body of literature, while highlighting those lines of research that will likely have the most significant impact on moving our understanding forward.

The final commonly cited limitation, and likely the most important considering the current social and political appetite for understanding sport-specific aggression, is that previous research on sport-specific aggression has been predominantly descriptive. Past studies have provided in-depth insight into the attitudinal differences pertaining to aggression between males and females (Bredemeier, Weiss, Shields, & Cooper, 1987; Maxwell & Moores, 2007; Silva, 1983), contact and non-contact athletes (Conroy, Silva, Newcomer, Walker, & Johnson, 2001; Lemieux, Mckelvie, & Stuart, 2002), athletes of different age cohorts (Bredemeier, Weiss, Shields, & Cooper, 1987; Smith, 1979c; 1983) and various competitive levels (Maxwell & Moores, 2007; Smith 1983), but have yet to assess whether or not these attitudinal differences are predictive of actual on-ice differences in the use of aggression. Consequently, in order to make the literature on aggressive behaviour applicable to policy makers and sport administrators, it appears necessary for future methodologies to shift away from the descriptive and towards the predictive.
Considering these previously cited recommendations, the purpose of the current investigation was to assess the predictive influence of several commonly cited psychosocial constructs on athletes’ actual within-competition use of aggressive behaviour over a competitive season. In doing so, the study hopes to provide a preliminary working framework of aggressive behaviour that highlights the most predictive determinants of within-competition aggression. This preliminary framework is intended to align future research efforts on aggressive behaviour and to provide a starting point from which researchers can expand. The results may also be used by policy makers to inform future initiatives (i.e., focus on those sources or constructs that are the most predictive) and to ensure that resources and time are properly allocated to those factors that have the greatest influence over these behaviours.

1.1 Terminology

The term “aggressive” is frequently used in a variety of social contexts and has subsequently developed several meanings (Widmeyer, Dorsch, Bray, & McGuire, 2002). For example, it is common to hear of aggressive salespeople who relentlessly attempt to complete the commercial transaction, or aggressive base runners in baseball who sacrifice their bodies in order to help improve their team’s chances for success. Within ice hockey the term aggressive has been used to describe players who compete in an energetic, fast-paced, and physical (i.e., body-checking) manner. Using this conceptualization of the term, aggressive is portrayed as a desirable attribute that is implicitly associated with competitive success.
However, within the sport psychology literature aggression is defined as “any overt act (verbal or physical) that has the capacity to cause psychological or physical injury to another. The act must be purposeful (non-accidental) and chosen with the intent of causing harm” (Stephens, 1998, p.277). In other words, the defining characteristics of aggressive behaviours are that they are overt, purposeful, and initiated with the intent to cause harm to another individual. Consequently, using the behavioural sciences definition of aggression, references to “aggressive sales people” and “aggressive base runners” are inappropriate, as they lack the intent to cause harm (Widmeyer et al., 2002).

Within the psychology literature these previously described scenarios (i.e., salespeople, base runners, etc.) would be more accurately classified as “assertive behaviours” because they involve a heightened level of intensity, and in some cases, physical force (e.g., body-checking), but lack the intent to cause interpersonal harm (Silva, 1979).

Aggressive behaviour has historically been further divided into two distinct categories based on the primary reinforcement sought through the behaviour. For example, Instrumental acts of aggression refer to instances where the use of aggressive behaviour is simply a means to an end. In this case, the intentionally harmful behaviour is employed in order to achieve some external goal beyond simply harming the individual on the receiving end. Some common sporting examples of instrumental aggression are tripping an opponent on a breakaway to stop a goal, or taking out the opposing team’s star player to increase your team’s chances for success. On the other hand, Hostile acts of aggression are solely intended to cause harm, with the reinforcement stemming from the satisfaction of knowing that the victim was injured. Oftentimes hostile acts of aggression
are provoked and presumably fueled by strong emotion, and therefore are also referred to as reactive aggression (Husman & Silva, 1984). However, the utility of categorizing aggressive behaviour into hostile and instrumental dimensions has been repeatedly questioned within the field of psychology (Bandura, 1973; Bushman & Anderson, 2001; Zillmann, 1978). Critics believe that such a dichotomy presents a very simplified framework concerning the motives, determinants, and consequences of human aggression, and therefore is ultimately counterproductive. Michael Smith (1983), a prominent scholar in the area of sport-specific aggression, held a similar viewpoint:

The distinction between hostile and instrumental violence is a false one, in any case, for all aggressive acts are instrumental, because all are designed to produce some end, whether a victim’s expression of pain or the loss of his/her wallet. (p.4)

As a result, several investigations concerned with aggressive behaviour in sport have recently stopped differentiating between the two forms of aggression, and have begun focusing their efforts on capturing all behaviours that possess the “intent to cause harm.” This approach will also be employed in the current study.

Another obstacle in the classification of aggressive behaviour is the fact that norms concerning legitimate behaviour are temporally, and situationally, dynamic (Kerr, 2008). In other words, what is considered violent or aggressive changes over time and according to the environment. This is an especially relevant concern when one is studying aggressive behaviour within the context of competitive sport, as physically forceful behaviours are often associated with several of these competitive activities (Kerr, 2008; Maxwell & Moores, 2007). For example, fighting in hockey has become so common that many people perceive it as part of the game (Bushman & Wells, 1998; Gee & Potwarka, 2007; Smith, 1983). Generally speaking, most acts of violence that transpire within the
confines of sport are not perceived as “real violence” by the masses (Smith, 1983). Consequently, scholars who are overly invested in the sports that they are studying may overlook potential instances of violence/aggression by using the normative codes of conduct to guide their operational definitions, rather than the explicit conceptual criteria of aggression. This is especially true for direct observation studies where the researcher is responsible for indentifying and classifying behaviours (Kirker et al., 2000). The current study has attempted to address this operational concern by utilizing the relatively stable official rulebook of ice hockey, as well as by employing Widmeyer and McGuire’s (1997) operational list of infractions. By utilizing a validated and previously employed operational list, and by using trained objective observers to identify infractions (i.e., game officials), the study hopes to reduce the operational subjectivity that has been cited frequently in the literature (Kerr, 2008; Smith, 1983; Stephens, 1998; Widmeyer, Dorsch et al., 2002). Moreover, this design characteristic is also intended to help other researchers replicate this study in the future.

1.2 Conceptual Definition

Aggressive behaviour in this investigation will refer to “any overt act (verbal or physical) that has the capacity to cause psychological or physical injury to another. The act must be purposeful (non-accidental) and chosen with the intent of causing harm” (Stephens, 1998, p.277).
1.3 Operational Definition

In accordance with previous operational protocols, aggressive infractions will be considered those behaviours that are penalized by the game official, and are behaviours believed to be initiated with the intent to harm. Research by Widmeyer and Birch (1984) and Widmeyer and McGuire (1997) identified sixteen infractions that were reported by athletes, coaches and game officials as being used with the intent to harm at least 80% of the time (charging, boarding, kneeling, elbowing, roughing, fighting, high sticking, slashing, cross checking, butt ending, spearing, instigating, hitting from behind, head butting, unsportsmanlike, check to the head). As such, these infractions have been empirically validated against the conceptual definition of aggressive behaviour (i.e., intent to harm) and have been used in previous investigations concerned with aggressive behaviour in ice hockey.

1.4 Ecological Validity

One of the defining characteristics of the current methodology, and thus a term that is used throughout this manuscript, is ecological validity. Ecological validity is a term commonly used to refer to the degree to which the setting of a particular study approximates the real-life situation under investigation (Brewer, 2000). Therefore, with respect to a study concerned with hockey aggression, a design’s ecological validity would be impacted by the similarity of the environment that the athletes were tested in as compared to an actual competitive hockey environment. The more similar the two environments, the more confident the researcher can be that his/her results are generalizable to the real world phenomenon under evaluation.
Recently, researchers such as Schmuckler (2001) have expanded upon the definition of ecological validity to also include:

- the degree to which the stimuli used to elicit the observed measure are indicative of the “real world” stimuli
- the degree to which the behaviours under investigation are indicative of how the behaviours would be observed in the “real world”

Overall then, the term ecological validity is used in the current manuscript to refer to the researchers attempt to directly assess athlete’s actual within-competition use of aggressive behaviour, which is believed to incorporate all of the stimuli and contextual factors that are novel to the environment of competitive amateur ice hockey. Previous research has overwhelmingly opted to use self report inventories to measure athletes’ perceptions and attitudes towards aggression, under the assumption that athletes’ responses would be indicative of how they would actually behave during a competitive contest. The current study attempted to bridges this assumptive gap by including athletes’ actual use of aggressive behaviour as the dependent variable, thus increasing the generalizability and “real world” applicability of the current findings.
II. REVIEW OF LITERATURE

Aggressive behaviour in ice hockey is by no means a contemporary phenomenon; however, many people believe that the frequency and severity of these transgressions are currently on the rise (Angus Reid Poll, 2000). Unfortunately, little empirical research exists to support this claim; nevertheless, as Pascall (2000) stated “whether violence [in hockey] is increasing or decreasing is academic, it’s the perception or modeling effect that has them [parents] worried (p. 29).” The level of worry surrounding violence and youth hockey appears to be at an all time high following the death of 21 year old Don Sanderson, with both the political and social agendas intently focused on cleaning up the game. However, in order to carve out a niche for, and highlight the applied utility of, the current investigation, an understanding of what has been done previously is warranted.

The following chapter provides both a theoretical and empirical overview of the aggression literature to-date. This section is intended to highlight the development of this area of inquiry, as well as some of the criticisms that have been levied against it. It is important to note that the scientific process is not static, and that research of a given time period reflects the dominant frameworks and methodologies of that era. As such, the criticisms contained in the current section are not directed towards the academics themselves, and in no way reflect upon the quality of their research and the impact that it has had on the development of this field. In fact, it is this exact process of questioning, critiquing and then eventually trying something different that ensures the development and subsistence of a body of knowledge.
2.1 Theoretical Frameworks

A multitude of theoretical frameworks have been formulated in an attempt to explain the etiology of aggressive behaviour, with many being rooted in the dominant ideology that governed psychology at the time of their inception. Historically, contact sports have been male dominated and the use of aggression has been promoted to maintain this exclusivity (Burstyn, 1990; Sabo & Panepinto, 1990; Theberge, 2000; 2003; Whitson, 1990). As such, aggression within sport has long been viewed as an acceptable part of the male character building experience and has therefore become a centralized and normalized component of the masculine identity (Burgess, Edwards, & Skinner, 2003; Coakley, 2001; Keddie, 2003). This gendered and naturalized belief is still heavily ingrained within our current sport ideology and remains one of the major roadblocks to the dissemination of information that seeks to oppose it (Gee & Sullivan, 2004). In most areas of psychological inquiry, old theories are rarely mentioned and exert only minimal influence over the contemporary examination of the construct. However, this cannot be said about the study of aggressive behaviour within the domain of competitive sports. Theories that have been expanded upon, and in some cases widely discredited, are still commonly used within the context of competitive sport. This has inevitably impeded and confused the social understanding of aggression and has subsequently exacerbated the disconnect between academia and society.

Five theories have dominated the discourse concerning aggressive behaviour in sport. Each theory is described below and discussed in relation to both its academic influence and its current use within the broader social discourse surrounding sport-specific aggression.
2.1.1 Instinctual Theory

One of oldest and most popular theories concerning the etiology of aggressive behaviour emanated from the natural sciences. The premise of this theory originated from the evolutionary literature and was derived through extant empirical studies examining the aggressive patterns of numerous animal species. Evolutionary biologists and ethologists believed that certain individuals were genetically predisposed towards aggressive behaviour and consequently that aggression held an evolutionary function (Scott, 1958). Researchers observed genetic differences in the levels of aggression across a variety of species and subsequently generalized these findings to the human race. Therefore, just like the “terrier breeds which have been selected for their ability to start and win fights, and the hounds which have been selected for their ability to get along with strangers” (Scott, 1978, p.130) humans are believed to exist on a similar behavioural continuum. An important assertion of this theory is that aggression is under genetic/hormonal control, and is therefore elicited sub-cortically. Therefore aggressive outbursts are instinctive and reflexive actions, rather than premeditated and planned behaviours.

Using this theoretical approach aggressive behaviour has been conceptualized as a natural phenomenon that is employed in order to gain an evolutionary advantage (i.e., reproduce). Research studies concerned with genetically similar species to humans (e.g., chimpanzees, apes, baboons) have supported the tenets of this theory, with higher testosterone levels being associated with male dominance and more frequent genetic reproduction (Beehner, Bergman, Cheney, Seyfarth, & Whitten, 2006; Muller & Wrangham, 2004). Consequently, it is posited that male human beings who display
similar aggressive patterns will be feared by their less aggressive rivals and subsequently desired by the female spectator.

However, the validity of this line of research has been directly challenged, while its contribution to current scholarly inquiry is almost completely absent. First, over 10,000 instinctive drives were categorized through this line of research (with an aggressive drive being one of them), which substantially reduced the practicality of using an instinctual framework to understand and predict human behaviour (Widmeyer, Bray, Dorsch, & McGuire, 2002). Secondly, the explanations associated with the instinctual theory are believed to be circular in nature (Bandura, 1973). For example, because men were routinely the perpetrators of aggressive acts, they were believed to possess the aggressive drive (whereas females were not). On the other hand, because males possessed this aggressive drive they engaged in these aggressive acts more frequently. As Bandura (1973, p.6) stated, these statements are simply “description(s) disguised as causation.” More recently learning theorists began to mount attacks against ethologists such as Konrad Lorenz (1966) for generalizing animal findings to explain complex human behaviour. As Widmeyer, Bray et al., (2002) have stated, “because of the widespread recognition of the existence and power of human reason and volition, instinct theories have little support today and certainly can be of little use in understanding aggression in sport” (p. 353).

Another hypothesized moderator of aggressive behaviour under genetic control, and one that continues to receive frequent empirical attention using humans, is the hormone testosterone. A plethora of studies have been concerned with the relationship between individuals’ testosterone levels and their subsequent aggressive tendencies
(Bahrke, Yesalis, & Wright, 1990; Bjorkqvist, Bjorklund, & Bjorkqvist, 1994; Salvador, Suay, Martinez-Sanchis, Simon, & Brain, 1999). A recent meta-analysis in this area found a weak positive relationship between testosterone levels and aggressive behaviour. However, no cause and effect conclusions have yet to be forwarded (Book, Starzyk, & Quinsey, 2001). Therefore, scholars are not entirely sure how testosterone produces this increase in aggressive behaviour, and have been unable to rule out mediating factors (e.g., anticipation, environment, provocation). In addition, explanations for aggressive incidents facilitated by individuals with low levels of testosterone (i.e., females) are seemingly speculatory, while discrepant behavioural patterns among those with the same levels of testosterone are also difficult to explain.

Overall, there exists very little empirical evidence that aggressive behaviour is entirely under genetic control. This biological/instinctual explanation gives little credence to environmental factors (i.e., learning), and also provides relatively little insight into the dynamic nature of aggressive behaviour.

Interestingly however, the general public routinely utilizes this naturalistic explanation when discussing aggressive behaviour within the realm of competitive sport (Gee & Sullivan, 2004). Parents and coaches frequently attribute highly aggressive behaviour to normal masculine development (Keddie, 2003), and as a result, oftentimes legitimize and reinforce such conduct. For example, while conducting observational analyses of youth hockey players in Canada, researcher Michael Smith (1979a) overheard two parents discussing the role of fighting in youth hockey, with one parent exclaiming “I think fighting with the fists is a good way to toughen a boy up. He’s got to learn to take his lumps as well give them out” (p. 45). Moreover, when speaking with hockey mothers
about their sons’ rough and often aggressive play, Smith (1979a) was routinely provided with the “boys will be boys” justification. Such perceptions of aggressive behaviour likely reflect the perceived connection between contact sports and masculinity and in many ways act to reinforce the centrality of aggression in both constructs (Sabo & Panepinto, 1990; Whitson, 1990). Unfortunately however, these justifications and rationalizations appear to be so deeply entrenched in the sport of ice hockey that they are oftentimes treated as factual. This represents a substantial barrier to the dissemination of scholarly research in this area of inquiry, especially explanations that support a more learning or volitional etiology.

2.1.2 Catharsis-Hypothesis

The catharsis-hypothesis, derived from the psychoanalytic work of Sigmund Freud (1925), puts forth the notion that all humans have a cumulative drive (i.e., thantos) towards an aggressive act, and that once it is released, one should feel peaceful or cathartic for some time after. In other words, humans have an innate drive to be aggressive and must release this pent up aggression episodically in order to avoid psychological pathologies. Freud also postulated that the stimuli required to release this pent up aggression was inversely related to the amount of aggressive drive that had built up within the individual. Therefore, with very little aggressive drive present, a relatively threatening stimuli would be required in order to elicit an aggressive response. However, in situations where a large amount of aggressive drive was pent up, a seemingly innocuous stimuli would be sufficient (see Figure 2).
In fact, if enough accumulated aggressive drive was present, Freud believed that an aggressive act could occur spontaneously. Nevertheless, Freud postulated that large aggressive outbursts could be avoided if people reduced their pent up aggressive drive episodically and in socially acceptable ways (e.g., hit a punching bag, let out a loud scream).

In accordance with this theoretical paradigm, psychologists postulated that “competitive games provide(d) an unusually satisfactory social outlet for this instinctive aggressive drive” (Menninger, 1948, p.343). Consequently, competitive sport was previously heralded as the perfect medium through which these pent up urges could be released in a controlled and socially acceptable manner. For instance, Brill (1963) called sport “a salutary purgation of combative instincts which, if damned up within, would break out in a disastrous way” (p. 97), while Stokes (1958) stated that “a considerable
amount of aggression is used in hitting, kicking and flinging the ball,…herein lies the principle opportunity for the catharsis of aggression” (p. 241).

Research studies supporting the catharsis hypothesis have oftentimes lacked the empirical rigour necessary to provide unequivocal and interpretable results. For example, Hokanson and Burgess (1962) and Hokanson, Burgess and Cohen (1963) conducted a set of studies examining the effects of aggression on subjects’ systolic blood pressure. In their design, the researchers subjected each participant to a frustrating situation (e.g., a confederate was used to facilitate frustration), after which subjects were randomly assigned to one of four treatment groups. These researchers found that male subjects’ systolic blood pressure returned to normal more rapidly after being allowed to apply an electric shock to the source of their frustration (group 1) when compared with subjects who were rewarded for their participation (group 2), subjects who were not permitted to respond to the source of their frustration (group 3), and subjects who were not even exposed to the source of frustration in the first place. These results were believed to support the catharsis explanation, as they demonstrated a reduction in blood pressure following an aggressive outburst. However, these results hinge on the notion that blood pressure is a valid indicator of frustration or pent up aggression (Husman, 1980), and were subsequently assessed in the absence of any emotional constructs (e.g., anger, frustration).

Within the context of competitive sport the catharsis hypothesis has received very little empirical validation. For example, Lemieux, Mckelvie and Stuart (2002) found no differences between athletes’ and non-athletes’ self-report of hostile aggressive tendencies as measured by the Buss and Perry (1992) Aggression Questionnaire. In fact,
this body of research seems to support the exact opposite observation, with athletes
displaying an increased aggressive drive following a competitive contest (Patterson,
1974). Within the broader field of psychology, results are routinely published where
children who are exposed to violent videogames, television, or music report higher levels
of aggressive feelings and urges, rather than the previously postulated cathartic effect
(Anderson & Dill, 2000; Anderson, Carnagey, & Eubanks, 2003; Sherry, 2001).

Studies interested in vicarious catharsis have also been carried out on sport
spectators with identical results emerging (Russell, 1983; 1993). For example, Gordon
Russell (2004), who is one of the leading researchers into the etiology of spectator
violence, stated that

Two thirds of North Americans subscribe to a belief in some version of the
catharsis hypothesis…however support for catharsis predictions has not been
forthcoming from the scientific community. Reviews of the sports and non-sport
literature conclude that where changes in the aggression of those witnessing
violence occur, those changes are nearly always in the direction of an increase. (p.
360)

In fact, Widmeyer, Bray et al., (2002) have stated that the notion of vicarious catharsis is
“tantamount to believing that when a hungry person sees someone else eating, the
observer feels less hungry” (p. 354). The absurdity of such a statement appears obvious,
yet the catharsis hypothesis continues to receive support from those engaged in the
competitive sport community (Russell, 2004). For example, it is not uncommon for
parents to make statements such as “they are going to sleep well tonight” after a
particularly physical, or even aggressive, sporting event (Gee & Sullivan 2004; Smith,
1979a). Such statements reiterate the belief that overly physical and competitive tasks can
purge individuals of pent up energy, thus eliciting a feeling of peacefulness and/or relaxation.

2.1.3 Frustration-Aggression Hypothesis

The frustration-aggression hypothesis is a direct descendent of Freud’s (1925) catharsis hypothesis, and postulates that in order to elicit an aggressive act the emotion frustration must be present (Dollard, Doob, Miller, Mowrer, & Sears, 1939). In addition, these researchers hypothesize that the link between this emotional-behavioural response is an innate aspect of human nature (Berkowitz, 1962). Subsequently, individuals who become frustrated, often as a result of their inability to obtain a particular goal, will always aggress against the object of their frustration until they reach catharsis. Individuals who are unsuccessful in their aggressive attempt are hypothesized to be more likely to aggress in the near future when compared to those who achieve success through their aggressive outburst (see Figure 3).

Critics of the frustration-aggression hypothesis have disputed the fact that frustration is an inherent and necessary condition for the elicitation of an aggressive
outburst. Miller (1941) illustrated through his research that frustration did not always result in aggression (e.g., withdrawal, crying, increased effort and persistence) and that its role may be better understood as a trigger cue or instigator of aggressive behaviour. In other words, in the presence of frustration, certain stimuli may serve as triggers to aggressive responses. Consequently, it is currently believed that the frustration-aggression relationship is not innate, but rather is a learned association that is far more complex than a simple bi-directional correlation (Berkowitz, 1989).

The reformulation of the frustration-aggression hypothesis is credited to Leonard Berkowitz (1989) of the University of Wisconsin. Berkowitz believed that the frustration-aggression association was actually mediated by another emotional construct: anger. He believed that feelings of anger produced a readiness to aggress within individuals, and that the likelihood of an aggressive response was subsequently dictated by environmental or situational factors. For instance, in one of his earliest experiments, Berkowitz and Lepage (1967) assessed the effects of certain stimuli on the elicitation of laboratory aggression. In this study, the researchers created two groups of subjects (angered and non-angered) by administering shocks to each group according to task performance (or so the subjects believed). The angered group received several shocks throughout the experiment, which the researchers believed would make them feel uncomfortable and humiliated, and inevitably angry. The other group only received one shock and therefore was believed to be non-angered. The roles of “shocker” and “subject” were then reversed and it was hypothesized that the angered group would administer more shocks to their opponent than would the non-angered group. In addition, the researchers placed various objects in plain sight of the subject, some of which had strong ties to violence
(e.g., gun, boxing glove) while the other objects were relatively neutral (e.g., badminton racquet, red wagon). What they found was that the angered group elicited more frequent and intense shocks when compared with the non-angered group and that the presence of a violent stimulus (e.g., gun) exacerbated this trend. Consequently, when discussing the impact of violent stimuli on an angered person, the researchers stated that “guns not only permit violence, they can stimulate it as well. The finger pulls the trigger, but the trigger may also be pulling the finger” (Berkowitz, 1968, p. 20). Nevertheless, the reformulated frustration-aggression hypothesis (Berkowitz, 1993) included environmental and situational factors that influenced an individual’s behavioural response depending upon the individual’s perceptions and evaluations (see Figure 4).

![Diagram of Factors influencing the strength of an aggressive impulse](Berkowitz, 1993)

*Figure 4. Factors influencing the strength of an aggressive impulse* (Berkowitz, 1993)
Overall, Berkowitz’s reformulation of the original frustration-aggression hypothesis in accordance with the learning paradigms that were becoming dominant in the field of psychology (e.g. Social Learning Theory), made the frustration-aggression hypothesis much more palatable for researchers (by removing the inherent link), and subsequently allowed this theory to become the most widely used explanation for aggressive behaviour in sport.

As was mentioned during the introduction, the frustration-aggression hypothesis has received a considerable amount of empirical attention among sport scientists. Consequently, our current understanding of the etiology of aggression in sport is heavily framed within this theoretical paradigm. For example, losing (Volkamer, 1971; Leith, 1989), losing at home (Glamser, 1990; Neave & Wolfson, 2003); losing by a large margin (Goginsky, 1989; Harrell, 1980; McGuire, 1990; Wankel, 1973), losing late in the game (Kelly & McCarthy, 1979; Russell & Drewry, 1979), not being able to perform one’s skills (Widmeyer, Dorsch, & Sanszole, 1995), and making mistakes (Brice, 1990; Sanszole, 1995), have all been investigated in relation to aggressive behaviour, and have subsequently been explained according to the tenets of the frustration-aggression hypothesis. Regrettably, this line of research has been plagued and criticized over significant methodological shortcomings (Gee & Leith, 2007; Stephens, 1998; Widmeyer, Bray et al., 2002), as several of these studies did not assess athletes’ feelings of frustration (excluding Brice, 1990; Sanszole, 1995; and Widmeyer et al., 1995). Rather, these studies examined the distribution of aggressive penalties according to the independent variables of interest (e.g., winning/losing, home/away) and then applied the frustration-aggression explanation to their findings in a post hoc manner. Consequently,
these previous findings must be interpreted with caution for two important reasons. First, the situations described above (e.g., losing, losing at home) are hypothesized to be frustrating; however, players’ perceptions of these situations have never been assessed directly. Therefore, these results are currently built upon an unfounded assumption. Secondly, because the tenets of Berkowitz’s (1983) theory were never tested, the association between anger and aggression within these situations has yet to be empirically supported as well. In fact, recent research that has employed different methodological and theoretical frameworks has provided opposing results when assessing the frequency and distribution of aggressive penalties across these previously mentioned environmental factors (Gee & Leith, 2007; Gee & Sullivan, 2006; Sheldon & Aimar, 2001).

Consequently, the popularity of the frustration-aggression hypothesis as it relates to environmental factors within the game has waned in recent years; however, anger and hostility as affective constructs have received renewed interest in the study of sport-specific aggression (Maxwell & Moores, 2007; Maxwell & Moores; 2008)

Nevertheless, the popularity of the frustration-aggression hypothesis among those who are involved with competitive sport is as strong as ever. Athletes and sporting administrators alike frequently refer to frustration as the root cause of within-competition violence (Pascall, 2000). As an example, former NHL president John Ziegler stated “in a game where frustration is constant, for men to drop their gloves and sticks to take a swing at each other - I think that kind of outlet is important for players in our game” (Smith, 1978, p.187). Such statements naturalize the use of aggressive behaviour within ice hockey, and subsequently portray aggression as a natural by-product of the game itself. However, recent research has demonstrated marked differences in the use of aggression
between players within a particular sport, indicating that the same frustrating stimuli do not elicit the same behavioural patterns across individuals (Gee & Leith, 2007; Gee & Sullivan, 2006; Sheldon & Aimar, 2001; Smith, 1978; 1979b; 1983). This variability in the use of aggressive behaviour appears to demonstrate that the decision to act aggressively originates at the level of the individual, and therefore might best be understood from a psychosocial perspective.

Overall, the frustration-aggression hypothesis has been relatively untested in an ecologically valid manner within the context of competitive hockey. Studies to-date have applied the framework in a post hoc manner depending upon the statistical trends that emerged from the archival penalty data. Contrastingly, previous laboratory studies suggest that frustration and anger are strong catalysts of aggressive behaviour and therefore might be critical to our understanding. As such, understanding an individual’s predisposition towards anger and aggression, or the relationship between other attitudinal factors and within-game frustration, may aid in our ability to predict an athlete’s likelihood to aggress.

2.1.4 Reversal Theory of Aggression

Reversal theory has a long and rich history in the study of human behaviour but until recently has been relatively absent from the sport sciences literature (Kerr, 1997). The theory was originally developed by a child psychologist named Ken Smith but was subsequently reformulated and introduced to the academic community by Michael Apter (1982). Simply put, reversal theory attempts to understand and predict human behaviour by examining the motivational states that individuals are in at the time of the behaviour.
These different states elicit distinct emotional responses, which are believed to be followed by relatively predictable behavioural patterns.

According to reversal theory there are four different metamotivational states [Telic – Paratelic, Conformist – Negativistic, Mastery – Sympathy, Autic - Alloic (see Figure 5 for the composition of each)].

**Telic**
- Arousal – Avoiding
- Goal - Oriented
- Serious - Minded
- Future – Oriented

**Paratelic**
- Arousal – Seeking
- Sensation – Oriented
- Playful
- Present - Oriented

**Conformist**
- Desire to play by rules
- Compliant
- Co-operative

**Negativistic**
- Desire to break rules
- Rebellious
- Stubborn

**Mastery**
- Willingness to compete
- Desire for control

**Sympathy**
- Willingness to co-operate
- Desire for harmony

**Autic**
- Concern for self
- Desire to gain
- Suffering loss is unpleasant

**Alloic**
- Concern for others
- Desire to give
- Suffering loss pleasant

*Figure 5. Four pairs of metamotivational states in reversal theory* (Sheppard et al., 2006)

The top two metamotivational states are known as somatic states and are concerned with an individual’s experienced arousal, while the bottom two are known as transactional states and refer to an individual’s interpretation of interpersonal exchanges. Important to the tenets of reversal theory is the notion that even though some states may be more salient than others, an individual is operating in all four metamotivational states at any given time. This creates a number of metamotivational state combinations (e.g., telic-
negativistic-mastery-alloic) that an individual may experience in a given situation. Moreover, these states oftentimes change (or reverse) according to different environmental stimuli and can also differ by the amount of time that an individual will spend in them. Individuals commonly have an internal bias towards one of the bi-polar states, which is known as their metamotivational dominance, which can influence their overall motivational style.

Different combinations of the two somatic states and the two transactional states can also elicit different emotional responses (see Figure 6; Sheppard et al., 2006).

<table>
<thead>
<tr>
<th>Combinations</th>
<th>Pleasant</th>
<th>Unpleasant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telic – Conformity</td>
<td>Relaxation</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Telic – Negativistic</td>
<td>Placidity</td>
<td>Anger</td>
</tr>
<tr>
<td>Paratelic – Conformity</td>
<td>Excitement</td>
<td>Boredom</td>
</tr>
<tr>
<td>Paratelic - Negativistic</td>
<td>Provocativeness</td>
<td>Sulleness</td>
</tr>
<tr>
<td>Autic – Mastery</td>
<td>Pride</td>
<td>Humiliation</td>
</tr>
<tr>
<td>Autic – Sympathy</td>
<td>Gratitude</td>
<td>Resentment</td>
</tr>
<tr>
<td>Alloic – Mastery</td>
<td>Modesty</td>
<td>Shame</td>
</tr>
<tr>
<td>Alloic - Sympathy</td>
<td>Virtue</td>
<td>Guilt</td>
</tr>
</tbody>
</table>

*Figure 6. Metamotivational Combinations and Resulting 16 Emotions*

For each of the two metamotivational states there are four pleasant and four unpleasant emotions. These emotions correspond to very different behavioural repertories. Ultimately then, individuals’ behaviour can be explained and understood according to their metamotivational and emotional state at any given time, as these dictate how they perceive and interpret their surroundings.

Scholars interested in the etiology of aggressive behaviour have begun explaining certain aggressive incidents according to the tenets of reversal theory (Kerr, 1994; Kerr &
de Kock, 2002). For example, Kerr (1994) explained hooligan-like behaviour as resulting from an individual being in a *paratelic-negativistic-mastery-alloic* state in which they desire high levels of arousal and excitement and are motivated to dominant another group of individuals. In addition, when in this metamotivational state hooligans are believed to desire to break rules and are completely self-centered with respect to their interests (i.e., alloic). As a result, this specific metamotivational state appears to be conducive to committing interpersonal acts of aggression.

More recently, Kerr (2006) has highlighted four metamotivational state combinations that appear to facilitate different types of interpersonal aggression. First, the *telic-negativistic* combination is believed to elicit anger violence, which is often reactive and is associated with high levels of unpleasant arousal. Secondly, the *telic-mastery* combination leads to power violence, which is primarily concerned with dominating and subjugating an opponent. Thirdly, the combination of a *paratelic-negativistic* state elicits thrill violence, which is characterized by its spontaneity and the fact that enjoyment is the desired outcome. Finally, when a *paratelic-mastery* state occurs, the result can be play violence in which the individual is able to act aggressively and experience these sensations in a safe and protected context (e.g., sport).

Consequently, the apparent motives of an aggressive act, in combination with certain contextual information, may help illuminate an individual’s metamotivational state at the time of the incident. Such an approach has been used in an attempt to explain the now infamous Todd Bertuzzi incident (Kerr, 2006).

In light of the in-roads that reversal theory has made in the areas of sport and exercise psychology, several notable criticisms have been levied against the approach that
continue to minimize its use in the study of aggressive behaviour. First, it is a phenomenological approach, which requires the individual to recall the event and his/her state of mind during the aggressive altercation. As such, an interview cannot take place until after the competitive contest, which subsequently calls into question the reliability and validity of an athlete’s recall and recognition. Moreover, such an approach, especially when discussing overly physical behaviours with adolescent males, is highly susceptible to social desirability biases. In addition, this approach requires a level of maturity and self-evaluation that may be absent in many young amateur athletes (the level at which aggressive behaviour appears to be the most problematic). Secondly, reversal theory appears to be most commonly applied to the study of aggressive behaviour as a peripheral explanation of widely publicized events, rather than within an empirical framework. For example, it has been used to explain the Bertuzzi incident and several high profile cases of hooliganism, in which statements about the “plausibility” of certain metamotivational states are used as suggestive explanations (Kerr 2006; Kerr & de Kock, 2002). Consequently, the tenets of this theory have yet to be assessed in an etiological manner, and as a result, the reversal theory explanation continues to receive minimal academic attention. Ultimately, because of the cognitive and intangible nature of the reversal theory constructs, combined with their dynamic qualities and inherent links with several environmental catalysts, it is not likely that the tenets of reversal theory will ever be accurately measured within the context of competitive hockey. This limitation is inherent in the operational tools used to measure several reversal theory constructs, including the Motivational Style Profile (Apter, Mallows, & Williams, 1989). Here athletes’ dominant metamotivational states are assessed and subsequently used to explain
their sporting behaviours. However, important to the theory of reversal, is the fact that individuals frequently, and oftentimes continuously, reverse between various metamotivational states. Thus, the static operational tools used to measure these metamotivational states do not reflect the theory’s central dynamic tenets.

2.1.5 Social Learning Theory

The Social Learning Theory was originally developed to explain the acquisition of aggressive behaviour in humans (Bandura & Huston 1961). In order to do so, Bandura and his colleagues demonstrated that within a controlled laboratory setting children would “readily imitate aggressive behaviour exhibited by a model in the presence of the model” (p.316). In this case, the model in question was one of the child’s biological parents. Bandura and Huston (1961) placed a blow up doll, what they called a “Bobo Doll”, in an empty room and instructed the child’s parent to interact with the doll in a very specific manner (e.g., aggressive, nurturing). The parent was also instructed to use novel behaviour patterns so that any replication of the behaviour by the child could be explained as “newly acquired.” The parent was then rewarded or punished by the experimenter in front of the child. The child was subsequently placed in the exact same room with the Bobo Doll and observed. This line of research demonstrated that children would model those behaviours that they witnessed their parents being rewarded for exhibiting, while avoiding those that they associated with punishment. This phenomenon was subsequently labeled “vicarious learning”.

Albert Bandura’s research and development of the Social Learning Theory culminated with the publication of his text book, Social Learning Theory (Bandura,
This textbook presented the social learning theory as a complex and multidimensional framework from which the origins of human behaviour could be explained. In addition, the text outlined how the expression of these behaviours could be continuously regulated through the interplay between an individual’s self regulatory processes (i.e., cognitive functioning) and external sources of influence (Bandura, 1977). In other words, the individual and the environment interact reciprocally, so that each influences the other. The individual is sometimes constrained by his/her environment (it dictates what is acceptable/unacceptable), while in other instances the individual’s behaviour is responsible for changing the environment. Overall, Bandura (1977) made it very clear that human behaviour cannot be simplified to a Stimulus-Response explanation, which ran contrary to the dominant paradigms in psychology at the time (e.g., Operant Conditioning, Drive Theory).

The Social Learning Theory states that human behaviour is not innate (i.e., preprogrammed); rather, it is learned vicariously from models (e.g., parents, siblings, friends, teachers, TV actors) that an individual is exposed to within his/her social environment. Furthermore, attitudes, beliefs, values and perceptions can also be transmitted in a similar fashion. With respect to vicarious learning, the consequences of the model’s behaviour (e.g., reward, punishment) are of the utmost importance because of their ability to provide information to the observer concerning the appropriateness of a particular behaviour, their ability to influence the motivation of the observer to reproduce the behaviour, and ultimately their ability to influence the likelihood that the individual will store and retain the modeled information.
Bandura (1973) outlined four criteria that may affect the acquisition of particular behaviours through vicarious learning: (a) characteristics of the performer, (b) value of observed reward/frequency of observed punishment, (c) similarity of observed setting to potential performance setting, and (d) the status of the model. With respect to the characteristics of the performer, the more similar the model is in age, gender, ethnicity, height, and weight to the observer, the more profound his/her influence. The perceived value of a given reward can also significantly influence whether or not an individual will model a particular behaviour. In fact if the reward is desirable enough, individuals will exhibit behaviours that they normally would associate with punishment or being unacceptable. The environment in which the modeled behaviour took place is also essential to the acquisition process, as the acceptability of particular behaviours are oftentimes situational and therefore individuals must learn which behaviours are associated with rewards in which environments (Bandura, 1977). Consequently, observers are much more likely to model behaviours within the environments that they witnessed them, rather than generalizing behavioural patterns to all social contexts. Finally, the status of the model is directly related to the likelihood that the observer will reproduce the behaviour in the future. If the observer perceives the model to be of high status, they will likely perceive their behaviours as more acceptable due to the unconscious/conscious assumption that these behaviours have resulted in the person obtaining high status. Very simply, “if it worked for them, it will work for me.” Consequently, these antecedent determinants influence the likelihood of acquisition. If a high status model with similar attributes to the observer displays a behaviour that results
in a valued reward then the likelihood that the observer will internalize and reproduce such behaviour is relatively high.

Empirical support for these antecedents has been provided for sport-specific acts of aggression. For example, Smith (1979b) found that young hockey players routinely witnessed star NHL players committing acts of aggression through the media, and that they adopted these aggressive acts into their competitive behavioural repertoires. One boy remarked “sneaky elbows, little choppy slashes, Bobby Clarke style.” Smith subsequently cross-referenced these self-report comments with players’ penalty statistics in an attempt to assess whether or not athletes overtly displayed these behaviours. Similar results were also found among college and high school football players, with these athletes routinely citing media sources (e.g., televised games and media print of the NFL) as strong influences over how they played the game (Mugno & Feltz, 1985). Consequently, studies adopting a social learning paradigm must pay special attention to these social determinants when attempting to understand and predict the etiology of the behaviour.

Overall, the social learning theory forces researchers to address broader social factors when attempting to explain and understand the etiology of aggressive behaviour. For example, understanding an individual’s parents, friends, teammates, and siblings behavioural patterns and attitudes is likely essential to the understanding of a particular individual’s disposition and overt deportment. Moreover, mass media exposure has been shown to influence an individual’s behaviour and attitudes. Therefore examining media consumption may provide additional insight into how various behavioural patterns are developed and ultimately reinforced (Anderson & Dill, 2000; Anderson & Bushman, 2001; Anderson et al., 2003; Huesmann, Moise-Titus, Podloski, & Eron, 2003).
Nevertheless, the introduction of social learning theory to the study of aggressive behaviour in sport has spawned several new lines of potential research and has become the dominant academic framework from which these behaviours are currently being examined.

2.1.5.1 Personality as a Learned Construct

The origin of personality has been a central line of research in the field of developmental psychology since its inception. As a full presentation of the literature on personality is certainly beyond the scope of this manuscript; a more focused discussion on the role of social learning will be presented instead.

In her historical overview of the socialization research to-date, included as part of the American Psychological Association’s centennial publication, Maccoby (1992) suggests that even though contemporary research shows that the process of socialization is an ongoing one, that “childhood is a particularly malleable period, and it is the period of life when enduring social skills, personality attributes, and social orientations are laid down” (p. 1006). Moreover, that due to the amount of time spent at home, as well as the central and powerful role that parents play in a child’s life, the environmental influences of the family must be central to any discussion concerned with socialization. Maccoby (1992) continues by highlighting the pivotal role that learning paradigms (Bandura, 1962) have played in our understanding of personality acquisition and development, especially in the dissemination and internalization of attitudes, beliefs, perceptions and values. Learning theories have become increasingly more complex and cognitively-focused since the early work of Bandura and his colleagues, however the primary tenets appear to
remain the same. That being, significant others, through their actions and verbalizations, send very salient messages to children regarding the attitudes, beliefs, traits and behaviours that will ultimately be reinforced within the context of the family. Moreover, that this process of modeling and reinforcement has a significant influence on shaping the child’s personality and eventual overt behavioural repertoire (Baumrind, 1991; Bettencourt, Talley, Benjamin, & Valentine, 2006; Herrara & McCloskey, 2003; Stanley & Goddard, 2004).

The role of parents in the development of aggressiveness has independently received ample attention in the fields of social and developmental psychology, in part because of the non-normative, and seemingly dangerous, nature of this particular disposition (Ary, Duncan, Duncan, & Hops, 1999; Bannister & Ravdin, 1944; Kiesner & Kerr, 2004; Kochanska, 1991; McCord, McCord, & Howard, 1961). This body of literature suggests that there a number of parent-level demographic, socioeconomic, attitudinal and interpersonal factors correlated with children’s aggressiveness, which highlight both the complex and central role that parents play in its development. Once again, the central theoretical underpinning of these investigations is the transmission of these traits, at least in part, through the processes associated with social learning (Maccoby, 1992). Consequently, studies concerned with predicting aggression and the development of pro-aggressive personality characteristics among young people need to include important reference others (Smith, 1979a).
2.2 Empirical Research Findings

Previous research studies concerned with aggressive behaviour, primarily because of their micro-analytic nature, can be categorized as either Intrapersonal or Interpersonal in their focus. Consequently, the following section will provide a comprehensive examination of the research conducted to-date on aggressive behaviour, with specific attention being paid to the limitations that require future academic attention.

2.2.1 Intrapersonal Factors

Several intrapersonal attributes have been studied in relation to an individual’s attitudes and perceptions pertaining to the use of aggressive behaviour in sport.

2.2.1.1 Gender / Masculinity

One of the most extensively studied attributes in the area of aggression in sport has been the gender of the research participant. In such studies, males have overwhelmingly been shown to perceive and legitimize aggression more positively than their female counterparts. For example, Silva (1983) found that males were significantly more accepting of aggressive behaviour in sport, even when mediating variables such as the type of sport (i.e., noncontact, collision), experience, and current level of participation were taken into account. In another investigation, Bredemeier, Weiss, Shields, and Cooper (1987) used a series of slides depicting aggressive behaviour to ascertain legitimacy perceptions of male and female athletes. They found that males’ legitimacy perceptions of aggression increased according to the physicality present in the sport in which they participated, while female judgments were significantly lower and not related
to sport involvement. These results pertaining to gender and aggression have routinely been explained according to dominant gender ideologies, whereby aggression is believed to be much more strongly correlated with the dominant masculine archetype (McKay, Messner, & Sabo, 2000; Wellard, 2002). Tucker and Parks (2001) more recently provided similar results; however, these authors also noted that an interaction effect between gender and sport type appears to be emerging. In their investigation, a larger score differential was noted between female/male non-contact participants than female/male collision sport participants. A variety of explanations were offered to elaborate upon this emerging trend. First, these authors hypothesized that the non-contact sample of athletes may have been overconforming to broader social gender ideologies which have been constructed as relative polar opposites. Secondly, the smaller discrepancy found among collision sport athletes may be an artifact of the dramatic changes that women’s sport has undergone since the enactment of Title IX. Female sporting programs have historically been developed and modeled after male programs, with some of the attitudes and values believed to be carried over. Support for these claims have recently been provided by Nancy Theberge (1997; 2003) in her qualitative studies concerned with female ice hockey players. In these studies, the female hockey players often evaluated themselves against the male standard, in which physical contact and aggression were perceived as common place or “part of the game.” Consequently, the suggestion is that as female athletes begin to make in-roads into male-dominated contact sports, their attitudes towards the normalcy and legitimacy of aggression will begin to align with the dominant norms of that particular sport.
Social scientists have also extensively discussed the role of sport, especially hockey, in the process of gender socialization. These authors argue that competitive sports, especially those where strength, force and physical contact are central components, are social forums where masculinity is taught and ultimately reinforced (Coakley, 2001; Pappas, McKenry, & Catlett, 2004; Whitson, 1990). As becoming a “man” or displaying one’s “masculinity” is believed to be something that boys must work at, competitive sports like hockey and the use of aggressive behaviour provide them with a socially acceptable context in which to do so. Interestingly however, masculinity appears to be a fairly fragile construct during adolescence, causing stress among those boys who lack confidence in their social standing (Keddie, 2003; Smith, 1983). This is believed to precipitate much of the misogynistic and homophobic banter that is common place in male dressing rooms (Muir & Seitz, 2004). Moreover, outward expressions of physicality and reckless disdain for one’s opponent can be interpreted as “actively doing masculinity”, whereby the athlete publically displays such behaviour to reinforce to his teammates, and the spectators, that he is in fact a “man” (Young, 2000). Similar studies concerning masculinity have been undertaken in the behavioural sciences, albeit in a static laboratory setting (Baumeister, Bushman, & Campbell, 2000; Bushman & Baumeister, 1998; Cohn, Seibert, & Zeichner, 2009).

Social scientists have also speculated that due to the centrality of masculinity in competitive power / performance sports (Coakley, 2001), compounded by adolescents’ perceptions that they must constantly reaffirm their masculine status, participation in these types of sports may facilitate an extreme adherence to, or over conformity to, the dominant gender stereotype (Andre & Holland, 1995; Coakley, 2001). Consequently,
athletes may act overly aggressive when engaged in these activities as a way of overtly expressing their alignment with the dominant gender ideology. Nevertheless, gender, not simply participants’ biological sex, appears to be an important variable in the understanding of an individual’s propensity to engage in aggressive behaviour. Unfortunately, behavioural scientists, other than in a descriptive biological sense, have yet to treat it as such. The current study will include an assessment of self-reported masculinity in an attempt to further this line of research.

2.2.1.2 Trait Aggressiveness

As was mentioned in the previous section, personality as a determinant of aggressive behaviour in sport has been given almost no academic attention. Bredemeier (1978) was one the first to develop a trait-like measure of aggressiveness specific to competitive sport; however, the instrument has yet to be assessed in a predictive manner against actual within-competition acts of aggression. Studies to-date have validated its criterion and construct validity against other measures of trait aggression, but have not yet tested its predictive potential using overt behaviour (Stephens, 1998). Recently, Maxwell and Moores (2007) developed a similar trait-like instrument specific to sport (Competitive Aggressiveness and Anger Scale; CAAS) and have also provided support for several of its psychometric properties. Nevertheless, the CAAS’s predictive validity against actual within-competition behaviour has also not yet been tested. Overall, the study of personality as a determinant of aggressive behaviour in sport has taken a “back seat” to other dispositional (e.g., achievement orientation) and attitudinal (e.g., legitimacy perceptions) constructs of interest.
Fortunately, the broader field of psychology has been empirically studying personality as a determinant of aggressive behaviour for a number of years. Several of these studies have been experimental in nature, and have thus been conducted within the static and controlled laboratory environment (Bushman, 1995; Cleare & Bond, 1995; Hammock & Richardson, 1992; Knott, 1970). The most common design requires that participants complete a battery of self-report assessments (one or more of which are personality assessments) prior to engaging in an interpersonal task. The laboratory tasks are then designed in a way to elicit frustration from the participant and then to subsequently provide them with the opportunity to aggress against the perceived source of their frustration by applying a noxious stimuli (e.g., ostensible electric shock, white noise). These studies have overwhelmingly shown that participants who score higher on trait aggressive and hostility measures deliver more intense or longer durations of the unpleasant stimulus to the confederate (Bushman & Baumeister, 1998; Barratt, 1994; Hammock & Richardson, 1992; Knott, 1970). However, due to the artificiality of the laboratory context and the acts under investigation (shocks and white noise are not common acts of aggression witnessed in other social contexts), the external validity associated with the results emanating from laboratory paradigms has been questioned (Gottfredson & Hirschi, 1993; Kane, Joseph, & Tedeschi, 1976; Tedeschi & Quigley, 1996).

In response to these critiques, other investigations have taken a more ecological or “real world” approach towards the study of personality as a predictor of aggression. For example, van Ousem et al., (2006) found that aggressive personality traits were able to distinguish between violent and non-violent adolescence, whereas Ferguson et al., (2008)
found that trait aggression was one of only two significant predictors of an individual’s self-reported criminal activity. Similar descriptive and categorical designs have provided complimentary results, with the “Big Five” factors of agreeableness, conscientiousness and neuroticism being cited the most frequently (Heaven, 1996; Wiebe, 2004). Other constructs that have received considerable interest include: trait irritability (Lindsay, 1999), trait anger (van Goozen, Frijda, & van de Poll, 1994), narcissism (Bushman & Baumeister, 1998), type A personality (Byrne, 1996) and impulsivity (Barratt, 1994).

Overall, these studies appear to demonstrate that significant personality differences exist between aggressive and non-aggressive people. However, due to the retrospective nature of these designs (assessments are given to a group of people identified as violent and then compared to non-violent people), the true predictive validity of personality on aggressive behaviour is still relatively unknown (Bushman & Wells, 1998). Moreover, as aggressive behaviour is a fairly rare occurrence in society it would take an extremely large sample, along with an extensive longitudinal design, before a sufficient number of cases were observed to undertake a predictive study.

Bushman and Wells (1998) attempted to overcome this final limitation by identifying a context in which aggressive behaviour was more common: ice hockey. These authors tested the predictive validity of the Buss & Perry (1992) Aggression Questionnaire by having athletes complete the assessment prior to competing and then tracking their aggressive penalties over the competitive season. The researchers found that this measure of trait aggressiveness was in fact predictive of athletes’ use of aggressive behaviour over a competitive season, accounting for roughly 25% of the predictive variance. As such, this study provides preliminary support for the predictive
influence that an athlete’s inherent aggressive disposition can have over their within-
competition behaviour. Moreover, this study also highlights the important role that the
sport sciences can play in advancing our understanding of aggressive behaviour.

The current study will assess the predictive potential of an athlete’s aggressiveness by including both the instrumental and reactive scales of Bredemeier’s (1978) Athletic Aggression Inventory. Doing so will not only provide additional psychometric support for the instrument, but will also test the predictive influence of these traits in a multivariate design, thus expanding upon Bushman and Wells’ (1998) previous findings.

2.2.1.3 Moral Reasoning

Another intrapersonal and dispositional construct that has received considerable attention within the aggression literature, is moral reasoning. The theories of Kohlberg (1981; 1984) and Haan (1991) have provided the frameworks upon which several of these empirical investigations have been based. Both theories present a comprehensive depiction of how individuals’ develop their moral competencies in a stage-like manner. Although these two theorists utilize different conceptualizations, both divide moral development into three maturation levels: (1) pre-conventional, (2) conventional, and (3) post-conventional. The pre-conventional level is displayed when an individual’s decisions are dominated by a concern for his/her own personal welfare. When individuals move to conventional moral reasoning, their decisions become more heavily influenced and oftentimes congruent with the norms and expectations of their families, primary social groups, and/or sport team. However, moral reasoning within the
conventional stage is still conceptualized as situationally-specific, so what is considered right/wrong changes according to the primary social group in which the individual is interacting. Finally, post-conventional moral reasoning is best described as “doing unto others as you would have them do unto you.” This final and most mature level of moral reasoning is guided by universal beliefs about fairness and justice.

The most common method for assessing moral reasoning involves a semi-structured oral interview based upon the structural developmental approach (Piaget, 1932). Using this approach, participants are given hypothetical scenarios while the interviewer uses standardized and probe questions to uncover the underlying rationale for why the individual chose one action response over another. However, in order to assess this construct in a more practical manner, Stephens, Bredemeier, and Shields (1997) created the Judgments About Moral Behaviour in Youth Sport Questionnaire (JAMBYSQ). The JAMBYSQ also follows a structural developmental approach (Piaget, 1932), by providing respondents with various sport specific scenarios. Respondents are then asked questions pertaining to the legitimacy of certain sporting behaviours according to a variety of different contingencies (e.g., someone did it to you first, the ref wasn’t looking).

When moral reasoning has been examined in relation to aggressive cognitions, less mature patterns of moral reasoning (i.e., pre-conventional) have consistently been associated with more positive perceptions and attitudes towards the use of aggressive behaviour in sport (Bredemeier, 1985; Bredemeier & Shields, 1984; 1986; Bredemeier, Weiss, Shields, & Cooper, 1987; Guivernau & Duda, 2002). For example, using a regression analysis, Bredemeier (1985) demonstrated that moral reasoning significantly
predicted an individual’s legitimacy perceptions of aggressive behaviour, while
Guivernau and Duda (2002) found that the team norms surrounding aggressive behaviour
(i.e., moral atmosphere) were the primary predictors of an athlete’s self described
likelihood to aggress. Overall, this line of research appears to illustrate that moral
reasoning is associated with pro-aggressive aggressive attitudes, and that an individual’s
moral development and moral status can be influenced by significant others (Stephens &

Unfortunately, this line of research has fallen short of assessing actual within-
competition aggressive behaviour, and as such, we still lack an understanding of the
impact of moral reasoning on within competition aggressive behaviour. Previous research
by Leith and Loughead (2001) and Bredemeier (1985) have speculated on the large
disconnect that exists between perceptual / cognitive measures of aggression, and an
athlete’s actual within-competition behaviour. As such, a more ecologically valid
approach that includes a behavioural criterion as the dependent variable will likely
provide a much clearer understanding of the relationship that exists between these two
constructs. In addition, no behavioural research to-date has examined the relationship
between players’ moral reasoning patterns, and the patterns of their parents and coaches.
Consequently, the current study will include moral reasoning as a predictive construct
and assess its influence over aggressive behaviour within this multifactor design. Parents
and coaches’ moral reasoning levels will also be directly assessed and included as
predictor variables.
2.2.1.4 Achievement Motivation

Finally, one of the most widely researched intrapersonal constructs with respect to aggressive behaviour in sport has been an individual’s achievement motivation. Within the sport psychology literature, achievement motivation is primarily discussed in relation to why people participate and persevere in certain achievement contexts. The theoretical framework that underlies this construct attempts to understand behaviour by assuming that humans are goal-directed creatures and that most human behaviour can be predicted according to these goals (Nicholls, 1989). According to this theoretical perspective, two goal orientations have been identified: task and ego. Task-oriented individuals participate in activities generally for intrinsic reasons and attempt to demonstrate skill mastery rather than normative ability (Nicholls, 1989). Furthermore, these individuals interpret and define success according to personal standards rather than comparing themselves to others. While participating in sporting activities, task-oriented individuals are expected to (a) display adaptive achievement behaviour, (b) exert effort, (c) select challenging tasks, (d) be intrinsically motivated, and (e) persist in the face of failure (Nicholls, 1989).

In contrast, ego-oriented individuals strive to demonstrate superior normative ability and approach sport as a vehicle to enhance one’s social status (Dunn & Dunn, 1999). These individuals compare their performance with the performance of their peers in order to evaluate success and define competence. As a result, beliefs pertaining to competence become other-referenced and entirely outcome dependent. While participating in sport, these athletes are expected to (a) select easy tasks, (b) be extrinsically motivated, (c) quit upon failure, (d) exert minimal effort, and (e) display maladaptive achievement behaviours (Nicholls, 1989). It is important to note that most
people possess a combination of both types of goal orientations, and that very few people are actually 100% task or ego-oriented.

When achievement motivations are discussed in relation to aggression, researchers have speculated that ego-oriented athletes’ preoccupation with winning may cause their concern for the legitimacy by which this is accomplished, to decline (Dunn & Dunn, 1999). In addition, ego-oriented athletes may use aggressive tactics instrumentally in an attempt to gain a performance advantage. Lemyre, Roberts, and Ommundsen (2002) provided empirical support for this hypothesis when they demonstrated that ego-oriented individuals were significantly less likely to endorse sportspersonship when compared with task-oriented athletes. Several other empirical investigations have documented similar results (Duda & Huston, 1995; Duda, Olson, & Templin, 1991; Dunn & Dunn, 1999; Stephens & Kavanagh, 1997; Stephens, 1998b) with an ego-orientation consistently being associated with the endorsement of, and positive perceptions towards, the use of aggressive behaviour.

Due to its popularity in the sport-specific aggression literature, as well as its proposed theoretical relationship with athletes’ susceptibilities towards aggression, the current study included athletes’, parents’ and coaches’ achievement orientations and entered all of them as predictors against athletes’ aggressive penalties over a competitive season.

2.2.1.5 Attitudes and Perceptions

A number of studies have assessed athletes’ attitudes towards, and normative perceptions of, the use of aggressive behaviour in competitive sport. Examples of these
constructs include legitimacy perceptions, normative evaluations and an individual’s self-reported likelihood to use aggressive behaviour. Such studies have employed these primarily as dependent variables in the study of aggressive behaviour. For example, Bredemeier, Weiss, Shields and Cooper (1987) examined the relationship between legitimacy judgments, moral reasoning, sport involvement and youth athletes’ self-reported aggressive tendencies. They found that children were more likely to legitimize aggression when it was exhibited by an adult, and that boys’ legitimacy judgments were correlated with the physicality associated with their current sport involvement, as well as their moral reasoning scores. Moreover, in Stephens’ studies (2000; 2001), athletes representing two team sports (soccer and basketball) were asked to complete a questionnaire package that assessed their achievement orientation, legitimacy perceptions and their moral reasoning level. The remaining independent variables deviated slightly according to each study, but both concluded with the participants self-reporting their likelihood to aggress across a number of scenarios. These self-reported aggressive tendencies were then entered into regression models as the dependent variable. In both cases, the author found that other pro-aggressive attitudes, both internal and external (e.g., perceptions of teammates), were significant predictors of athletes’ self-reported likelihood to engage in aggressive behaviour.

There are number of attitudinally-based studies comprising the sport aggression literature, the majority of which appear to support an interrelationship between pro-aggressive cognitions (i.e., athletes with more positive attitudes also more frequently self-report a higher likelihood to engage in aggressive behaviour). The primary limitation of this line research however, is the omission of a valid behavioural criterion. Unfortunately,
the assumption remains that pro-aggressive attitudes ultimately translate into actual within-competition aggressive behaviour; however, this assumption has yet to receive adequate empirical support. Consequently, as the current study included athletes’ seasonal archival penalty records as the outcome variable, attitudinal and perceptual constructs of aggression were not required.

Overall, several intrapersonal factors have garnered a considerable amount of attention within the sport aggression literature. Nevertheless, these constructs have been assessed and interpreted in relative isolation to-date, with very unique and separate lines of research developing. As such, it appears paramount that these factors be assessed simultaneously in a multifactor design in order to assess their independent predictive contributions, as well as any interactive relationships that may exist. Doing so may help illuminate the future directions of these lines of research, and ultimately work to consolidate the research on intrapersonal determinants of sport-specific aggression.

Moreover, each construct needs to be examined in relation to actual within-competition aggressive behaviour in order to test the currently held assumption that these cognitive constructs are predictive of actual behaviour.
2.2.2 Interpersonal Constructs

As was mentioned earlier, several intrapersonal constructs (e.g., achievement motivation, attitudes, legitimacy perceptions) are believed to be influenced by important individuals in the athlete’s immediate social environment (e.g., parents, coach, teammates), and as such, these social influences should be included in studies concerned with the etiology of aggressive behaviour. Previous research has examined several of these important “reference others” (Smith, 1979a), but have done so in a relatively isolated and fragmented manner.

2.2.2.1 Parents

Parents’ ability to influence the attitudes and perceptions of their children, especially with regards to the use of violence and aggression, has received considerable attention in the fields of developmental and social psychology (Baumrind, 1991; Bettencourt, Talley, Benjamin, & Valentine, 2006; Bickett, Milich, & Brown, 1996; Vitaro, Brendgen, & Tremblay, 2002). However, as was mentioned earlier, such attention has not yet transcended into the sport sciences.

Michael Smith’s (1974; 1978; 1979a; 1979b; 1979c) research, which utilized Schmitt’s (1972) reference-other framework, exists as arguably the most comprehensive assessment of parents’ influence over their child’s cognitions and actual ice hockey behaviour. Through both qualitative and quantitative designs, Smith found that parents’ approval of fighting in hockey was significantly correlated with their children’s actual on-ice fighting behaviour over a competitive season. More specifically, Smith (1979c) found that a father’s perceived approval for fighting was the greatest predictor of his
son’s on-ice conduct. Interestingly, age and the level of competition (i.e., rep vs. house league) were moderators of this influence, with the father’s perceived approval increasing linearly according to both constructs.

Smith’s research also stands out because it included an ecologically valid behavioural criterion (e.g., fighting penalties) from which self-report data could be compared. Unfortunately, Smith’s research focused specifically on fighting in hockey, and omitted the plethora of other behaviours which have been shown to adhere to aggression’s conceptual definition (Widmeyer & Birch, 1984; Widmeyer & McGuire, 1997). As a result, our understanding of parents’ influence over their children’s within-competition behaviour is currently limited to the act of fighting, and has focused only on perceived approval. Finally, Smith’s research on “reference others” was fairly descriptive and correlational in nature, and thus required additional work to expand upon these preliminary findings. Unfortunately, soon after these seminal works were published the popularity of studying aggressive behaviour in sport diminished, with few studies picking up where Smith left off.

Researchers within the broader field of psychology have examined parental influence on the overt expression of aggression among youth (e.g., behaviour, not personality as was discussed previously). This body of literature appears to be divided into two distinct groups: indirect and direct influence.

The research concerned with parents’ indirect influence has primarily concentrated on the use of corporal punishment (e.g., spanking) within the household. This line of research started to receive a considerable amount of attention after Sears, Maccoby, and Levin (1957) found that children who were spanked acted more
aggressively towards their parents when compared with children who did not receive spankings. Ironically, parents use spankings as a way of reducing the frequency with which their children display aggressive behaviour. Nonetheless, this line of research appeared to suggest a linear association between the severity of children’s abuse (with spanking being considered low on this scale) and the severity and frequency of their future exhibition of aggressive behaviour (Steinmetz & Straus, 1975). As such, children who are battered or sexually abused appear to have a significantly higher likelihood of growing up to be batterers and sexual offenders (Glasser, Kolvin, Campbell, Glasser, Leitch, & Farrelly, 2001; Lystad, 1979; Palmer, 1960). The reason for this association appears to be explained in part by the social learning theory. It is posited that abused children learn from the abusive parent “how to hit, in what circumstances to hit, and that hitting is a swift, effective, and in some circumstances acceptable method of dealing with other people, even people you love, especially when other things do not work” (Smith, 1983, p. 77). Nevertheless, as Bandura (1977) pointed out, social learning is not simply “monkey see, monkey do.” The likelihood that children will model these behaviours is influenced by a variety of cognitive and affective processes, one of which is their perceptions of the rewards/punishment associated with doing so. Therefore, if the child predicts that the behaviour will likely result in reinforcement (e.g., praise, reinforcement, reduced frustration), then the likelihood of an aggressive outburst is far greater than if they perceive punishment as the inevitable consequence. This line of research is classified as “indirect” because the parent’s intention is not to teach the child about violence, but rather to discipline them. With respect to sport-specific aggression, little research has been concerned with the indirect learning of aggression. However, there do
appear to be anecdotal links between childhood exposure to abuse and becoming an aggressive/violent athlete (McRae, 1977).

When parents directly train their children in violence there is an open dialogue and reward system surrounding these aggressive behaviours. In this case, the child learns which behaviours their parents deem acceptable, and subsequently display these behaviours in order to receive reinforcement (Bandura, 1977). The socialization of aggression appears to be overwhelmingly masculinized in North America, with young boys receiving frequent pro-aggressive lessons during childhood, while young girls receive relatively opposing messages (e.g., to be delicate and fragile). For example, a survey of 1,176 American adults conducted by the National Commission on the Causes and Prevention of Violence found that 70% agreed with the statement “when a boy is growing up, it is very important for him to have a few fist fights (Stark & McEvoy, 1970, p. 274). This common sentiment creates an atmosphere which places toughness and physical dominance at the center of what it means to be a “man”, and ensures that parents model and reinforce these gender normative attributes (Maccoby, 1992). For example, pro-aggressive attitudes and rough and tumble interactions between the parent and young male child are routinely cited in the literature on gender socialization (Cohn & Zeichner, 2006; Feder, Levant, & Dean, 2007). Consequently, young boys are taught very early that interpersonal physical dominance is not only acceptable, it is actually a revered masculine attribute.

With respect to the teaching and reinforcement of violence among young males, the research has been both sport and non-sport specific. Outside of sport, research has focused on the commonly cited “rough and tumble play” (MacDonald & Parke, 1986)
that parents often engage in with male children, and also the violent toys (e.g., guns, soldiers) which are often marketed to this demographic (Giuliano, Popp & Knight, 2000; Hellendoorn & Harinck, 1997).

Within sport, the lessons that parents teach their children about aggression appear to be associated with the parents’ desire to present their male child in a socially desirable manner. In other words, by promoting an overly physical style of competitive behaviour, the parent believes that not only will their child be perceived as adhering to dominant gender stereotypes, but they themselves will be seen as “good parents” for properly socializing the child. For example, it is comments such as “boy! little Ian isn’t afraid to hit” (p. 80) that Smith (1983) believed parents of young male athletes in power/performance sports seek out and crave. Smith’s (1978, 1979a; 1979b; 1979c) research also highlighted parents’ beliefs in the use of competitive sport to build character in their male children. One father was quoted as saying “I put my own kid in hockey so he would learn to take his lumps” and that “the day they turn hockey into a namby-pamby game for sissies is the day I get out” (Smith, 1983, p. 81). These beliefs and attitudes oftentimes become vocalized during competition, with parents shouting and cheering after overly physical confrontations (Goldstein & Iso-Ahola, 2008; Kidman, McKenzie, & McKenzie, 1999). Inevitably, young athletes come to learn that aggression is not only legitimized but revered within the context of competitive hockey, and therefore they exhibit such behaviours in order to receive this reinforcement and to adhere to perceived normative expectations.

In some cases, a parent’s influence is not as overt and explicit as the examples provided above. Bergin and Habusta (2004) examined the relationship between parents’
and children’s (i.e., young male hockey players) achievement motivation scores, as well as their perception of each other's disposition (i.e., parents rate kids, kids rate parents). These authors found that young male hockey players were much more ego-oriented than their parents had perceived them to be, and that the hockey players perceived their parents as possessing the same ego disposition, even though this was not actually the case. The authors suggested that certain messages or reinforcing cues were inadvertently being transmitted from the parent to the child, which appeared to promote a very ego-oriented perspective when it came to defining success and athletic competence. Duda and Horn (1993) and Givvin (2001) provided similar results, and again concluded that parents play a profound role in influencing their child’s achievement goal disposition.

Unfortunately, similar to the criticisms levied against many of the intrapersonal constructs, very little research has examined parental influence on actual aggressive behaviour within sport (excluding Smith’s seminal work in late 1970’s). Moreover, those studies that have involved parental influence, have done so in isolation of other important reference others (e.g., coach, teammates). Contrastingly, parental influence on aggression has been a central research focus in the broader field of psychology, and thus likely deserves greater attention within the sport sciences. Research needs to better understand the pervasiveness of this social influence over within-competition behaviour, and whether it is direct or indirect in its relationship. If a relationship is identified between parents and their children’s use of aggressive behaviour in ice hockey, understanding the factors and constructs that facilitate these discrepant behavioural patterns (e.g., aggressive and non-aggressive children) could become the starting point for developing future initiatives.
2.2.2.2 Coaches

Because of their dominant role within the competitive sport context (e.g., leader, decision maker, selection of team), the coach has been heralded as the most influential socializing agent with respect to how athletes play the game (Loughead & Leith, 2001; Mugno & Feltz, 1985). Unfortunately, the accuracy of this statement has yet to be empirically supported, as the role of the coach has not yet been examined simultaneously with other important reference others or against actual within-competition behaviour.

The research that has focused on the coach as a source of influence has concentrated on the athletes’ perceptions of their team’s norms surrounding violence, the team’s moral atmosphere, and their coach’s attitudes and dispositions towards using aggressive tactics. Previous studies have speculated that coaches may promote aggressive behaviours both for what they symbolize (tough masculine character) and also their perceived utility in winning games (Faulkner, 1974; Smith, 1979a). For example, as coaches’ own upward mobility is in part dictated by their ability to field winning teams and produce successful players, there may be an incentive associated with promoting aggressive tactics as a way of maximizing their team’s likelihood for success (i.e., win-at-all-costs).

Shields, Gardner, Bredemeier, and Bostrom (1995) developed the Team Norm Questionnaire (TNQ) to assess the degree to which athletes perceive their coach as possessing pro-aggressive and/or pro-cheating attitudes. These authors found that particular leadership styles (i.e., autocratic) were more highly associated with perceived pro-aggressive norms and that higher levels of task cohesion facilitated positive attitudes towards aggression. In other studies, Stephens (2000) and Stephens and Bredemeier
(1996) found that athletes’ perceptions of their coach’s ego-orientation were found to be significant predictors of athletes’ self-described likelihood to aggress. Therefore, if athletes perceived their coach as possessing a “win at all costs” mentality, and believed that the coach prioritized winning above all other things, these athletes were more likely to self-report that they would engage in aggressive behaviour, especially if it would help the team win. This illustrates the potential influence that a coach’s attitudes and competitive disposition can have on a team’s collective beliefs, and possibly their actual within-competition behaviours. Unfortunately, no study to date has assessed these coaching constructs or team climate variables against actual player behaviour.

Similar correlational results have emerged when a team’s moral atmosphere has been the construct under examination. Guivernau and Duda (2002) found that athletes who perceived the team as possessing lower levels of moral reasoning and higher pro-aggressive norms had significantly higher self-reported likelihood to aggress scores than did athletes who viewed their teammates opposingly. In addition, these athletes all reported a higher likelihood to aggress if they believed that their coach would approve of the behaviour in question. Consequently, athletes’ perceptions of how their coach would react (e.g., consequences) appears to be strongly related to their self-reported likelihood to engage in the behaviour. Overall, these authors demonstrated the significant effect that coaches can have in “shaping” the norms and expectations of the team environment, and how this environment relates to an individual’s beliefs about the legitimacy of using aggressive tactics. Luxbacher (1986) provided earlier support for this same conclusion using a sample of youth soccer players.
Loughead and Leith (2001) examined hockey players’ perceptions and actual use of aggressive behaviour in relation to their coach’s attitudes towards aggression. These authors found that coaches at all levels of competitive hockey (e.g., novice, atom, peewee) approved of athletes’ aggressive behaviour, especially those acts perceived to be strategic or tactical. This was a relatively surprising finding, as it was originally hypothesized that approval ratings would increase linearly in accordance with age (see Smith, 1979a). However, as Spallanzani (1988) points out, nearly 75% of youth hockey coaches are former players who have progressed through a similar minor hockey system and therefore understand the pervasive theme of violence that characterizes this subculture. As a result, coaches may believe that in order to progress in amateur hockey players must be willing to dish out and receive aggression, and that this mindset must start early on. One of the most interesting findings of the Loughead and Leith (2001) study, and one that supports the rationale behind the current investigation, was the lack of an observed relationship between the coach’s perception of aggression and the player’s actual penalty records. The authors noted that “coaches, although highly influential, are only one of many influences on players' perceptions and behaviours of aggression” (p. 403). This of course highlights the importance of assessing several influential social agents simultaneously, and in an additive and interactive manner.

A number of qualitative (e.g., interview, observation) studies have provided additional insight into how coaches outwardly express their attitudes pertaining to the use of aggressive behaviour in the presence of their players. Smith (1979c) overheard a Bantam level hockey coach addressing his players before the game:

Look, if this character starts anything, take him out early. We can’t have him charging around hammering people. Somebody’s going to have to straighten him
out. Just remember, get the gloves off and do it in a fair fight. If you shake him up early he can’t keep it up. Besides, it’s best to take penalties early in the game before we get too tired to kill them effectively (p. 108).

Such an outward and explicit instruction to use aggressive tactics makes it very clear to players which types of behaviours will earn them praise from their coach. In an earlier study, Vaz and Thomas (1974) asked players to list the qualities they believed the coach used to select their current team, to which 62% reported “being aggressive”, 56% reported “physical size and strength”, and 25% stated “guts and courage.” Smith (1978) and Faulkner (1973; 1974) published similar results, with athletes perceiving aggression and physicality as the most important attributes associated with success and upward mobility in amateur ice hockey. In fact, Smith (1983) argued that around age 12 (where body contact is introduced) larger more physical players are often selected over smaller players, irrespective of skill. Therefore, the message quickly becomes, play the game a certain way (overtly physical, aggressive) or you won’t be playing the game for very long.

Overall, because coaches dictate who plays and who progresses in amateur hockey, they are in an unparalleled position to influence players’ actual on-ice behaviour. If particular players refuse to adopt the coach’s preferred style of play (e.g., aggressive), they may quickly find themselves on the bench or in a less competitive league (e.g., house league). Consequently, understanding a coach’s aggressive attitudes and competitive disposition appears to be imperative when attempting to understand the etiology of players’ behavioural repertoires. Moreover, coaches may impact and influence player behaviour indirectly through the development of team norms and expectations (Guivernau & Duda, 2002). In doing so, players may quickly learn which
behaviours and attributes will facilitate reinforcement from their coach, and thus adopt a conducive style of play. Therefore, studies concerned with coaches’ influence over athlete aggressive behaviour should be concerned with both direct interpersonal and indirect team climate constructs.

Nonetheless, an understanding of the coach’s influence must be assessed in association with the attitudes, values, beliefs and dispositions that the athlete brings to the team initially, as well as the beliefs of the athlete’s parents. The interactive effect of these various constructs is likely to provide a much more robust and comprehensive understanding of the etiology of aggressive behaviour.

2.2.2.3 Teammates

Athletes’ teammates, much like their friends outside of sport, exert a large amount of influence over their attitudes, beliefs, and subsequent behaviour. Individuals will oftentimes conform to group norms simply to fit in and maintain the status quo. Solomon Asch (1955) was one of the first to empirically validate the phenomenon of group conformity and to illustrate how profound the group could be in altering an individual’s beliefs and responses. Asch conducted a series of “vision” studies in which subjects would enter a room and sit at a table with a group of people, all of whom were confederates. The subject would always sit at the last chair in the circle, so that they would be the last to respond. Each group was then shown two cards (A and B) with lines of different lengths, and asked to choose the line on card B that was similar to the line on card A. Each group member would voice their opinion in order (all confederates were instructed to answer incorrectly), leaving the subject to voice his/her opinion last. Asch
found that 74% of subjects conformed to an incorrect answer at least once when the confederates had voiced a unanimous incorrect answer, while 28% conformed on 6 or more of the 12 trials. Asch then interviewed the subjects upon completion of the experiment and found that these subjects knew that the answer was incorrect, yet went along with the group in order to avoid ridicule or appearing peculiar.

Matza (1964) documented similar conformist trends among adolescents with respect to the use of aggressive behaviour. While studying gang subcultures Matza (1964) found that youth from relatively affluent backgrounds, with seemingly strong moral and ethical values (which he derived by interviewing these youth), would commit acts of vandalism and violence when surrounded by other youth promoting these activities. Consequently, these youth understood that these behaviours were wrong, and that such behaviours went against their moral upbringing, yet in order to maintain their group membership and fit in they took part in these antisocial antics. Similar results have been used to explain unruly mobs and riots engaging in violent and destructive behaviour (McPhail & Wohlstein, 1983; Pendry & Carrick, 2001), while more recent research has examined these social influences with respect to schoolyard bullying (Garandeau & Cillessen, 2006). Ultimately, the power of persuasion present within a group context cannot be underestimated, and must be understood when attempting to explain human behaviour within a social context.

Within the context of competitive sport, athletes’ teammates have repeatedly emerged as a strong predictor of athletes’ self-reported likelihood to aggress. For example, in the previously mentioned Stephens (2000) and Stephens and Bredemeier (1996) studies, subjects’ perceptions of their teammates’ likelihood to aggress was the
number one predictor of their self-reported likelihood to aggress. In other words, if they perceived their teammates as pro-aggressive, they reported themselves to be pro-aggressive as well. Similar results have been documented across a variety of sports (Stuart & Ebbeck, 1995), including hockey (Smith, 1975; 1979c), basketball (Stephens, 2001), and football (Mugno & Feltz, 1985). In all cases, athletes’ self-reported disposition towards aggression was highly correlated with their perception of how their teammates would respond.

Smith (1983) proposes that the common denominator in understanding violence and aggression within male dominated subcultures is RESPECT. Smith argues that you gain other males’ respect by “demonstrating physical courage, gameness, recklessness…and a disdain for injury. You lose it by revealing a lack of heart, guts, balls, and by chickening out” (p. 92). While interviewing NHL players about fighting, Smith (1979c) found the common statement to be: “I’d rather see a guy fight and lose than turn his check and not fight at all. You pretty well realize that you have to fight, otherwise the guys look down on you” (p.93). Consequently, from a group dynamics perspective, the projection and exhibition of hockey players’ aggressive tendencies may be important for the development of their team’s task (e.g., you are just as committed to winning as they are) and social (e.g., they can count on you to back them up) cohesion. The above statement explicitly highlights the pressure to conform that the group can place on individual athletes. If in fact a player does “realize that they have to fight”, and is motivated to maintain their team membership, do they have any other option but to display these behaviours? This social pressure to commit on-ice aggression, especially among adolescent boys trying to solidify and reinforce their masculine identities, may
represent one of the strongest facilitators of aggressive behaviour. Nevertheless, additional research is required.

Interestingly, in the study concerned with gang members, Matza (1964) found that when he interviewed the boys separately they would frequently report that they would like to be less violent, and that they only acted violent in the presence of the other boys. Therefore, all the boys acted aggressively because they perceived the other members of the group as desiring this behaviour, when in fact all the boys wanted to behave less aggressively but feared group ostracism. Matza (1964) later labeled this term “mutual misunderstanding.” Similar findings were reported in Bernie Pascall’s (2000) commissioned report on amateur hockey violence in British Columbia. Young hockey players, coaches, and parents alike reported that they would like to see the level of violence and physical aggression reduced dramatically within the amateur hockey system. Yet, when asked why they didn’t voice their opinions earlier, several responded that a fear of ridicule and ostracism prevented them, as they perceived themselves as the only one holding this opinion.

Overall, a player’s teammates may be the most influential with respect to aggressive behaviour in hockey. Players may override their own disposition towards aggression and behave in a manner that they believe to be desired by their teammates as a strategy for maintaining group membership and respect (Smith, 1983). Ultimately however, the true influence of an athlete’s teammates will not likely be realized until they are examined interactively with other prominent social influences in the athlete’s life and against actual within-competition behaviour.
2.2.3 Conclusion

The previous section provides a comprehensive overview of the psychologically-based research that has been undertaken in an attempt to explain the etiology of sport-specific aggression. Unfortunately, such studies represent a small sub-set of the literature on aggressive behaviour in the sport sciences, with the abundance of studies still focusing on the behaviour, rather than the perpetrator, as the unit of analysis. Consequently, the psychosocial studies that have been undertaken to-date, in part because of their micro-analytic and fragmented nature, have yet to significantly impact our academic understanding of sport-specific aggression and have certainly failed to permeate the broader social discourse surrounding these transgressions.

Overall, the previously mentioned studies lend support to the notion that parents, coaches, and teammates influence athletes’ attitudes and perceptions towards aggression; however, all fall short of studying actual within-competition behaviours. In addition, because the previously mentioned studies have been predominantly isolated and examined independent sources of influence, rather than assessing multiple constructs and/or sources of influence interactively, we currently lack a realistic understanding of the importance and ultimate influence that each of them has over an athlete’s use of aggressive behaviour when playing hockey.

A thorough review of the psychology literature on aggressive behaviour also appears to highlight the degree to which the sport sciences are lagging behind. Future sport-specific research could benefit greatly from understanding and employing contemporary constructs and theoretical frameworks, with the broader field of psychology potentially benefiting from the ecology and access to aggression offered by
the sport sciences. Interestingly however, both disciplines (i.e., micro-sport sciences; macro-psychology) and their subsequent bodies of literature appear to be plagued by a common issue. Aggressive behaviour is a complex and multifactoral construct whose determinants are all too often studied in an independent and isolated fashion. The result as Ferguson et al., (2008) points out “is that scientists and laypersons alike [are being] presented with scattered, contradictory, and confusing information that does little to illuminate specific mechanisms that lead to violent behaviour” (p. 396). As such, a multivariate predictive study appears necessary to identify the constructs that, when presented in combination, are the most predictive of actual within-competition aggressive behaviour. Doing so may help consolidate and synthesize the current body of literature and may be instrumental in developing a general framework from which future lines of research can expand.
III. METHODS

3.1 Previous Methodologies

Two methodologies have dominated the study of aggressive behaviour in sport: (1) self-report instruments, (2) archival penalty records. Both possess a multitude of strengths; however their independent weaknesses have been the subject of a large number of criticisms (Kirker et al., 2000; Sheldon & Aimar, 2001; Stephens, 1998). Each approach will be discussed in-depth in this section, and will be followed by the proposed methodology for this investigation.

3.1.1 Self-Report Instruments

Self-report measures are a form of descriptive research that seeks to determine the current practices or perceptions of a specific population (Thomas & Nelson, 2001). These instruments are heavily grounded in the positivistic paradigm and thus assume that social facts have an objective reality that can be quantified, predicted and ultimately generalized (Cresswell, 1994). Questionnaires are most commonly used in these deductive inquiries that aim to test a particular theory or working hypothesis. The instruments used in quantitative research operationalize and conceptualize constructs for the participant in an attempt to eliminate subjective, temporal, or cultural interpretations. Overall, these instruments deduce information into a numerical format that can be subsequently subjected to quantitative statistical analyses in an attempt to provide normative solutions or answers.

Questionnaires also have a variety of design strengths that make them relatively appealing to academics. First, they can be distributed to a large population with relative
ease; thus, providing researchers with adequate sample sizes in an expeditious and cost effective fashion. And secondly, their results can be easily interpreted and subsequently compared with normative criteria in an objective manner.

Some general criticisms that have been directed towards designs utilizing self-report methodologies in the study of aggressive behaviour include their indirect nature, predictive abilities, and overall lack of comprehensiveness.

Self-report measures do not actually assess aggressive behaviour, but rather attempt to measure an individual’s attitudes towards, perceptions of, and perceived likelihood of committing an aggressive behaviour. When these constructs are included in designs as independent variables, they are believed to possess a link or relationship with aggression. When they are used in designs as dependent variables they are treated as proxy measures of an athlete’s actual use of aggressive behaviour. Unfortunately, the assumption within this body of literature is that these results are then generalizable to actual within-competition aggression. However, as many of the studies that have employed a self-report methodology to-date have omitted a behavioural criterion, this assumption currently exists with very little empirical support. As a result, the current body of self-report literature provides insight into the interrelationships that appear to exist among many of these attitudinal and perceptual determinants; however, has failed to assess their relationship with an athlete’s actual use of aggression.

The use of self-report measures in the broader psychological study of overt aggressive behaviour has been commonplace however (see discussion on trait aggressiveness in the previous section). These studies have assessed the relationship between a variety of constructs and aggressive behaviour, using both retrospective and
predictive methodologies. However, unlike the sport sciences, a valid behavioural criterion for aggression was almost always employed. As such, in order to expand our sport-specific understanding of aggressive behaviour, these commonly cited self-report constructs must be tested against a valid behavioural criterion.

3.1.2 Archival Penalty Records

By far the most widely used methodology in the study of sport-specific aggressive behaviour has relied on the official penalty records of the competitive contest. Aggressive behaviours within this framework are operationalized as those acts that violate the formal rules of the game and are subsequently punished by the game officials. Using this approach, an athletes’ actual within-competition behaviours are now being directly evaluated, which reduces concerns around the ecological or external validity of the results. This final point is extremely important, because the context of competitive sport is believed to possess a number of factors and normative codes that are not present in other social contexts. As such, studying sport aggression in a laboratory environment or using other aggressive indices (e.g., aggression at school) as indicators of an individual’s athletic aggression, would fall significantly short on these grounds. Consequently, because competitive sport is believed to be such a unique social context, it is important that the behavioural criterion of interest be observed and extrapolated directly from this environment (Russell & Russell, 1984; Vokey & Russell, 1992).

The archival approach represents a dramatic improvement over using self-report measures with regards to directly studying an athlete’s within competition aggressive behaviour. As well, this methodological approach is enticing to researchers because they
do not have to be present at the sporting event to collect data. Furthermore, as these
records are archived they can be useful in establishing large sample sizes and conducting
longitudinal analyses (Gee & Leith, 2007). Finally, because of the popularity associated
with this approach to studying aggression in hockey, a validated list of aggressive
infractions has been established and validated. Widmeyer and Birch (1984) through semi-
structured interviews demonstrated that athletes commit sixteen behaviours (charging,
boarding, kneeling, elbowing, roughing, fighting, high sticking, slashing, cross checking,
butt ending, spearing, instigating, hitting from behind, head butting, unsportsmanlike,
instigating) predominantly with the intent to cause harm. Widmeyer and McGuire (1997)
replicated this study 13 years later and found consistent results. This operational list has
been used frequently in the sport sciences, and has helped to ensure consistency between
studies focused on aggressive behaviour in ice hockey.

Despite the popularity of this approach, some notable criticisms have been levied
against it. First, infractions within the game of ice hockey have a variety of time
punishments associated with them. For example, infractions can range anywhere from
two minutes to five and even ten-minute penalties. As a result, using total penalty
minutes as a dependent variable would be misleading and a gross error on the part of any
investigator (Widmeyer, Dorsch et al., 2002). Rather, the frequency of each type of
aggressive penalty is a more representative measure and should therefore be employed
instead. Second, and the most profound criticism regarding this methodology, is the
perceived rate at which potentially aggressive behaviours could go unseen or overlooked.
For example, both Bar-Eli and Tenenbaum (1989) and Mark, Bryant and Lehman (1983)
have stated that the majority of aggressive behaviours in competitive sports go
unsanctioned because they are so closely associated with the normative codes of conduct. However, when this hypothesis was quantitatively assessed, Katorji and Cahoon (1992) found that only 5.2% of aggressive behaviours went unnoticed by the game official and that the influence of these missed calls would have little to no effect on a study of aggression.

Overall, penalty records are believed to provide a relatively accurate assessment of an individual’s on-ice behaviour, and due to their ecological validity as a behavioural criterion, can be used to compliment and validate an individual’s self-report data. Unfortunately, the bulk of previous research designs on aggression (those that have focused specifically on the behaviour itself) have used archival data in isolation, and have thus omitted the human or volitional component of the behaviour. Without including individual assessments, and thus comparing the variability in these constructs to the variability in an athletes’ aggressive behaviour, the use of archival data has provided relatively descriptive results. As such, a mixed methods approach that has the ability to capitalize on each design’s inherent strengths would appear to provide the most valid and reliable method for assessing these behaviours.

3.1.3 Other Methods

Two other methods have also been employed to study aggressive behaviour in sport (i.e., interviews, direct observation), albeit to a much lesser extent.
3.1.3.1 Interviews

Qualitative interviews have been conducted with athletes in order to provide a more detailed account of the use of aggressive behaviour in sport. This approach adheres to a more naturalistic paradigm which posits that reality and meaning are socially constructed and that individuals’ unique experiences and subjective interpretations carry with them rich sources of information necessary to understanding (Lincoln & Guba, 1985). Moreover, rather than attempting to answer a particular research question, qualitative studies often take a more inductive approach and attempt to facilitate a more broad and rich understanding around a given construct.

In one of the most thorough qualitative inquiries on hockey aggression, Pappas, McKenry, Skilken-Catlett (2004) interviewed five retired professional hockey players about the use of aggression on and off the ice at both the junior and professional levels. These participants provided detailed accounts of the socialization and reinforcement of aggressive behaviour by coaches, parents and teammates; thus, supporting and contextualizing several of the associations identified by Smith (1979a; 1979b) years earlier. As such, the detailed accounts provided by each participant helped illuminate some of the methods by which these aggressive attitudes and behaviours were transmitted and subsequently rewarded by the various social influences. For example, one athlete responded that “coaches will use name calling or in some situations use physical—not to hurt, but wrestle you around a bit- if they don’t think you are doing your job and being aggressive” (p. 301). These experiential accounts provide valuable information that cannot normally be provided through paper and pencil inventories.
Theberge (2003) also employed a qualitative approach to study the role of body contact in female ice hockey. She found that young female hockey players use the male game (which includes physical contact) as the standard for competitive ice hockey. As a result, because the female game does not contain body contact, these players frequently perceive their version of the game as inferior and second rate. On the other hand, these players report enjoying the use of physical contact, and have been shown to possess several pro-aggressive attitudes that normally would be considered non-normative gender deportment. Similar results pertaining to female ice hockey players have been provided by Shapcott, Bloom & Loughead (2007).

However, because of their subjective nature and limited sample sizes, along with the sport sciences overwhelming bias towards quantitative methods, the use of interviews has been relatively limited and overlooked in the study of aggressive behaviour. Nevertheless, as is evident from the above examples, qualitative methods capture information that cannot be readily evaluated using a strict quantitative approach and should therefore be a strong consideration in all future research endeavors.

3.1.3.2 Direct Observation

The direct observation of aggressive behaviour has been used to overcome the limitations associated with the archival penalty record approach (e.g., missed calls, unwritten rule book) while simultaneously leveraging its strengths (e.g., ecologically valid behavioural measure). First, multiple observers can follow each player providing inter-rater reliability assessments in the coding of infractions. Secondly, using a videotape design, one can stop and rewind the action in order to ensure that a particular
infraction adhered to the operational definition. These advantages are believed to overcome the “missed infraction” criticism levied against the archival approach and are believed to result in a more comprehensive and valid sample of aggressive behaviours being compiled and ultimately assessed (Gee, 2010; Gee & Sullivan, 2006).

Unfortunately, several limitations are believed to significantly undermine the practicality of employing a direct observation design (Gee & Sullivan, 2006). First, the coding and validating of each game requires a large amount of time, which has substantially limited the sample sizes (e.g., 10 – 15 games) that have comprised these studies in the past. Secondly, as each game should be videotaped by the researcher so that the most holistic representation of the competitive action is provided (something that is not done on televised hockey games), access to hockey games and attendance must be granted. This has proven to be a roadblock within competitive hockey associations (NHL, OHL) as the broadcast rights to these events are often exclusive. And finally, the research that has attempted to empirically distinguish direct observation from the archival approach is currently preliminary and has focused solely on the aggressive behaviour as the unit of analysis, and not the individuals facilitating these actions (Gee, 2010; Gee & Sullivan, 2006).

As a result, the use of penalty records at this time appears to be a more useful and practical operational measure of aggressive behaviour within ice hockey. These records can be used to study aggression at both the player and behaviour level of analysis, while subsequently allowing for large and longitudinal studies to be conducted. Nevertheless, advancements in technology may soon make observational methods more research friendly, at which time the field should gravitate towards this approach (Gee, 2010).
3.2. Rationale for Current Study

One of the major criticisms levied against the aggression literature is that the bulk of the research to-date has focused directly on the behaviour as the unit of analysis (Gee & Sullivan, 2006; Kirker et al., 2000, Stephens, 1998). In doing so, these studies have subsequently omitted the human or volitional component of the act (and thus both the psychological and sociological influences over the behaviour) and have ultimately treated these transgressions in a simplified stimulus-response manner. As it is widely believed that aggression is a volitionally initiated action (Bandura, 1977; Herrara & McCloskey, 2003; Stanley & Goddard, 2004; Smith, 1979a), its etiology should fall in line with our broader understanding of human deportment.

Secondly, it appears paramount that we move our research efforts away from the description of aggressive behaviour and towards a methodology aimed at providing socially applicable results. Previous designs have highlighted a number of psychosocial constructs present within the athletic population, but have yet to assess the predictive validity of these variables against actual within-competition behaviour. Consequently, the following variables will be measured in the current study and included in a regression design aimed at predicting athletes’ use of aggressive behaviour over a competitive season: achievement orientation, moral reasoning, masculinity, aggressive disposition, and team norm perceptions. Doing so will hopefully provide the necessary criterion validity for the assessments themselves, but will also identify the most important factors in predicting an athlete’s propensity to engage in aggressive conduct.

Consequently, the present study will attempt to leverage our current psychosocial understanding of athletic aggression and examine the predictive influence of these
various social and psychological constructs on athletes’ use of aggressive behaviour over a competitive season. Moreover, this study will assess these various social influences and psychological states in an interactive and simultaneous design, thus, allowing for a more realistic assessment of each construct’s independent impact on an athlete’s within-competition behaviour. In addition, this study will assess how these constructs and sources of influence change in composition or strength according to a player’s age and competitive level (i.e., rep vs. house league), as these have been previously cited as important moderating variables (Smith, 1979c, Smith 1983).

Overall, this research endeavour intends to place the academic and social attention back onto the transgressor in the study of aggressive behaviour, and in doing so direct the field towards a more psychosocial explanation concerning aggressive behaviour. Moreover, this study will attempt to address several of the limitations (e.g., lack of behavioural criterion, indirect assessment of social influences, fragmented and micro-analytical designs) that have been discussed in relation to previous studies in this area. The results of this study are compiled into a preliminary model of aggressive behaviour which will hopefully form the foundation from which future lines of research can expand. Finally, the results of this study are intended to help isolate those social and psychological factors that are the most predictive of aggressive behaviour in hockey, ultimately allowing policy makers to focus their attention in the right places.
3.3 Research Questions

**Primary Research Question**

When athletes’, parents’ and coaches’ achievement orientations, moral reasoning levels, team norm perceptions, trait aggressiveness, and masculinity scores are measured, which construct(s) are the most important in predicting an athlete’s use of aggressive behaviour over a competitive season?

What are the independent and collective contributions of these constructs and how much variance in an athlete’s aggressive behaviour do they account for?

**Secondary Research Question**

How do the predictive qualities of these independent variables change according to the age and competitive level of hockey players?

**Tertiary Research Question**

How do these various constructs interactively influence the frequency of aggressive behavior?

3.4 Current Methodological Approach

In line with the deductive research questions stated above, the current study will employ a fairly strict quantitative methodology. Within this quantitative design however, two of most popular approaches to the study of aggressive behaviour will be combined in a manner that attempts to leverage both of their strengths, while also trying to overcome their independent shortcomings. Hence, the current study’s mixed-methods approach will utilize psychosocial data collected through the administration of questionnaires, and an ecologically valid behavioural measure obtained from within-season game statistics. Consequently, as was suggested by Stephens (1998), the current study includes psychosocial data on the athlete, as well as a valid behavioural criterion for aggression.
3.4.1 Recruitment

A partnership was forged between the researcher and several GTA hockey organizations. The researcher obtained the relevant contact information from the internet, and communicated with the appropriate people over the telephone. A total of nine minor hockey associations were contacted via e-mail, of which four eventually agreed to participate. In all cases, the study was vetted through the organization’s board of directors, and where necessary, was approved by a higher governing body. League administrators provided the researcher with the contact information of the coaches involved with the age cohorts of interest (Bantam – 14 to 15; Midget – 15 to 17).

Upon receiving organizational consent, team coaches were contacted to solicit participation. Coaches who agreed to participate were asked for a convenient time prior to a game or practice during which time the researcher could administer the questionnaires. Coaches were asked to communicate the date and time to their players and parents in an attempt to maximize turnout and participation. In many cases, a team manager or involved parent spear-headed the project and disseminated the date, time and study information to the remaining players and parents. Players and parents were recruited on-site after being introduced to the study’s purpose and participation requirements. All participants, even those that withdrew during the study, were entered into a draw for one of four $25 gift certificates to Sport Chek.

3.4.2 Administration

The questionnaires were administered to all participants in-person, and were completed prior to a game or practice at the team’s designated arena. The questionnaires
took approximately 30 - 40 minutes to complete, as such, players and parents were asked to come one hour prior to a practice, or one hour and fifteen minutes prior to a game. These time parameters were employed to allow adequate time for completion, as well as ample time for the players to get dressed and prepared to take the ice.

Players completed the questionnaires in a vacant dressing room (not the one assigned to their team so that non-participants were not adversely affected) and were supervised by the researcher. Parents and the coach were asked to complete the questionnaire in other areas of the arena (e.g., stands, lobby). All parties were asked to complete the questionnaire in an independent and confidential manner.

The questionnaires were administered at the arena in an attempt to address Bredemeier and Shields’ (1984) concerns around contextual morality. Therefore, by having participants complete the questionnaire in the same environment under evaluation, and therefore exposed to the social norms and expectations that govern this specific environment, it was assumed that more valid responses would be provided.

3.4.3 Consent

As part of the recruitment process, participants were given a detailed explanation of the purpose and requirements of the study, after which all interested parties were asked to follow the researcher to their designated completion areas. The purpose and requirements of the study were outlined again for a second time, after which the researcher handled any upfront questions, and then directed the participants to the letter of information page.
Two copies of the letter of information page were provided. The participants were asked to sign and date both copies, and then were given the top copy once they submitted their questionnaire. This way all participants had the author’s, and supervisor’s, direct contact information in case any follow up was necessary. Upon reading the letter of information all participants (athletes, parents, and coaches) were asked to declare their informed consent by signing and dating the page. All participants were of an age where informed consent was deemed possible, with the author paying close attention to any of the younger participants who may have looked confused. In no instance did an athlete respond in a manner that would have suggested an inability to provide informed consent.

3.4.4 Archival Data Collection

Archived penalty records were collected and entered into the database at the end of the 2008 – 2009 hockey season. Data were only collected on those players who completed the questionnaire portion of the study, and thus provided informed consent. A spreadsheet for each team was compiled that included all of the players’ names, as well as columns for each penalty infraction included in the Hockey Canada Rulebook (too many men on the ice penalties were not included as the player who serves the penalty is chosen by the coach).

Each game sheet was manually reviewed by the researcher, with the corresponding infractions being tallied for each player. All game sheets were reviewed at the office of the respective hockey organization in order to adhere to their internal data handling procedures. The number of games that each team played was also tabulated, so that all infractions could be computed in a relative format (i.e., penalties / game) allowing
the researcher to control for unequal season lengths. This was necessary with the
discrepancy in schedules that exist by age and competitive level (house league and rep).
Each player’s infractions were then entered into the data base in both an absolute and
relative format for data analysis.

3.4.5 Questionnaires

The following section provides the psychometric properties of the scales that were
included. All of the scales discussed below were included in all three versions of the
questionnaire (i.e., athlete, parent, coach); however, they were reworded to reflect the
appropriate language for the three groups of participants.

3.4.5.1 Task and Ego Orientation in Sports Questionnaire (TESOQ)

The TEOSQ (Duda, 1989) is a 13-item self-report measure that assesses an
individual’s relative task and/or ego orientation within the sporting domain. The stem of
the TEOSQ reads “I feel most successful in physical activities when…” followed by the
question, and then five responses from which the subject is to choose. The responses
range from “strongly disagree” to “strongly agree.” The TEOSQ has been utilized in
over 70 published studies assessing individual goal orientations and has demonstrated
strong psychometric properties. Normative data from several participants ($N = 12,239$)
have been benchmarked, which will allow for simple and quick interpersonal
comparisons (Task Scale $M = 4.08 \pm .57$; Ego Scale $M = 2.87 \pm .81$). The task and ego
disposition scales have demonstrated acceptable test-retest reliability after three weeks
($r = .68$ and $.75$ respectfully; Duda, 1992) while displaying acceptable internal
consistency (Cronbach’s alpha of .79 and .81 respectfully; Duda & Whitehead, 1998). Furthermore, the scale has also demonstrated strong factorial (Duda, 1989), concurrent (Duda & Nicholls, 1992), and predictive validity (Vlachopoulos, Biddle, & Fox, 1996) with age-similar respondents.

3.4.5.2 Judgments About Moral Behaviour in Youth Sport Questionnaires (JAMBYSQ)

The JAMBYSQ (Stephens, Bredemeier, & Shields, 1997) is a multidimensional instrument that measures an individual’s perceptions regarding the appropriateness of aggressive behaviour, team norms for aggression, contextual situations under which aggression may be more tempting, and finally an individual’s self-reported likelihood to commit the described aggressive act. Each scenario is followed by five questions, each of which assesses a different aspect of the legitimacy perception. Question one asks the respondent whether or not the subject of the scenario did the right thing (i.e., deontic judgment) whereas question two taps into the subject’s perception of his/her team’s moral atmosphere by asking how many of their teammates would behave in a similar manner. Question three asks the subject to rate the likelihood that they would have behaved the same way as the protagonist, while question four provides several modifications to the scenario to assess the respondent’s moral reasoning. Overall, the JAMBYSQ provides information about how a respondent formulates legitimacy perceptions, and the degree to which they perceive inappropriate behaviours as legitimate within a given sport context.

Studies comprising three independent youth sport samples found that athletes’ likelihood to aggress was significantly correlated with their perceptions of their team’s norms surrounding aggression ($r$’s > .54) and their coach’s ego orientation ($r$’s > .19).
These results appear to support the JAMBYSQ’s construct validity (Stephens, 1995; Stephens, 1998; Stephens & Bredemeier, 1996; Stephens & Kavanagh, 1996). In addition, comparisons between male and female soccer players found that male players possessed a significantly higher self-reported likelihood to aggress, which is consistent with previous research concerned with aggression and gender (Bredemeier et al., 1987; Silva, 1983). These results support the JAMBYSQ’s discriminant validity. Finally, high internal reliability has been demonstrated between the items that comprise the various scales (i.e., likelihood to aggress, pre-conventional MR, conventional MR), which supports the internal properties of this instrument.

3.4.5.3 BAAGI

The Bredemeier Athletic Aggression Inventory (BAAGI; Bredemeier, 1978) measures athletes’ aggressive motives, which are believed to be dispositional constructs (Maxwell & Mooers, 2007; Stephens, 1998). The instrument contains 100 items that are equally distributed across two scales: reactive (“I aggress because I am angry) and instrumental (“I aggress as a strategy”). Each item is scored on a 4 point Likert scale (1 = strong agreement; 5 = strong disagreement), with each scale being summed to create a composite score.

The initial research conducted to develop the BAAGI utilized female college athletes (N = 166) and provided support for the BAAGI’s concurrent and construct validity. The two scales were found to be negatively correlated (r = -.69, p < .01) while the reactive scale was found to be significantly correlated with the assault (r = -.36, p < .01), verbal (r = -.32, p < .01) and total (r = -.54, p < .01) subscales [lower scores on the
BDHI are associated with higher levels of hostility] of the Buss-Durkee Hostility Inventory (1957). In addition, Bredemeier (1978) found that the items comprising the instrumental scale were perceived as more socially desirable than those comprising the hostility scale, as assessed by the Crowne and Marlow (1960) inventory, which is consistent with previous conceptualizations of reactive and instrumental motives.

The BAAGI has since been shortened (Wall & Gruber, 1986) and now contains 28 items. The fourteen items with the highest factor loadings were used to establish each scale. Interclass correlations between the scales were found to be significant, while the test-retest reliability was also found to be strong. Due to time constraints and questionnaire length, the BAAGI-Short Form was administered in this investigation.

3.4.5.4 Team Norm Questionnaire (TNQ)

The TNQ (Shields, Gardner, Bredemeier, & Bostrom, 1995) was developed to directly assess athletes’ perceptions of their teammates’ and coaches’ aggressive attitudes/beliefs. The TNQ is a 6-item instrument that asks athletes how many of their teammates would use aggression to win, and also their perceptions of their coach’s attitudes towards aggressive behaviour and cheating. As previous research has demonstrated a strong association between aggressive team norms and an athlete’s self-reported likelihood to aggress, these perceptions are believed to be important to this investigation.

The TNQ is a relatively new instrument, and as a result, very little psychometric information has been accumulated. However, in its inaugural investigation the intercorrelations between the six TNQ items were found to be fairly high (r =
These findings suggest individuals’ perceptions of their teammates and coach are similar with respect to cheating and aggression. As the authors of the TNQ were also the authors of the JAMBYSQ, items contained in the later that represent team norms were added to the overall TNQ score. These items are scored on the same response scale (i.e., everyone – nobody), and simply ask athletes their opinion regarding the proportion of their teammates that would engage in a particular act of aggression (e.g., fighting), rather than an ambiguous act of aggression. Internal consistency assessments were computed on this version of the TNQ prior to it being included in any multivariate analyses.

3.4.5.5. PAQ

Masculinity was assessed using the 16 items that comprise the masculinity sub-scale of the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1975). The PAQ is one of the most widely used gender – personality instruments in the field of psychology today (Hill, Fekken, & Bond, 2000). As a result, its psychometric properties have been repeatedly tested and validated over the years. For example, Hill et al., (2000) recently reassessed the PAQ’s factor structure using a cross cultural sample and found that the PAQ’s structure remained consistent. Recently, Choi (2004) conducted a thorough test of the PAQ’s psychometric properties, and found strong discriminant, convergent (≥ .60), and face validity, as well as acceptable internal reliability (alphas ranged from .70 - .80). Consequently, the PAQ is believed to be a sound instrument and a valid indicator of self-reported gender perceptions.
3.4.5.6 Indices of Aggressive Behaviour

As was mentioned previously, Widmeyer and Birch (1984) and Widmeyer and McGuire (1997) created an operational list of aggressive infractions for the sport of ice hockey by interviewing players, coaches and game officials about the infractions that are employed with the intent to harm an opponent at least 80% of the time. A list of 16 infractions emerged from these studies (charging, boarding, kneeing, elbowing, roughing, fighting, high sticking, slashing, cross checking, butt ending, spearing, instigating, hitting from behind, head butting, unsportsmanlike, check to the head), and subsequently formed the operational list used in this investigation. Each infraction was tabulated independently across the season, with all 16 aggressive infractions being summed and divided by the number of games played to create each athlete’s average use of aggressive behaviour.
IV. RESULTS

The results section begins by describing the sample of participants and the data cleaning procedures that were undertaken prior to analysis, and is then sub-divided into analyses concerned with predicting aggressive behaviour at the level of the individual athlete, as well as at the team level through the coaches’ responses. Within each section, results will be presented from the primary research question through to the tertiary questions as they were presented in the methods section.

4.1 Sample

A total of 28 teams agreed to participate in the study [4 Minor Bantam; 7 Major Bantam; 9 Minor Midget; 8 Major Midget], with 678 questionnaires being completed by athletes (N = 356), parents (N = 295) and coaches (N = 27). The sample of athletes was predominantly male (98.9%), with a mean age of mean age of 14.9 years (see Table 1).

One parent per athlete was asked to complete the survey. Of the 295 parent surveys that were administered, 191 (64.7%) were completed by the father, while the remaining 104 (35.3%) were completed by the mother. Each parent was asked about his/her previous participation in hockey, to which 75.9% of fathers and 15.4% of the mothers responded that they had played the game in an organized environment.

Finally, 27 coaches (one individual coached two teams that were included) completed the survey as part of the study. These coaches all reported previously competing in organized hockey, and had an average of 10.0 years (SD = 4.0) behind the bench. Only one coach reported that this was his first season. All of the coaches in the current study were male.
4.1.1 Explanation of Age and Competitive Level Differences

As athlete age and competitive level are important independent variables in the current study, a more in-depth understanding of the intricacies associated with each division and cohort are warranted. The distribution of athletes comprising the current study according to age and competitive level can be found in Figure 7.

<table>
<thead>
<tr>
<th>Age Cohort</th>
<th>Bantam (N = 121)</th>
<th>Midget (N = 174)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>13 (10.7%)</td>
<td>0</td>
</tr>
<tr>
<td>AA</td>
<td>0</td>
<td>16 (9.2%)</td>
</tr>
<tr>
<td>A</td>
<td>14 (11.6%)</td>
<td>20 (11.5%)</td>
</tr>
<tr>
<td>AE</td>
<td>32 (26.4%)</td>
<td>36 (20.7%)</td>
</tr>
<tr>
<td>Local League</td>
<td>62 (51.3%)</td>
<td>102 (58.6%)</td>
</tr>
</tbody>
</table>

Figure 7. Athlete Sample Distribution

4.1.1.1 Differences According to Age

A number of differences with respect to the use of aggressive behaviour, as well as the degree to which these behaviours are legitimized and reinforced, have been documented between the bantam and midget age brackets. Bantam athletes are between 13 and 14 years of age, whereas Midget athletes are between 15 – 18 years of age. Midget is the oldest competitive division in amateur hockey and thus precedes the semi-pro (e.g., OHL, WHL, QMJHL) and professional leagues (e.g., NHL). Consequently, athletes participating in the competitive midget divisions (e.g., rep A, AA, AAA) have an
opportunity to go on in their hockey careers and can be scouted by both professional and collegiate programs.

Several previous studies concerned with aggressive behaviour in ice hockey have suggested that it is more prevalent among midget-aged athletes because of its perceived importance to scouts and professional coaches (Faulkner, 1974; Smith, 1979a; Vaz, 1976). For example, Smith (1979b) writes “by midget age coaches are looking for players who can mete out, and withstand, illegal physical coercion” (p.76). Within the bantam age bracket the pressure to adopt this professional style of play does not appear to be as salient.

The legitimacy and acceptability of using aggressive behaviour also appears to be different between bantam and midget age brackets. Smith (1979b) found that players’ perceptions of their mothers’, fathers’, coaches’ and teammates’ approval of violence increased significantly from bantam to midget.

Overall then, the differences between bantam and midget age cohorts are within the game itself (e.g., same rules, both allow body contact, same size ice surface) but rather are contained with the normative codes of conduct and acceptability surrounding the use of aggressive behaviour. Within the midget division, the use of aggressive behaviour, especially fighting, is much more normalized and ultimately accepted.

4.1.1.2 Differences According to Competitive Level

There are two distinct competitive categories that comprise amateur hockey in Canada: local league and representative. The representative division is a more competitive system, with each community fielding a single team per age division. In
larger cities, there are 3 tiers of representative teams per age cohort, designated as A, AA or AAA. The higher the competitive tier the more skilled the athlete must be to make the team. Tryouts are held when selecting representative teams and thus skill, size and performance are all under evaluation. There are usually a number of athletes that tryout for these teams, with only 12 – 14 spots available in each community. Consequently, the talent identification process designed to select these teams is very competitive. The structure of rep hockey is one where regional teams compete and travel over a season, with successful teams moving onto a provincial championship. As such, rep hockey is governed and organized by larger provincial and national sport bodies. Local league teams on the other hand do not have tryouts, with all players wishing to play being placed on a team. The number of local league teams in a given community is contingent upon the number of players each year who register. Local league teams normally do not travel great distances to compete, rather they compete locally against each other and nearby communities. Local leagues are organized and funded within the community and therefore are not controlled by larger provincial sport governing bodies. This allows each local league to introduce its own rules and regulations and to govern its membership accordingly.

Generally speaking, two different competitive climates exist between rep and local league divisions. Local leagues are structured and designed to be more participation and skill development-oriented, whereby rep programs are designed to be more focused on performance and winning. Consequently, the use of aggressive behaviour has been shown to be much more highly legitimimized and normalized by players, coaches and
parents within the rep division as compared to local league divisions (Smith, 1979a, 1979b).

Local leagues, in part because of their focus on participation and inclusion, also punish the use of aggressive behaviour more severely. Many local leagues have a “3 penalties and your out of the game” rule, as well as longer suspensions for fighting infractions. Some leagues have gone as far as removing body checking from the game as a strategy for reducing injuries and deterring violence. These rule changes are also likely responsible for the lower level of aggression and fighting witnessed within the local league system.

Overall, differences in the use of aggressive behaviour between rep and local league programs are believed to be influenced by the rules that govern each competitive climate, as well as the normative codes of conduct and general acceptability of aggression within each league.

4.2 Cleaning Up the Data

There are a number of assumptions that govern the use of multivariate statistics (i.e., internal reliability, normality, multicollinearity, multivariate outliers, independence of error, and missing data), all of which must be met to ensure statistical validity. These assumptions will be discussed below, with the results influencing the list of variables that were eventually included in the regression model, as well as the final sample size.

In order to adhere to the assumption of independent observations, the data provided by the coaches were removed from the primary data file (i.e., all of the athletes on a given team would have the same coach data entered into their row). Team averages
for aggressive, non-aggressive, major and game misconduct penalties were computed and entered into a separate data file alongside the coaches’ survey responses. Consequently, a separate set of analyses examining the predictive influence of the coaches’ attitudes and perceptions on team behaviour was computed. This data file was also put through the following data cleaning procedures.

4.2.1 Internal Reliability

Scale reliability ensures that the items comprising a scale or sub-scale were answered in a consistent manner by participants. As these items were developed to assess a common construct, participants’ individual responses to each item should be relatively similar. Cronbach’s alphas nearing or above .70 are indicative of reliable scales. The “Instrumental Motives” sub-scale of the Bredemeier Athletic Aggression Inventory (Bredemeier, 1978) was found to have low internal reliability and was therefore removed from both datasets (see Table 2).

4.2.2 Univariate Normality

A second assumption governing multivariate statistics requires that all of the independent variables included in the analyses be normally distributed. As such, each of the independent variables was tested for excessive skewness and/or kurtosis (+/- 1). Only those cases where complete athlete and parental data (N = 295) were available were included. No univariate estimates suggested extreme non-normality (see Table 3).
4.2.3 Multicollinearity

Multicollinearity is a correlational test for construct redundancy. Simply put, if two variables are very highly correlated (i.e., > .80), the same predictive results could be obtained by simply using just one. In such instances, the researcher must choose to include only one of the constructs, a decision which is normally based on theoretical or applied grounds. Consequently, a bivariate correlation matrix was computed with the remaining 14 independent constructs (see Table 4).

Two separate correlations exceeded the .80 criterion (preconventional and conventional moral reasoning for both parents and athletes). Previous literature suggests that a lower more ego-centered level of moral reasoning is associated with aggression (Bredemeier et al., 1987), and as such the conventional scale for both samples was removed.

A similar bivariate correlation matrix was computed for the coach-specific variables (see Table 5). Again, preconventional and conventional scores were found to be statistically redundant, and thus only coaches’ preconventional scores were eventually entered into the regression.

4.2.4 Multivariate Outliers

To test for the presence of multivariate outliers, Malhanobis’s distance was computed. The test is facilitated by running a regression model with any of the independent variables substituted as the dependent variable, and the remaining variables entered into the model as predictors. Malhanobis’s distance generates a chi square value which cannot exceed the designated critical value associated with the selected alpha.
level. In an attempt to lower the inflated Type I error associated with this design, an alpha
level of .001 was selected (chi-square critical value = 32.910). None of cases included in
the data file exceeded the critical value, as such there are no multivariate outliers present.

A similar analysis was computed with the coaches’ data (chi-square critical value
= 22.458), with the results indicating the absence of multivariate outliers as well.

4.2.5 Missing Data

The final assumption of multivariate statistical analyses has to do with the
completeness of the dataset under evaluation. A total of 61 athletes did not have parental
questionnaire data available, and as such were removed from the study (they were still
entered into the draw for the Sport Chek gift certificates, as per the letter of information).
Another six questionnaires (four athletes, two parent) were omitted from the study due to
excessive missing data. The remaining 295 questionnaires had complete data as each
questionnaire was checked by the researcher upon submission. All 27 of the coaches had
complete data files.

The results of the data cleaning process saw the removal of four scales from each
of the datasets, leaving six predictors per participant sample. Consequently, the large
parent and athlete regression model contained twelve independent variables, while the
coaches’ regression model was comprised of six.

4.3 Individual Athlete Results

The primary purpose of this research endeavour was to assess the degree to which
previously cited determinants predicted an athlete’s use of aggressive behaviour over a
competitive season. In addition, to evaluate how this predictive model changed in
strength and/or composition according to the age and competitive level of the athletes,
while also assessing the interactive properties of certain determinants on aggressive
behaviour.

4.3.1 Predicting Athletes’ Aggressive Behaviour

Due to the exploratory nature of this design, as well as the lack of a priori
hypotheses pertaining to the relationships between these variables, a simultaneous
regression model was computed (Cohen, Cohen, West, & Aiken, 2003). The following is
a list of the independent variables that survived the data cleaning process:

- Athlete – Task (TESOQ)
- Athlete – Ego (TESOQ)
- Athlete – Reactive (BAAGI)
- Athlete – Team Norms (TNQ)
- Athlete – Masculinity (PAQ)
- Athlete – Preconventional (JAMBYSQ)
- Parent – Task (TESOQ)
- Parent – Ego (TESOQ)
- Parent – Reactive (BAAGI)
- Parent – Team Norms (TNQ)
- Parent – Masculinity (PAQ)
- Parent – Preconventional (JAMBYSQ)

Tabachnick and Fidell’s (1996) calculation of sample size for multivariate regression was
employed to ensure the adequacy of the subject to item ratio \([50 + 8 \times m]\) – where \(m\) refers
to the number of predictors. In addition, to be as parsimonious as possible in the
development of this preliminary framework, while also protecting against the inflation of
Type I statistical error, only predictor variables that displayed a significant correlation
with the dependent variable were entered into the regression design (Cohen, Cohen et al.,
2003; Tabachnick & Fidell, 1996). As can be seen in Table 6, seven predictor variables
were found to be significantly correlated with athletes’ aggressive penalties, and were thus used as the IVs in the regression analysis. The remaining seven predictors were:

- Parent – Task (TESOQ)
- Parent – Team Norms (TNQ)
- Parent – Preconventional (JAMBYSQ)
- Athlete – Team Norms (TNQ)
- Athlete – Reactive (BAAGI)
- Athlete – Masculinity (PAQ)
- Athlete – Preconventional (JAMBYSQ)

Athletes’ seasonal aggressive penalties were entered as the dependent variable in a relative format after being summed and divided by the total number of games recorded. These seven constructs were found to significantly predict an athlete’s use of aggressive behaviour over a competitive season \[ R^2 = .104; F (7, 294) = 4.75, p < .001 \], accounting for roughly 10.5% of the predicted variance. Upon further review, an athlete’s BAAGI – Reactive score and their parent’s TEOSQ-Task score were the two significant predictors contained in the model (see Table 7). As a result, these constructs display a direct positive relationship with athlete aggression, and may be important in understanding and ultimately predicting athletes’ on-ice aggressive behaviour.

4.3.1.1 Subsequent Regression Analyses on IVs

In an attempt to elucidate potential indirect associations with aggressive behaviour, as well as to provide a more robust preliminary framework around the etiology of these transgressions, subsequent regression models were computed on each of the significant predictors (i.e., Athlete – Reactive; Parent – Task), with the remaining independent variables being entered as IVs. In line with Tabachnick and Fidell’s (1996) recommendation for reducing Type I statistical error, only IVs that significantly
correlated with the dependent variable were entered as predictors. Moreover, once an IV was used as a dependent variable, it was removed from any subsequent analyses. This process was undertaken until there were no remaining statistically significant prediction models, or no IVs to enter as predictor variables.

4.3.1.2 Athletes’ Reactive and Parents’ Task Scores

When athletes’ BAAGI – Reactive scores were entered as the dependent variable along with the remaining correlated independent factors (athlete - ego, athlete - team norm, athlete – preconventional, parent – team norm), a significant model emerged \[ R^2 = .235; F (4, 294) = 22.25, p < .001 \] accounting for 23.5% of the predicted variance. Athletes’ TEOSQ-EGO, Team norm, and preconventional scores were all found to be significant predictors of their BAAGI- Reactive scores (see Table 8). A similar regression procedure was to be computed for parents’ TEOSQ-TASK score, however none of the predictors were found to significantly correlate with the construct, and thus the analysis was not undertaken.

4.3.1.3 Athletes’ Ego, Team Norm and Preconventional Scores

Once again, the significant predictors of the previous regression analyses were entered as the dependent variables in independent regression models with the remaining correlated predictor variables being entered into the regression as IVs. First, Athletes’ Team Norm scores were entered into a regression model with athlete-task, parent-team norm and athlete-PAQ scores entered as the independent variables. A significant model emerged \[ R^2 = .129; F (3, 294) = 14.37, p < .001 \] with all three significantly contributing
to the model’s predictability (see Table 9). An identical procedure was undertaken with athlete’s preconventional scores as the DV and their PAQ scores as the only correlated IV, which resulted in a significant model as well \([R^2 = .025; F (1, 294) = 7.59, p < .05]\) (see Table 10). The final regression analysis for this section was not computed because none of the remaining independent variables significantly correlated with athlete’s ego orientation scores.

4.3.1.4 Parents’ Team Norm Scores

When the bivariate correlation tables were examined for the remaining variables, only Parent’s Team Norm scores significantly correlated with any of the remaining predictor variables (parents – ego, parents – preconventional). This produced a significant model \([R^2 = .176; F (2, 294) = 31.23, p < .001]\), accounting for approximately 17.5% of the explained variance (see Table 11).

4.3.1.5 Parents’ Ego and Reactive Scores

A final set of regressions was computed for parents’ TEOSQ-EGO and preconventional scores, with parents – BAAGI reactive scores being entered as the lone predictor in each case. Both models were statistically significant \([[R^2 = .099; F (1, 294) = 32.23, p < .001]; [R^2 = .103; F (1, 294) = 33.79, p < .001}\) respectively] (see Tables 12 and 13).

The result of these seven regression analyses is a preliminary model that highlights the direct and indirect influence that the originally proposed independent factors have on an athlete’s use of aggressive behaviour over a competitive season.
Below is a schematic of this preliminary framework, and includes the beta weights of the predictor variables at each stage (see Figure 7).

![Schematic of the Preliminary Framework](image)

**Figure 8. Preliminary Model for Predicting Aggressive Behaviour in Hockey**

4.3.2 Regression Model by Age and Competitive Level

In an attempt to assess whether or not certain influential or compositional differences existed in the original regression model according to age and competitive level, separate regression designs were computed accordingly. Because model composition and individual factor strength were of interest, and not the predictive influence of age and competitive level, a dummy coding procedure was not undertaken. Rather, the subset of subjects of interest (e.g., Bantam vs. Midget; Rep vs. House League) were isolated in the dataset by selecting cases. All regression models included only those predictor variables that displayed significant a priori relationships with aggressive behaviour and were also tested for Tabachnick and Fidell’s (1996) calculation of sample adequacy [multiple predictors: \(50 + 8 \times m\); single predictors \(104 + m\)]. The predictor variables entered into each model are presented in their respective tables.
4.3.2.1 Bantam Age Players (13 – 14 years of age)

When only bantam aged players (N = 121) were assessed, a statistically significant model emerged \([R^2 = .198; F (3, 120) = 2.22, p = .016]\) with TASK-Parent and PAQ-Athlete significantly predicting athletes’ use of aggression (see Table 14).

![Figure 8.1 Predictors of Bantam Players’ Aggressive Behaviour](image)

4.3.2.2 Midget Age Players (15 – 17 years of age)

When midget aged players (N = 174) were assessed independently another statistically significant model was produced \([R^2 = .169; F (5, 173) = 2.73, p < .001]\), with athletes’ BAAGI-REACTIVE score emerging as the sole predictor of within-competition aggressive behaviour (see Table 15).
4.3.2.3 Local League Players

When the aggressive behaviour of local league players competing in both age groups (N = 171) was correlated against the twelve predictor variables, no statistically significant relationships were identified. As such, a regression model was not computed.

4.3.2.4 Representative League Players

When the aggressive behaviour of rep players competing in both age groups (N = 124) were assessed according to the twelve predictor variables, roughly twice the amount of variance was accounted for \( R^2 = .211; F (2, 123) = 2.47, p < .01 \), with players’ BAAGI-REACTIVE scores emerging as the sole predictor (see Table 16).

4.3.2.5 Bantam – Rep Players

In order to better understand the compositional and influential nature of the hypothesized predictors, a final set of regression analyses were computed according to
age within the rep division (as no significant results were identified among local league players). When the aggressive behaviour of Bantam athletes’ competing at the rep competitive level (N = 59) were correlated against the 12 predictor variables, no statistically significant relationships were identified. As such, a regression model was not computed for this cohort of athletes.

4.3.2.6 Midget – Rep Players

A final regression analysis was computed on midget aged players in the representative division (N = 65). A significant model emerged \( R^2 = .410; F (3, 64) = 3.01, p < .01 \) which accounted for 41% of the variance in players’ aggressive behaviour, with the athletes’ BAAGI-REACTIVE scores once again emerging as the sole predictor (see Table 17).

![Figure 8.4 Predictors of Midget Rep Players’ Aggressive Behaviour](image)

4.3.3 Interactive Influences on Athletes’ Aggressive Behaviour

The previously reported regression analyses provide insight into the independent contribution of each of the predictor variables with regards to explaining athletes’ use of aggressive behaviour. However, of interest to this research project was also the interactive effects of certain constructs on this behavioural criterion. Important to note, several of the constructs included in this study are scale level metrics, and thus, were not designed to be computed and interpreted in an ipsative manner (i.e., high and low). As
such, only those constructs that have been categorized in previous research studies were utilized in this section.

4.3.3.1 Parent and Athlete’s Achievement Orientation

Previous research studies interested in grouping subjects according to their achievement orientation scores have employed a median split technique (see Dunn & Dunn, 1999; Fox, Goudas, Biddle, Duda, & Armstrong, 1994; Ntoumanis & Biddle, 1997). Here median cut points are established for similar subject pools (e.g., athletes and parents) with participants who score higher than the median being classified as high on the given construct, with those scoring below the median classified as low. Even though this procedure is quite common place in the behavioural sciences, there are a number of notable psychometric limitations (e.g., reduced power, reduced interpretability, removal of average scores) associated with the procedure (Owen & Froman, 2005). However, in order to keep all of the participants in the analysis, as well as to be consistent with previous research on achievement motivation, the following median splits were identified for this analysis [(Parents: Ego + 3.00) (Athletes: Ego + 3.33) and [(Parents: Task + 4.00) (Athletes: Task + 4.00)]. In doing so, four distinct achievement orientation profiles were created for each group (low task / low ego; low task / high ego; high task / low ego; high task / high ego). A factorial ANOVA was then computed, with parents’ and athletes’ achievement orientation designations entered as the fixed variables, while athletes’ aggressive penalties were entered as the dependent variable. No statistically significant main or interactive effects emerged.
4.3.3.2 Athlete’s Ego Orientation and Parent’s Perception of Team Norms

Once again, median splits were used to categorize the continuous variables under evaluation [(Athletes: Ego + 3.33) (Parents: Team Norms + 14.0). Parent team norm scores displayed a significant main effect with aggressive behaviour \[F (1, 274) = 4.49, p < .05\], while the interactive model failed to reach, statistical significance \[F (1, 274) = 3.52, p = .062\] (see Figure 8).

![Figure 9. Interactive Effect of Athletes Ego Scores and Parents Team Norm Perceptions](image)

4.3.3.3 Athlete’s Reactive Score and Parents Team Norms

Finally, athletes’ reactive scores were categorized (+ 35) and assessed in conjunction with parents’ perceptions of the team norms. A significant interaction was found between the two variables \[F (1, 294) = 5.32, p < .05\] whereby the differences in aggressive behaviour between high and low reactive athletes was significantly different.
depending upon their parents team norm perceptions. When the athlete’s parents did not perceive the team as possessing pro-aggressive norms, only a small difference in aggressive behaviour could be witnessed between high and low reactive athletes. However, when parents perceived a more pro-aggressive team norm, athletes with higher Reactive scores committed significantly more aggressive behaviours than did those athletes with lower reactive scores (see Figure 9).

**Figure 10. Interactive Effect of Athletes Reactive Scores and Parents Team Norms**

4.4 Coaches Results

Due to the limited sample size associated with the coach data file (N = 27), the age and competitive level regression analyses in the previous section could not be replicated. A larger team-level study should be undertaken in the future so that these age and competitive level distinctions can be assessed. Consequently, this section focused on
examining the relevant coach constructs in relation to teams’ average per/game penalization for aggressive behaviour. Descriptive and comparative analyses were conducted on this small sample of coaches, with no significant differences emerging on any of the constructs according to the age and competitive level being coached (see Tables 21 & 22).

4.4.1 Coach as a Predictor of Teams Aggressive Behaviour

The six coach constructs that survived the data cleaning process were entered into the regression model as predictor variables (Task, Ego, Reactive, PAQ, Preconventional, Team Norm), with the team’s average display of aggressive behaviour being entered as the criterion variable. Once again, a simultaneous regression model was computed due to the exploratory nature of the design. A statistically non-significant model emerged with none of the coach-level constructs significantly predicting player aggression \[R^2 = .096; F (6, 27) = .373, p = .888\].
V. DISCUSSION

The purpose of the current investigation was to assess the predictive influence of several commonly cited psychosocial constructs on athletes’ actual within-competition use of aggressive behaviour over a competitive season. Moreover, the study sought to examine the degree to which an athlete’s age and competitive level affect the composition and/or strength of the identified predictive model. The results of the study suggest that an athlete’s level of trait aggressiveness, as measured by the Reactive sub-scale of the Bredemeier Athletic Aggression Inventory (BAAGI; Bredemeier, 1978) in the current study, is the strongest and most stable predictor of an athlete’s within-competition use of aggressive behaviour in the sport of ice hockey. Nevertheless, the age and competitive level of the athlete was found to influence the degree to which this trait aggressive disposition was overtly expressed in the form of within-competition aggressive behaviour. Differences found according to the age and competitive level of the athlete are believed to reflect differences in the norms and levels of acceptability surrounding the use of aggressive behaviour (Smith, 1979), suggesting that the competitive climate itself can have a facilitative and/or repressive influence over the expression of this trait aggressive disposition. Overall, these results support an interactionist explanation for the etiology of aggressive behaviour in youth ice hockey, whereby personal and situational factors must be understood and evaluated when attempting to predict an athlete’s probability for engaging in aggressive conduct.
5.1 Predicting Aggression With All Participants

When all of the relevant predictor variables where entered into the simultaneous regression model against all athletes’ (i.e., all age groups and competitive levels) per game aggressive penalties, athletes’ BAAGI reactive scores and their parents’ task orientation scores emerged as the significant predictors, accounting for roughly 10% of the variance in behaviour. While this finding suggests that these two factors can add predictive value to our understanding of aggressive behaviour in ice hockey, it also suggests that hockey aggression is a complex phenomenon that is influenced by a number of factors beyond the ones included in this study.

Bredemeier’s Athletic Aggression Inventory (BAAGI; Bredemeier, 1978) assesses an athlete’s self-described motives for displaying aggressive behaviour in a competitive sporting context. These motives are believed to represent trait-like dispositions, and thus fairly stable personality constructs (Maxwell & Moores, 2007; Stephens, 1998). The reactive subscale in particular measures an athlete’s motivation to use aggressive and forceful behaviour out of anger, frustration, and with malicious intent (see reactive scale items below).

- During an athletic performance, I am often more irritated than people think.
- I enjoy frustrating my opponent
- I relish picking my opponent apart piece by piece until they have nothing left
- When I have an opponent down, I delight keeping them down
- At times I cannot control my urge to harm an opponent
- At times I am surprised by my anger toward an opponent
- It is easier for me to compete against an opponent I don’t know personally
- It does not take much to upset me in athletic contest
- There have been times when I have “rubbed it in” after I have done something well, or my rival has done something poorly
- You have to punish people if you want to win
- When my coach doesn’t treat me right, I can feel resentment build up inside myself
• There have been times, in the heat of competition, when I have become aware of another side of me that I didn’t realize existed
• I like to compete because I can take my frustrations out on my opponent
• It is easier for me to psyched-up for a competitive situation by thinking negative thoughts about my rival.

The current results suggest that athletes who possess stronger reactive motives commit significantly more aggressive penalties over the course of a competitive season. These results are similar to the findings of Bushman and Wells (1998), who also found that a dispositional measure of aggressiveness significantly predicted hockey players’ use of aggressive behaviour over a competitive season. These researchers used a slightly more liberal operational list of aggressive penalties (e.g., they included tripping and holding), but did illustrate the utility of trait measures in predicting aggressive behaviour outside of the experimental laboratory. Moreover, the current findings also align with the broader psychological consensus on the predictive nature of dispositional constructs like hostility (Maxwell & Moores, 2007), irritability (Caprara & Renzi, 1981; Lindsay, 1999), and anger (Maxwell & Moores, 2007; van Goozen, Frijda, & van de Poll, 1994) on an individual’s use of aggressive behaviour. As was stated in the review of literature section, trait aggressiveness, the construct that was used to originally validate the reactive motives subscale (Bredemeier, 1987), has received considerable attention in the broader psychological study of human aggression. Overall, this disposition has been shown to play a central role in the understanding and prediction of an individual’s likelihood for engaging in aggressive conduct (Bettencourt et al., 2006). In contrast, within the sport sciences, dispositional constructs have received very little attention with respect to the study of aggressive behaviour. However, as the current results suggest, dispositional constructs like the one measured by the BAAGI may be as important in predicting sport-
specific aggression as they have shown to be of other non-sporting acts of aggression (Bettencourt et al., 2006).

Interestingly, concurrent to the implementation and completion of the current study, researchers from the UK and Hong Kong developed and tested a new scale aimed at measuring athletes’ anger and aggressiveness (Maxwell & Moores, 2007). In doing so, previous dispositional instruments including the BAAGI (Bredemeier, 1978) were referenced and consulted during the item and construct development phases. As such, there is believed to be a degree of overlap between this newly developed instrument and the BAAGI reactive scale. These researchers were attempting to fill a perceived void in the sport-specific study of aggressive behaviour by aligning the sport sciences approach with those practices that have become commonplace in the broader field of psychology. Consequently, the work of Maxwell and Moores (2007), in conjunction with the results of the current study, suggest that examining dispositional constructs might be a fruitful line of research moving forward.

The second predictor variable that emerged from this initial regression analysis was parents’ task orientation scores. It has been well documented that parents’ values and beliefs pertaining to sport have an influence over the development of their children’s values and belief structures (Duda & Horn, 1993; Duda & Whitehead, 1998; Ebbeck & Becker, 1994; Kimiecik, Horn, & Shurin, 1996; Nicholls, 1989; Roberts, 2001; White, 1998). As White (2007; p. 138) stated:

It seems intuitive that parents who make certain attributions and hold certain beliefs regarding the importance of effort versus outcome may communicate those beliefs to their children, thereby influencing their children’s achievement-related cognitions and subsequent behaviours.
Therefore, the finding that parents’ task-orientation scores directly predicted their child’s use of aggressive behaviour in ice hockey was certainly surprising in the current investigation, as it runs contrary to the original tenants of Nicholl’s (1989) achievement motivation theory. Task-oriented individuals are believed to define success according to personal standards, with this orientation overwhelmingly promoting adaptive motivational patterns. In contrast, parents’ ego-orientation scores would have been hypothesized to correlate more strongly with their children’s use of aggressive behaviour, as such a disposition promotes an other-referenced and interpersonally competitive definition of success. Athletes who adopt this ego-orientation have been shown to have lower sportspersonship scores (Lemyre, Roberts, & Ommundsen, 2002) and more positive attitudes towards the use of aggressive behaviour in sport, especially for performance-enhancement reasons (Stephens & Kavanagh, 1997; Stephens, 1998b). Opposite results have been routinely cited for task-oriented athletes.

Many behavioural researchers have conceptualized the difference between a task and ego-orientation as being relatively synonymous with “participation” versus “competition” (Harwood, Hardy, & Swain, 2000). The former representing a person who is motivated to participate in an achievement context for purely intrinsic reasons, and thus is not concerned with the outcome, with the latter participating for purely extrinsic reasons and only concerned with outcome. However, as White (2007) points out, “this interpretation is false. The task-oriented person is competitive; surely everyone reads the scorecard or looks at the scoreboard and asks the question ‘did I win?’” (p. 140). Consequently, in the case of task-oriented parents, they too likely look at the scoreboard and place some degree of emphasis on the result. In doing so, children may perceive their
parents as placing more emphasis on the outcome than the parents may have originally intended, which in turn may cause the child to adopt a more ego-oriented style of play. Previous research appears to support this assumption, as parents’ and athletes’ achievement orientations have rarely been found to be correlated (Bergin & Habusta, 2004; Duda & Horn, 1993; Givvin, 2001). Overwhelmingly, parents have been shown to perceive their children as being more task-oriented than the children actually report, with children perceiving their parents as being more ego-oriented than the parents actually self-report (Bergin & Habusta, 2004). This disconnect between perception and self-report may at least partially explain the current findings. Moreover, as Givvin (2001) points out, if parents’ messaging about the importance of the outcome is unclear, children will simply insert their own beliefs and behave accordingly.

Additionally, previous research has suggested that the task-orientation scale of the TEOSQ might be susceptible to socially desirable responding when administered to parents, which might also help explain the current finding (Bergin & Habusta, 2004; Givvin, 2001; White, 2007). As White (2007) stated “it appears that parents might be giving parent-appropriate responses, and it seems that children pick up on the actual intent instead of the appropriately given cue” (p. 139). As no direct measure of social desirability was included in the following study (e.g., Marlow-Crowne Social Desirability Scale), conclusive statements about its impact on the validity of parents’ scores cannot be made. However, it should be noted that the current study was undertaken very shortly after Don Sanderson’s death, with the topic of violence in hockey receiving a considerable amount of media attention. As such, it is possible that certain parents self-reported higher task-orientation scores as part of an image management strategy, as this
particular scale contains items that appear to reflect the socially prescribed “ideal”
hockey parent (e.g., “I feel successful when I do my best”).

Future studies concerned with parental influence, especially parents’ achievement
dispositions, should assess the construct through the eyes of the athlete (Givvin, 2001). Athletes’ perceptions of their parents’ dispositions, irrespective of whether or not they accurately reflect their parents’ actual scores, are ultimately what influence athletes’ own competitive dispositions (i.e., perception becomes reality). This approach was included in the original proposal of the current study; however, these measures were removed during the ethics review process due to concerns over the length of the assessment considering the youth population under evaluation. If a direct assessment of parents’ achievement motivations is required in the future, investigators should consider including a direct measure of social desirability (e.g., Marlow-Crowne Social Desirability Scale).

5.1.1 Subsequent Regression Models

In an attempt to elucidate indirect relationships with aggressive behaviour, regression models were computed with the preceding significant predictors being entered as the criterion variables, and the remaining correlated predictors as independent variables. Due to the properties and limitations that bind regression analyses, cause and effect statements cannot be made (Tabachnick & Fidell, 1996). Rather, these results illustrate strong independent correlations between constructs, where understanding one variable provides insight into the other.

With respect to athletes’ reactive motive scores (BAAGI), their ego orientation scores, pre-conventional moral reasoning scores, and team norm perceptions were all
found to be significant predictors. Interestingly, athletes’ pre-conventional moral reasoning scores and their team norm perceptions were both significantly correlated to their actual use of aggressive behaviour, and thus were included in the original regression model, yet neither emerged as a significant predictor. The reason being, both shared a significant amount of statistical variance with athletes’ reactive motives scores, to the point that the independent variance remaining within each construct did not significantly add to the model’s predictive abilities. Therefore, the fact that these constructs are significantly correlated to athletes’ aggressive behaviour, but do not account for variance outside of what is already accounted for by their reactive motives, suggests that lower moral reasoning and social perceptions pertaining to the legitimacy of aggression may be components or artifacts of this reactive disposition rather than independent determinants. Therefore, rather than studying each of these constructs independently moving forward, the current results suggest focusing more heavily on athletes’ reactive motives, with the understanding that part of this disposition may be a lowered moral reasoning ability and a perception that one’s teammates compete in a similar fashion. This type of research consolidation would go a long way in de-fragmenting the current body of literature and would certainly add parsimony to future research initiatives.

Another interesting finding that emerged from these additional regression models was that athletes’ team norm perceptions were significantly predicted by their parents’ team norm perceptions. This relationship signifies the point in the preliminary model where parent and athlete responses overlapped. The delayed and indirect relationship between parents’ scores and athletes’ actual aggressive behaviour is believed to be an interesting finding, as previous socialization research in the broader field of psychology
would have suggested that we would find a higher degree of overlap between parents’ and athletes’ scores on a number of attitudinal and perceptual constructs (Eccles & Harold, 1991; Maccoby, 1992; Wigfield & Eccles, 2002). However, similar to previous findings on parental achievement motivation scores within the sport sciences (Bergin & Habusta, 2004; Givenn, 2001; White, 2007), it may well be that parents were giving “parent-appropriate” responses on several of these inventories which would help explain the observed disconnect on these other variables. Contrastingly, when asked about team level constructs pertaining to the use of aggressive behaviour, and thus not about themselves or their children, parents may not have felt the same pressure to provide “appropriate” responses which is why we may have found a relationship between parent and athlete team norm perceptions.

The fact that parents and athletes both perceived the team climate in a similar manner as it relates to the legitimacy of aggressive behaviour suggests that team norms are likely quite explicit and pervasive. Moreover, if overtly physical and aggressive behaviour is legitimized and revered within the team context, and parents are understood as a part of that team dynamic, then not only are they aware of these pro-aggressive norms, they may in fact play an active role in the development, reinforcement and maintenance of them. Consequently, similar to the qualitative results presented by Smith (1979b), parents may reinforce and legitimize team norms pertaining to aggression among each other in the stands (“Boy, little Ian isn’t afraid to hit” [Smith, 1979b]), and also in their communications with their children. These conversations between parent and child (e.g., “did you see Jimmy smoke that guy in the corner”) indirectly legitimize the use of aggressive behaviour, while sending salient messages about the type of conduct
that will receive reinforcement. Smith (1979) has shown that when athletes perceive important reference-others such as their parents as accepting of aggressive behaviour that they employ these types of behaviours at a much higher frequency.

5.2 Competitive Level and Aggression

When athletes’ use of aggressive behaviour was regressed according to competitive level, local league players’ aggressive behaviour could not be significantly predicted by any of the hypothesized factors, while rep players’ aggressive conduct was significantly predicted by their reactive motives score and accounted for roughly 21% of the variance. Previous research has documented differences between competitive and recreational athletes on a variety of self reported psychosocial constructs and has routinely explained these differences according to the normative codes that govern these different competitive divisions (Conroy et al., 2001; Lemieux, Mckelvie, & Stuart, 2002). However, because actual overt aggressive infractions have been omitted from these designs, actual differences in aggressive behaviour as they relate to these contextual factors has yet to receive empirical attention. In the current investigation, rep teams did commit significantly more aggressive infractions over the competitive season (see Table 18), yet there were not significant differences on any of the athlete-level predictor variables between rep and local league players (see Table 19). As a result, it does not appear that rep players are more ego-oriented, more over conforming to the masculine ideal, possess lower moral reasoning levels, or have higher reactive motives; rather, that something other than intrapersonal factors may be responsible for these competitive level differences. Interestingly, parents of rep and local league players differed significantly on
all of the predictor variables except ego-orientation, with rep parents scoring significantly higher on all of them (see Table 19). As was discussed in the previous section, this pro-aggressive parental disposition was found to be significantly correlated with higher team norm perceptions legitimizing the use of aggressive behaviour. Therefore, the current data suggests that differences in the use of aggressive behaviour between rep and local league players may not be the result of the types of athletes competing in these two distinct competitive divisions, but potentially the competitive climates themselves. Smith (1975; 1979c) found that as the social approval for violence and aggression increased, which it did according to the competitive level in his studies, so too did the overt expression of these acts (as measured by fighting infractions). Visek and Watson (2005) and Conroy et al., (2001) also found that legitimacy perceptions and professionalized attitudes towards aggression increased with competitive level. Researchers have also speculated that rep programs place a much stronger emphasis on winning (Chaumeton & Duda, 1988; Smith, Smoll, & Curtis, 1978), and that players participating at this competitive level see the use of aggressive conduct as necessary for advancing their athletic careers (Faulkner, 1974; Smith 1979c; Visek & Watson, 2005). In contrast, many local league divisions have introduced stricter rules pertaining to fighting and aggression, with some leagues going as far as banning physical contact all together. These heightened consequences associated with aggression in local leagues may also help explain why the differences in behaviour between these two leagues do not align with any differences on the key intrapersonal constructs under evaluation. Therefore, these results suggest that the competitive climate can have either a facilitative or repressive effect over athletes’ inherent dispositions to use aggressive behaviour, with rep divisions’ pro-aggressive
normative codes appearing to facilitate aggression while local leagues’ stricter consequences appear to be having a repressive effect. Overall then, there are athletes within both divisions who possess the pro-aggressive disposition that has been shown to be predictive of an athlete’s use of aggressive behaviour. Within the rep division, the general acceptability of aggressive behaviour appears to be having a facilitative effect on these athletes, causing them to engage in these behaviours at a higher frequency than those athletes who do not possess this trait aggressive disposition. Within the local league however, the stricter consequences and punishments associated with aggression may repress certain athletes’ inherent dispositions to use aggressive behaviour, thus minimizing this constructs predictive influence over athletes’ within-competition behaviour. These findings suggest that understanding both the person and the situation are central to predicting an athlete’s likelihood of engaging in aggressive behaviour. However, if one was to focus on only one construct, the norms governing a particular social context appear to be have the strongest influence over the expression or absence of aggressive behaviour.

5.3 Athlete Age and Aggression

When bantam and midget-aged players’ aggressive behaviour was regressed independently, two very different predictive models emerged. First, bantam players’ use of aggression was significantly predicted by their parents’ task scores, as well as their own self-reported adherence to the stereotypical masculine ideal. This second finding is interesting, as gender did not emerge as a direct predictor of aggressive behaviour during
the original regression analysis. However, its influence over younger athletes’
behavioural repertoires has received some previous empirical attention through the work
of Michael Smith (1983). Smith noted that violence in all of its forms (physical, verbal in
the dressing room) is almost absent until the age of twelve. Prior to this, he postulated
that young male athletes do not likely experience much anxiety about their masculinity,
nor do they receive pressure from their parents, friends or society to conform. However,
around the age of the thirteen / fourteen, with the onset of puberty and the transition to
high school, gender insecurity and an over-conformation to gender stereotypes becomes
more pronounced (Smith, 1983). With respect to overconforming behaviour, researchers
have reported an increase in the misogynistic and homophobic banter in dressing rooms,
coupled with a dramatic increase in the amount of rough housing and aggression around
the Bantam age (Andre & Holland, 1995; Keddie, 2005; Muir & Seitz, 2004; Schissell,
2000). Consequently, the thirteen and fourteen year old boys who self-reported
themselves as stereotypically masculine in the current study may be overtly trying to
display and reaffirm this masculinity in the eyes of their teammates by competing
aggressively. Such displays of aggression, as well as their consequences (e.g., penalties,
suspensions), may garner them respect and praise from their teammates while
reconfirming for everyone that they are indeed “masculine”. The relationship between
gender insecurity and the resulting anxiety as it relates to the use of aggressive behaviour
in sport is certainly deserving of future attention.

The finding that parents’ task orientation scores were predictive of bantam-aged
players’ aggressive behaviour, and not midget-aged players, may suggest that parents’
influence over their child’s style of play decreases over time. Interestingly, there were no
differences on any of the key predictor variables between parents of bantam and midget-aged players suggesting that these parents possess relatively similar attitudes, perceptions and dispositions towards the use of aggressive behaviour (see Table 20). As such, at an intrapersonal level there does not appear to be a reason why parents’ task scores would only predict bantam-aged athletes’ aggressive behaviour. However, if we assume that parents play a more central role in the lives of Bantam-aged athletes (14 – 15 years old) as compared to midget-aged athletes (15 – 17 years old), this level of involvement and dependence may help illuminate some of these age-specific findings. Future research should attempt to quantify parental involvement and influence and subsequently assess it according to the age of the athlete. This represents an important line of research as it has the potential to uncover a particular time period where athletes may be more susceptible to internalizing messaging from their parents, and thus a time period where educational-based interventions with parents could be particularly impactful. Once again, additional research concerned with the age of the athlete is required, as the current results suggest that different factors may be influencing the athletes’ use of aggression depending upon their age.

When the two age cohorts (bantam and midget) within the rep division were subjected to the regression process, only midget rep players’ behaviour was significantly predicted. In this case, athletes’ reactive motives accounted for 41% of the variance in their seasonal aggressive penalties. Consequently, within a highly competitive and performance-oriented league, with athletes who are between 16 and 18 years of age, athletes’ reactive motives towards aggressive behaviour were found to be very strong predictors of their actual use of aggressive behaviour during competition. These results
again appear to support an interactionist explanation, whereby it is important to understand both the situation and individual when attempting to predict a behavioural outcome like aggression. Previous research has suggested that the acceptability and legitimacy of aggression increases with both the age and competitive level of an athlete (Smith, 1979c; Conroy et al., 2001). Consequently, within the highly competitive midget rep division, where aggressive behaviour is believed to be highly legitimized and normalized, athletes’ motives towards aggression appear to be strong predictors of their actual within-competition behaviour. Therefore, when the situational factors are held relatively constant (it would be assumed that everyone in the current midget division would be subjected to the same expectations and norms around aggression, and that within-competition sources of frustration would be relatively equal as well), and are in a pro-aggressive direction, understanding “person factors” like athletes’ motives towards aggression can help identify those players who are the most likely to engage in this type of conduct. This information could obviously be of applied value to coaches and league administrators. The current results also suggest that athletes’ reactive motives can be much more useful in predicting athletes’ use of aggressive behaviour when interpreted among a homogenous sample of athletes and within a particular competitive division. Such “person factor” predictions likely become more accurate the more explicitly aggressive behaviour is reinforced and legitimized within that division. Future research should certainly attempt to obtain division-specific information pertaining to the perceived acceptability and legitimacy of aggressive behaviour in order to test this assumption.
5.4 Interactive Effects

Regression designs provide valuable insight into the independent relationships between predictor and criterion variables. What are oftentimes masked however, are the potential interactive effects that two or more predictor variables have on a criterion construct. Therefore, a single construct might not show a significant relationship with aggressive behaviour, but when understood interactively with another construct, very interpretable and salient differences may emerge. Understanding the interactive effects of constructs, especially between parents and athletes, is something that has been lacking in the study of aggressive behaviour in sport. Consequently, the secondary purpose of this investigation was to assess these potential interactive properties in an exploratory manner. In an attempt to control for inflated Type I statistical error, only constructs with a proposed theoretical relationship with aggressive behaviour were subjected to the factorial ANOVA process.

The first set of factorial ANOVAs examined the interactive effects of parents’ and athletes’ ego and task orientation scores. No significant main or interactive effects were found. Theoretically speaking, one would have expected significant differences to emerge, especially among extreme profile combinations. For example, it was anticipated that ego-oriented athletes with ego-oriented parents would commit significantly more aggressive infractions than would task-oriented athletes with task-oriented parents. There are a couple of factors that might be at work here, both of which deserve future attention. First, it may be that parents only have a direct influence over the behavioural repertoires of younger athletes, as suggested by the bantam-aged findings in the current study. To test this assumption parental influence on aggression likely needs to be assessed over a
larger number of age cohorts simultaneously. Secondly, to Bergin and Habusta’s (2004) point, it may not be the parents’ actual achievement orientation scores that matter, but rather their perceived orientation through the eyes of the athlete. As such, future lines of research should look to assess the predictive capacity of this perceptual construct on actual within-game aggressive behaviour, especially in an interactive manner with the child’s own self-reported disposition.

Due to the predictive nature of parents’ Team Norm scores in the current study, they were included in interactive analyses with athletes’ ego orientation and reactive scores. In the case of athletes’ reactive motives, a significant interaction emerged, whereby the differences between high and low reactive athletes’ aggressive behaviour under “low team norm” conditions was significantly smaller than the difference that was witnessed under “high team norm” conditions. As parents’ team norm perceptions are believed to reflect the normative code of conduct on their child’s team, these results appear to provide additional support for an interactive explanation (person and situational factors) whereby athletes with this pro-aggressive disposition are at a heightened likelihood for aggressing when placed in situations where aggression is explicitly legitimized and accepted. Contrastingly, athletes without this trait aggressive disposition, even when exposed to the same norms and social expectations pertaining to aggression, choose not to engage in this type of conduct. Consequently, these findings reinforce the importance of having to understand both the situation and the person when attempting to predict an athlete’s level of aggressiveness.
5.5 The General Aggression Model as a Working Framework

The results of the current investigation appear to suggest that an athlete’s propensity to use aggressive behaviour while competing in the sport of ice hockey is the result of the interaction between certain intrapersonal (e.g., attitudes, perceptions, personality traits) and situational factors (e.g., norms). Consequently, in order to predict a particular athlete’s susceptibility to behaving aggressively while competing in ice hockey, researchers must not only understand the athlete’s internal predispositions towards this behavioural style but also the situational norms that relate to the acceptability of these behaviours within the particular context under evaluation.

Craig Anderson and Brad Bushman, two of the most recognized researchers in the field of human aggression, recently developed an interactionist framework which they titled the General Aggression Model (see Figure 11).

![General Aggression Model](image-url)

Figure 11. General Aggression Model – Obtained from Anderson, Carnagey, Flanagan, Benjamin, Eubanks and Valentine (2004)
These researchers developed the GAM in an attempt to unify the current body of literature on human aggression and to provide structure and consistency for future lines of research (Anderson & Bushman, 2002). Since this time, the General Aggression Model has become one of the most widely cited frameworks in the aggression literature, and is believed to most accurately reflect our current macro-level understanding of the topic. Therefore, in light of the current findings, and in an attempt to move the sport science’s understanding of aggression towards that of the broader field of psychology, the General Aggression Model will be forwarded as a working framework for understanding and explaining the etiology of sport-specific aggression.

Following from the results of the current study, athlete’s trait aggressive scores represent the most significant person-level factor influencing their use of aggressive behaviour, with their ego-orientation scores and team norm perceptions also correlating strongly with this behavioural disposition. Anderson and Bushman (2002) define Person Factors as “all characteristics a person brings to the situation, such as personality traits, attitudes and genetic predispositions” (p. 35). These intrapersonal constructs are believed to predispose certain individuals to acting aggressively, in part by influencing how they perceive and define particular events. For example, Baumeister, Bushman and Campbell (2000) and Bushman and Baumeister (1998) found that narcissistic individuals were significantly more likely to view failure experiences as threatening to their self-concept, and as a result, were more likely to behave aggressively towards the perceived source of that failure. With respect to the current findings, athletes’ reactive motives may predispose them to perceiving and interpreting the competitive environment differently from those who do not possess this disposition. More specifically, those who possess
strong reactive motives may interpret their opponents’ physical actions in a more threatening or provocative manner, thus increasing their likelihood of responding aggressively. Contrastingly, those athletes who possess lower reactive motives may perceive these same physical confrontations in a much less threatening way (e.g., simply part of the game) and thus may not be as angered or primed to retaliate in an aggressive fashion. Therefore, according to the General Aggression Model athletes’ reactive motives are believed to make them more susceptible to acting aggressively during a competitive contest by influencing the way in which they interpret and internalize the events transpiring around them.

Situational factors are also hypothesized in the GAM to influence athletes’ use of aggressive behaviour by affecting the way in which they perceive, justify and rationalize aggression as a behavioural choice. Within the current study, team norms and general differences in the perceived acceptability of aggressive behaviour according to age and competitive level are believed to be partly responsible for the differences in aggression witnessed between bantam and midget-aged athletes as well as between rep and local league players. These norms and / or legitimacy perceptions influence the degree to which an athlete perceives aggression as a viable behavioural option. In leagues where aggression is heavily penalized and perceived to be generally unacceptable, athletes (even those with an internal predisposition to behave aggressively) are believed to be less likely to choose an aggressive behavioural response in an attempt to avoid the negative consequences. This is not to say that aggression is absent in these environments, as some athletes will choose aggression no matter what the consequence, but rather, that the
probability of these behaviours being displayed is lower when compared with environments that possess more pro-aggressive norms.

Consequently, when the results of the current study are incorporated into the framework of the General Aggression Model, we can see how specific person and situational factors interact to influence an athlete’s likelihood of acting aggressively while competing in ice hockey (see Figure 12).

![Figure 12. Current Findings Entered into GAM (Adapted from Anderson & Bushman, 2002)](image)

5.5.1 Strengths of the General Aggression Model

There are a number of reasons why the General Aggression Model is a strong working framework for the study of aggressive behaviour in sport. First, as was mentioned in the introduction, the current body of literature on sport-specific aggression
exists in a relatively fragmented and micro-analytical format. This internal disconnect between research efforts is at least partially responsible for our current inability to provide a reliable and comprehensive explanation pertaining to the etiology of these behaviours (Kirker et al., 2000). The introduction of the GAM will not only allow us to begin to synthesize and package this body of literature in a more integrated and interconnected manner, but also to leverage the wealth of understanding and knowledge that exists within it.

Secondly, the GAM represents a contemporary attempt from the broader field of psychology to synthesize its understanding of human aggression. Therefore by adopting the same framework, the study of sport-specific aggression not only gets to leverage this wealth of knowledge and research, but will also be aligning itself in a way that will allow it to add to this central body of knowledge more seamlessly in the future. As Bushman and Wells (1998) pointed out, the competitive sporting context, in part because of the normative perceptions associated with aggressive behaviour, is likely one of the most fruitful ecological laboratories for the study of human aggression. Therefore, it not only serves the sport-science’s agenda to adopt the GAM as a working framework, but also likely our broader academic understanding as well.

Third, the General Aggression Model was developed atheoretically, meaning that it doesn’t force researchers into a particular explanation or ideology. In fact, its composition allows for a number of the most common psychosocial theories of human behaviour to be tested (e.g., social learning theory, schema theory, neoassociation theory, frustration-aggression theory). Moreover, as it is a working framework it also allows for broader developmental (e.g., Ecological Model; Bronfenbrenner, 1979) and cultural
theories (Cultural Spillover Theory; Baron & Straus, 1987) to be incorporated as precursors or cultural / developmental determinants, thus expanding the model’s scope and further integrating different academic perspectives and disciplines.

Another strength of the General Aggression Model is its inclusion of the volitional and intentional aspect of human aggression (i.e., Appraisal and Decision Making Process). As the “intent to harm” is the defining characteristic of human aggression, its inclusion in a working framework has been deemed essential (Stephens, 1998). This oversight was highlighted by Shapcott, Bloom and Loughead (2007), who used the Theory of Planned Behaviour (TBP; Ajzen, 1991) to illustrate the centrality and the need to include “intent” in any discussion pertaining to aggressive behaviour. Therefore, in line with these researchers suggestion, the current working framework includes “intent”. Nevertheless, the measurement and incorporation of intent into a study of aggressive behaviour is still a methodological concern, but the centrality of the construct in the GAM has the potential to remind researchers of its importance and the need for it to be assessed.

Finally, there are a number of potential applied benefits associated with using the General Aggression Model as a working framework. First, its multidimensional nature has the potential to force future research studies and applied interventions to mirror its multifactorial structure. In doing so, not only will future research efforts provide a more comprehensive and robust look at human aggression, applied interventions will also likely adopt a more multifactorial approach which has the potential to heighten their clinical effectiveness (Anderson & Bushman, 2002). The framework will also hopefully introduce a degree of consistency to the study of sport-specific aggression, allowing sport
scientists to work separately, yet collectively, towards a more advanced understanding. Doing so has the ability to take what are currently “research stones” and to put them together in such a way as to make a “research house” (Anderson & Bushman, 2002).

5.5.2 Future Directions with the General Aggression Model

There are two macro-level lines of research with the GAM that appear to be inevitable next steps required to significantly move our understanding of aggressive behaviour forward. The first involves a deeper understanding of the internal mechanisms (i.e., affect, cognition, arousal) that are influenced by key person and situation factors, and how these constructs or cognitive processes ultimately lead to an individual choosing aggression over all other behavioural responses. This line of research will either identify a new explanation pertaining to the etiology of aggressive behaviour or will help identify a current theoretical explanation that best fits with the empirical data. Having a more clear understanding of “why” individuals choose aggressive behaviour over other behavioural responses or why some athletes are more aggressive than others will subsequently provide policy makers with the necessary information to begin addressing these transgressions.

Secondly, the GAM is a purely psychological framework and therefore is only concerned with the individual as the unit of analysis. What the current model fails to account for is how the individual ultimately comes to possess these personality and attitudinal constructs and how certain situational contexts develop discrepant norms concerning the acceptability of aggressive conduct over time. To answer these broader questions, macro-level developmental and ecological theories will need to be applied to
the study of aggressive behaviour. This type of cross-cultural examination has been
recommended previously in the study of sport-specific aggressive behaviour (Gee &
Sullivan, 2006). Bronfenbrenner’s (1979) ecological model of human development would
likely be a strong choice for researchers interested in this line of research, as it provides a
framework for testing the influence of broader cultural forces (e.g., political and religious
ideologies) on more micro and intimate socializing agents (e.g., parents, teachers), and
ultimately tests how these micro-level belief structures are disseminated and internalized
by children through the process of socialization. Using this top-down framework as part
of a cross cultural research design would be invaluable to our understanding of how
differences in certain macro and micro factors ultimately shape differences in the
behaviour of interest (i.e., sport aggression). Previous research has hypothesized that
these cultural and developmental differences are at least partially responsible for the
differences in aggressive behaviour witnessed between European and North American
hockey players (Gee & Leith, 2007), however, this assumption has yet to receive
empirical validation.

Finally, the current study identified a number of person and situational factors that
require additional validation in the future, especially those concerned with age and
competitive level. The previous body of literature on sport-specific aggression also
contains a number of situational factors (e.g., losing, losing late in the game, losing by a
large score differential) that were previously shown to correlate with aggressive penalties
and therefore are likely worthy of additional attention moving forward. Future lines of
research concerned with sport aggression should look to replicate some of the broader
psychological findings, which will not only add an additional layer of understanding to
the sport sciences literature on aggression but will also provide ecological validity to many of these laboratory-based findings.

5.6 The Coach and Aggressive Behaviour in Ice Hockey

The absence of a relationship between coaches’ attitudes and perceptions of aggressive behaviour and the actual deportment of their athletes was certainly not expected in the current study. Previous research that has included the coach as a source of influence has routinely suggested (however many have never directly tested) a link between the coach’s orientation and the team dynamics surrounding the use of aggressive behaviour (Chaumeton & Duda, 1988; Loughead & Leith, 2001; Smith, 1975; 1979). Smith’s (1980) extensive fieldwork in the Greater Toronto area speculated that “hockey coaches encourage aggressive play, including fighting and other assaultive acts, both for what they symbolize (gameness and strong character) and for their utility in winning games and enhancing players careers” (p. 86). As coaches’ own performance is often evaluated according to the team’s win-loss record and by the number of players they advance to the next level, it is not hard to see how many of them could adopt a win-at-all-costs philosophy that promotes the use of aggression as a performance facilitator.

Interestingly, Spallanzani (1988) reports that nearly 75% of minor hockey coaches were once minor hockey players themselves, and thus may bring this pro-aggressive subculture norm with them to the bench. Consequently, changing the social dynamics of amateur hockey in the short-term could have long term implications with respect to the types of coaches involved with the game in the future.
When coaches’ average scores on all of the independent variables were examined, they were found to be substantially different from both athletes and parents (see Tables 21 & 22). Moreover, they were found to deviate in a fairly self-effacing fashion when examined in relation to the other samples of participants (i.e., higher task – lower ego, lower team norms, higher masculinity). However, as social desirability was not measured in the current study, conclusive statements about the validity or accuracy of their responses can not be made. Nevertheless, with the current study being conducted in the wake of Don Sanderson’s death, and a great deal of media coverage being presented on violence in hockey, it is not beyond reason to believe that coaches may have presented themselves in a slightly more favorable light.

Future studies concerned coaches’ influence over athletes’ aggressive behaviour should consider adopting one of two methodologies. First, rather than asking coaches directly, assess athletes’ perceptions of their coaches’ attitudes and beliefs regarding the legitimacy of aggressive behaviour. Such an approach has the potential to remove any desirability bias that may be present in this type of research, while simultaneously assessing coaches’ influence through the eyes of the athlete. This perceptual construct likely has more influence over athletes’ within-competition behaviour, irrespective of the coaches’ actual dispositions. This approach was included in the original proposal of this study; however, was later removed in an attempt to shorten the athlete-version of the questionnaire.

Secondly, a systematic observation approach whereby coaches’ behaviours and comments are assessed in conjunction with actual on-ice conduct. Trudel, Côté, and Bernard (1996) employed a similar methodology when descriptively studying within-
game coaching behaviours. This type of design could provide valuable insight into the within-competition dynamics associated with aggression, as well as insight into how coaches react following on-ice incidents. Future quantitative studies should also consider nested designs, in which the team becomes the unit of analysis. This type of statistical and methodological design addresses the independence of observations issue that routinely plagues studies where members of a particular team are evaluated.

Overall, the absence of significant findings between coach and players in the current study likely reflects a number of methodological shortcomings, as well as certain uncontrollable situational factors (e.g., death of Don Sanderson). Future studies concerned with aggressive behaviour in sport should look to include the coach as a primary socializing agent, and to gain additional insight into how the coach facilitates or represses the expression of aggressive behaviour among his / her athletes.

5.7 Future Recommendations

There where a number of “lessons learned” in the current study that will be included here as recommendations and suggestions for future research efforts in the area.

First, and a comment that echoes a suggestion published by Kirker and colleagues (2000) over a decade ago, studies concerned with aggressive behaviour should strive towards including a valid measure of the behavioural construct. The current study represents a step in the right direction in this regards, as actual within competition indices were used; however, there still appears to be room for improvement. Methodologies in the future should focus heavily on trying to assess athletes’ intent, as most current methodologies possess some form of an inferential bias (Gee & Sullivan, 2006).
Shapcott, Bloom and Loughead (2007) recently employed a retrospective stimulated recall methodology with female hockey players, whereby they used actual game videotape to help athletes recall a particular incident (deemed to be aggressive by the researcher) and then had them explain their intentions. This methodology does suffer from recall and retrospective biases, as well as the potential for social desirability, but does represent a novel approach towards assessing individual athletes’ behavioural intent. Another suggestion would be to follow the Widmeyer and Birch (1984) methodology, whereby participants are asked collectively to list the behaviours that they commit with the intent to harm their opponent at least 80% of the time. However, rather than using the collective list to create operational infractions, researchers could use each athlete’s individual responses to create a customized list of aggressive infractions. Consequently, based on each athlete’s responses, researchers could tabulate the penalty records for only those infractions that the athlete identified as behaviours that they commit with the intent to harm their opponents. If a direct observation methodology is employed to collect the penalty infraction data, which would be recommended to overcome the limitations associated with using game statistics (e.g., missed calls, false positives), then a stimulated recall portion could be introduced to evaluate athlete’s intent for certain “grey area” infractions. This mixed methods approach would represent a significant advancement in our ability to obtain a valid behavioural criterion.

The absence of any findings with respect to parents and coaches predictive influence over athletes’ use of aggression can likely be attributed to certain methodological shortcomings in the current study. Consequently, future studies should continue to assess these primary socializing agents, both as situational factors in the
GAM as well as in broader developmental designs as socializing agents responsible for the shaping of key person factors (e.g., Bronfenbrenner model). Nevertheless, certain methodological considerations should be taken into account when attempting to obtain a valid measure of parents and coaches influence. First, as recommended by White (2007) and Givvin (2001), researchers should indirectly assess this influence by assessing the athlete’s perceptions of these key agents. Doing so not only removes the element of social desirability, but also likely measures a more predictive construct. More specifically, an athlete’s perception of these key socializing agents’ beliefs and expectations are ultimately what the athlete has internalized, and thus represent the construct that is actually having an affect over the athlete’s behaviour. Therefore, it doesn’t matter if this perception is accurate or not, simply whether or not the athlete believes it to be accurate. Consequently, obtaining this information through the athlete represents a more direct and valid approach.

If a direct measure of parents’ and coaches’ influence is desired, a behavioural observation methodology would be recommended. By assessing how coaches and parents behave / react during a competitive contest, especially following aggressive incidents, researchers may shed some additional light on the environmental cues that athletes are exposed to when engaged in the competitive contest. Kirker et al., (2000) placed a camera on the crowd as part of their direct observation approach; however no spectator level data was ultimately published. Trudel and colleagues (1996) employed a similar methodology to study coach’s behaviour during competition, and therefore would be a strong methodology to mirror in the future. With respect to parents, Goldstein and Iso-Ahola (2008) observed parents verbal and behavioural patterns during youth soccer
matches in relation to within-competition events. This design could be replicated in a youth hockey context with particular attention being paid to verbal and behavioural reactions to on-ice acts of aggression.

Masculinity emerged as predictive construct among younger athletes in the current study. As this construct has received rather scant empirical attention in the past, it appears to represent a fruitful and interesting line of research for the future. In particular, it would be interesting to assess the construct within the GAM, both as a person factor and as a social construct. Previous research has suggested that anxiety around one’s gender, especially as it stacks up to the perceived dominant gender ideology, is a root cause of aggressive behaviour among youth and adolescent males (Smith, 1983). Physical sports like ice hockey are believed to provide a public arena for these young men to display and reinforce these masculine attributes (Whitson, 1990). These anxieties would of course represent person factors. Contrastingly, team norm perceptions of masculine expectations, combined with the intra-dressing room banter and dynamics that often center around gender and masculinity, may also provide a great deal of insight into the social influence that teammates can have on a player’s use of aggressive behaviour. Researchers should look to obtain this information through mixed method designs, whereby survey responses are gathered along side of observational data obtained from the dressing room and team bench. These intra-team dynamics have yet to receive adequate attention, in part because of the difficulty assessing them in an ecologically valid manner. They do however represent a line of research that has the potential to add great value to the future development of GAM working framework.
Overall, future lines of research should look to expand upon, or fill in obvious
gaps within, the working GAM framework. Moreover, as an academic community we
should strive towards employing “gold standard” methodological approaches and look to
overcome the limitations / shortcoming of previous designs. It is only through this
evolutionary process that we will move our understanding of aggressive behaviour
forward.

5.8 Limitations

Despite efforts to create a workable and sound design, certain limitations were
inherent within the current study. First, considering the broad scope and
multidimensional nature of the current investigation, several analyses were computed
using a common dependent variable (i.e., athletes’ penalty statistics). As the probability
of committing a Type I statistical error exponentially and cumulatively increases in
accordance with the number of analyses computed, large scale studies such as the current
one are particularly susceptible. In an attempt to combat inflated Type I statistical error,
several data cleaning and a priori techniques were employed before each regression
model was computed (Tabachnick & Fidell, 1996). Nevertheless, the current analyses
should be interpreted with a degree of caution, with additional confirmatory analyses
required in the future.

The current study was also fairly limited in its representativeness. All of the
participants (athletes, players, coaches) were from a large urban centre, with athletes
ranging from 14 to 18 years of age. As such, the current findings may not be
generalizable to smaller rural populations, and should not likely be extrapolated to older
or younger hockey players. As athlete age played a central role in the current study, additional research is required to further understand the development and stability of these predictive constructs over a more diverse athlete pool. In addition, as previous research has highlighted the different behavioural repertoires that exist internationally among hockey players (Gee & Leith, 2007) the current results should not be generalized outside of Canada. Finally, the sport of hockey has very unique normative codes and expectations surrounding the use of aggressive behaviour which likely limit the generalizability of the current results to other contact sports. Additional research across a variety of sports is required to substantiate the current findings.

Several of the key findings, especially those pertaining to age and competitive level, were explained according to hypothesized and previously cited contextual differences. As these contextual differences (e.g., different levels of acceptance and tolerance for aggression, different normative codes, different consequences for misbehaviour) were not directly studied in the current investigation, rather assumed to be consistent with previous research, a degree of speculation was introduced into the discussion of these results. Future studies should attempt to collect contextual and team climate data in conjunction with intra and interpersonal constructs in order to directly assess these situational constructs. Doing so will add a degree of precision not found in the current study, while also assessing the input constructs of the General Aggression Model directly.

Archival penalty records were used as the operational indices for aggressive behaviour in the current study. These measures were used for convenience purposes, as well as in consideration of the projected sample size needed to conduct multivariate
analyses. Previous research has suggested that direct observation techniques possess a number of advantages that make them a superior option for obtaining a valid behavioural criterion (Gee, 2010; Gee & Sullivan, 2006; Kirker et al., 2000; Rascle, Coulomb & Delsarte, 2005; Rascle, Coulomb, Pfister, 1998; Sheldon & Aimar, 2001). These advantages include the ability to stop and rewind the competitive action, ensure inter-rater agreement, and the ability to use multiple angles and prior events to determine athletes’ intent. These luxuries are obviously not afforded to game officials, which is believed to introduce a degree of error into the sample of aggressive behaviours that are ultimately obtained through this methodology (e.g., missed calls, absence of intent, calls that were not penalties). Previous research has minimized the impact that these sources of error are believed to have on the validity of an archival sample (Katorji & Cahoon, 1992); however, whenever possible future designs should consider an observational approach.

In conjunction with the previous paragraph, the use of archival penalty records also suffers from an inferential bias, as the intent of the act is not directly measured. As intent to harm is the defining characteristic of aggressive behaviour this represents a major source of error with respect to obtaining a valid behavioural criterion. As game officials are trained observers, and the intent to harm is a common determinant for calling an infraction, the affect of this inferential bias is not likely catastrophic. Nevertheless, designs the future should attempt to overcome this limitation by assessing intent whenever possible (Shapcott, Bloom & Loughead, 2007)

The current study also examined athletes who participate in a team sport, but did so using the individual as the unit of analysis. Consequently, athletes from a given team are likely to have had common shared experiences that could have influenced their
attitudes and perceptions towards the construct under evaluation (e.g., aggression). Consequently, when these athletes were asked about this particular construct, their answers or perceptions may not have been truly independent, but rather interdependent because of their shared experiences. Within the current study, questions pertaining to the team norm construct likely violate the assumption of independence of observations.

Similar criticisms have been levied against the Group Environment Questionnaire (GEQ: Carron, Widmeyer, & Brawley, 1985), as the bulk of the research to date has been conducted and analyzed at the individual level (Spink, Nickel, Wilson, & Odnokon, 2005). Future endeavors may want to consider a team level assessment or nested approach in order to overcome this interdependence that is inherent among team sport athletes.

As was mentioned in the methods section, the current study took a very quantitative and positivistic approach towards the understanding of aggressive behaviour in sport. Consequently, there are certain inherent biases and limitations associated with this approach that deserve to be acknowledged at this time. First, the instruments and scales that comprised this investigation were developed with certain inherent temporal and epistemological assumptions. As such, these instruments reflect the developers’ understanding and deducted conceptualizations of the constructs at a given point in time, and likely reflect a synthesis of the dominant scholarly research to-date. However, some have argued that historically behavioural science research has omitted large segments of the population (i.e., women, visible minorities) and that instruments rooted in this historical understanding may have a euro-centric male bias (Gratton & Jones, 2004; Willig, 2008). As such, these instruments may not accurately reflect the constructs within
these omitted populations, thus undermining their validity and overall utility when employed with a heterogeneous sample. Moreover, these instruments assume a degree of consistency and temporal stability in the constructs that they measure, and in doing so fail to acknowledge that they are oftentimes socially constructed and therefore influenced by contemporary ideologies and normative belief patterns. Finally, quantitative studies such as this one focus on, and strive towards, a unified solution or explanation. In doing so, they collapse individual experiences and variability into a collective solution believed to represent the majority. These designs also test a set of a priori constructs and hypotheses and therefore are bound to the researchers’ predetermined assumptions. Qualitative approaches on the other hand do not limit themselves to predetermined theories or hypotheses, and therefore allow for alternative and unique explanations to emerge. Consequently, future research endeavors in this area should attempt to leverage the strengths of both methodologies, while simultaneously attempting to avoid their shortcomings. These mixed methods designs will likely be paramount to furthering our understanding of aggressive behaviour in sport.

Finally, something that is not likely a limitation per se, but that must be recognized and acknowledged, was the timing of the current study. The data collection phase of this investigation began very shortly after Don Sanderson was hospitalized and placed on life support and was in relatively full swing when he passed away from his injuries. This incident, as well as the pervasive media attention that violence in hockey garnered as a result, could have impacted the outcome. Don Sanderson’s death cast a very dark cloud over the sport of hockey and incited a social and political debate pertaining to the relevance and subsistence of violence within the game. This incident may have
drastically changed adults’ opinions and attitudes regarding the acceptability of violence and aggression within amateur hockey, yet their previous beliefs and actions would have had the greatest impact on athletes’ behaviours as measured in this study. This significant, and relatively recent, attitudinal shift would not have been accounted for in the current design, and may be partially responsible for the disconnect between parents’ and children’s responses in the current study.

The study was also perceived by participants from all three groups (parents, athletes, coach) to be in response to the Sanderson case. Even with such inquiries being addressed by the researcher, the speculation that the study might be tied to the incident may have altered participants’ responses. This tragedy, and the negative light in which it painted the current state of amateur hockey, may have created a context that was highly susceptible to socially desirable responding. Consequently, the proximity of this study to the Sanderson incident may have caused some participants to respond in a more “appropriate” manner, introducing a degree of error that may not have existed a few months prior.

5.9 Applied Outcomes

The results of the current investigation may have both social and scientific applications.

5.9.1 Social Applicability

The results of the current study appear to have applied relevance outside of the academic community, especially as they relate to policy and program development within
amateur hockey. With that being said, these results should be considered preliminary and are thus in need of additional confirmation. Violence and aggression have long been topics of discussion surrounding amateur hockey, with Hockey Canada attempting to address the issue on more than one occasion. In 2006 Hockey Canada implemented the “Shared Respect Initiative”, which saw an emphasis placed on reducing hitting to the head and hitting from behind infractions. The STOP patch (Safety Towards Other Players) that is placed on the back of players’ jerseys, which is currently mandatory for all players under the major junior ranks, actually preceded this initiative and was implemented in Windsor as early as the 1995 – 96 season. And finally, in 2003 Hockey Canada targeted parents with their “Relax, it's just a game” media campaign, which used comedy to illustrate the undue pressure and unsportsmanlike values that overly competitive parents can place on their children. All of these initiatives by Hockey Canada could be classified as responsive in nature (implemented once the problem became too serious), as they followed directly from spikes in perceived violence and the subsequent media attention that followed. Moreover, these initiatives were developed through anecdotal means, rather than being the result of empirical research into the etiology of aggression and violence. As such, the impact that these initiatives have had on cleaning up amateur hockey is certainly questionable.

Previous research has shown that people often use different moral references when placed in different social contexts (Bredemeier & Shields, 1985) and that one’s self reported morality may be slightly different (i.e., more ego-preserving) from how other people evaluate you on the same construct (Bergin & Habusta, 2004). These types of conclusions were certainly relevant to the current investigation when attempting to
explain the absence of results when parents and coaches were examined as predictors of athletes’ aggression, especially in light of previous research (Kidman, McKenzie & McKenzie, 1999). In an applied sense, these relatively consistent findings concerning the contextual nature of morality cast suspicion over the utility of the parent, coach, and athlete fair play contracts that are currently being employed in amateur sports, as well as the use of pre-season coach / parent information sessions intended to curb inappropriate fan behaviour. When asked in a relatively benign classroom setting, it appears that coaches and parents know what is expected of them within the hockey arena and are able to provide “appropriate” responses. However, when engaged in an actual competitive contest, many of their behaviours and comments may not reflect this previously cited understanding. For example, as Goldstein and Iso-Ahola (2008) demonstrated in their observational design, parents oftentimes become irritated and angered during a competitive contest and verbalize these feelings from the sidelines. As such, future initiatives should consider a more ecologically-based monitoring approach, where parents and coaches actual conduct may be under evaluation. By randomly placing plain clothes monitors in the stands, or videotaping / recording games, parents and coaches could be held to a new standard of conduct. As part of the implementation process, rules and consequences must be clearly articulated and strictly enforced. If parents knew that there was a chance that they were being monitored, and the consequences of misbehaviour were steep enough, significant changes in spectator behaviour could likely be realized. Moreover, the enforcement of these consequences during the game would have the potential to act as a reminder and deterrent to the remaining spectators in attendance. This
suggestion is certainly extreme, but does reflect a “real world” solution for dealing with inappropriate spectator behaviour within the youth sporting context.

A similar ecologically-based monitoring system could also be implemented with coaches. Coaches could be made aware that their conduct would be randomly monitored by the league, with the data collected being used both as a benchmark for coaching quality, as well as in the development of a customized coaching plan. Previously, interventions using Coach Effectiveness Training (based on an observational assessment system) have reported significant increases in overall coach effectiveness, both from an instructional and performance perspective, as well as interpersonally with regards to being a mentor and role model to athletes (Smith, Smoll, & Curtis, 1979). Holding coaches more accountable for their actions during a competitive contest, while subsequently using the data collected to develop customized strategies (e.g., identify ways to help the coach create a more positive and nurturing environment), may be an effective way to assess and ensure that coaches are putting theory into practice. Again, these suggestions follow from the current study’s speculation that parents and coaches may be prone to providing “appropriate” responses when discussing the topic of aggression. Consequently, by assessing their behaviour during the competitive contest, future initiatives may garner a more valid understanding of what is actually transpiring on the bench and in the stands. Using this information to monitor appropriate behaviour, as well as for educational purposes, likely has advantages over the fair play contracts and parent education materials that are currently being used.

If aggressive behaviour is understood and predicted according to an interactionist perspective (as is supported in this study), and if we assume Hockey Canada is not likely
to be accepting of a dispositional-screening test as part of the registration process, the emphasis for change then needs to be placed on the environment itself. Currently, the benefits of playing aggressively in many competitive leagues appear to significantly outweigh the consequences (Gee & Potwarka, 2007). One strategy would be to significantly increase the consequences associated with aggression, not only to the individual but to the team. If the consequences of players’ actions were more inherently tied to their team’s likelihood for success, and we assume that teams and coaches want to be successful, then it follows that this strategy would likely facilitate team norms and social pressures towards compliance. For example, if certain aggressive infractions (fighting, hitting from behind, spearing) were penalized with a penalty shot, rather than the standard two minute penalty, it is very likely that such rule violators would not receive a favourable reaction from either their coach or teammates (Gee & Potwarka, 2007). In this instance, engaging in such behaviours would be perceived as selfish and reckless and thus running contrary to the team’s ultimate goal. Players who continued to display this conduct would likely find themselves ostracized by their teammates and benched by their coach.

Increasing the consequences associated with aggression at a league level also represents a strong strategy because it takes the onus of making a volitional behaviour change off the athlete, and forces a behaviour change on everyone simultaneously. As such, it should not threaten athletes’ perceived masculinity or teams’ identities, as the league administration becomes the sacrificial scapegoat for athlete and team compliance.
5.9.2 Scientific Applicability

Within the scientific community the current study provides working framework (General Aggression Model; Anderson & Bushman, 2002) upon which future lines of research can build. Specifically, the current study suggests that both dispositional and contextual factors may be the primary determinants of aggressive behaviour; thus, identifying the need for additional work in these two areas.

With respect to future intrapersonal research, a more dispositional focused methodology would be suggested. Previous research has predominantly employed attitudinal and perceptual measures, all of which displayed no direct relationship with actual on-ice aggressive conduct in this study. These dynamic measures may be weak predictors of aggressive behaviour for two reasons. First, they are highly susceptible to social desirability, especially among adolescent males who are trying to obtain and reinforce their hegemonic gender identity (i.e., all talk, no action). Secondly, they appear to be artifacts or components of an individual’s trait aggressive personality, and therefore do not account for additional independent variance above and beyond this disposition. Consequently, future intrapersonal research should strive to conceptualize and operationalize this trait aggressive disposition, as to assess it in the most comprehensive and valid manner possible. Moreover, insight into the socialization of this pro-aggressive disposition both inside and outside of the sporting arena and in a longitudinal manner would certainly help advance our understanding of these behaviours. To do so, research from the broader field of psychology should be used to inform future methodologies and to identify potentially important dispositional constructs.
The current investigation also highlighted a number of methodological considerations that should be taken into account in the future. First, due to the face validity inherent within many of the aggression-focused inventories, combined with the moral nature and negative stereotype associated with “bad” adult role models in youth ice hockey, directly obtaining valid and reliable data may not be possible from parents and coaches. Consequently, future studies should assess athletes’ perceptions of their parents’ and coaches’ attitudes towards aggressive behaviour, as athletes’ perceptions are likely to be more influential than these individuals’ actual dispositions, if the two are in fact not the same (Bergin & Habusta, 2004). This approach has been employed previously (Smith, 1978, 1970c; Stephens, 2000; 2001), but has never included a valid behavioural criterion as the dependent variable. The only caveat to this approach, and the reason that these assessments were omitted from the current study, is that including them alongside other athlete-focused scales significantly increases the participation requirements being asked from the athlete. This is of course could be problematic when working with a youth population. Nevertheless, by omitting several of the attitudinal and perceptual constructs found to be redundant with the general aggressive disposition in the current study, adding these other-referenced perceptual assessments could likely be accomplished.

Another finding from the current study was the degree to which the team climate may play an integral role in facilitating or deterring an athlete from engaging in this type of conduct. Previous research concerned with the relationship between team dynamics and athlete-level aggression has focused primarily on teammates as a source of influence (Stephens, 2000; 2001) and not on the motivational climate created by the coach and parents. The little research that has been conducted to date on motivational climate and
athlete behaviour, does appear to suggest that the coach may play an integral role in
facilitating either an other referenced / performance-based competitive environment, or
an internally-referenced / development-focused mastery climate, both of which appear to
foster very different attitudes and perceptions towards competition and sportspersonship
(Miller, Roberts, & Ommundsen, 2003; 2005; Ommundsen, 2004). Nevertheless, without
the inclusion of a valid behavioural criterion, and the inclusion of other important
intrapersonal constructs, motivational climate’s influence over athletes’ aggressive
behaviour will not likely be advanced. As such, future research should look to include
motivational climate as a variable of interest, and look to assess the behaviours, attitudes
and demographics of coaches and parents who facilitate these different climates. Doing
so using the previously described observational methodology would also add an
additional degree of ecological understanding to such a study. Overall, these contextual
studies will significantly add to the sport-specific testing of Anderson and Bushman’s
(2002) general aggression model by introducing explicit and measured situational factors.

Finally, previous research has documented significant differences in the use of
aggressive behaviour between North American and European-born hockey players (Gee
& Leith, 2007). Future research should attempt to introduce cultural-level factors into the
General Aggression Model which may help provide insight into the determinants of
certain predictive intrapersonal and situational factors. Moreover, such a design has the
potential to highlight the relative importance of intrapersonal and situational factors
towards the issue of aggressive behaviour in North American hockey, allowing policy
makers and league officials to be more focused in their future efforts. Finally, if cultural
differences are in fact identified, polices and practices employed within the European sporting model could likely be adopted into the North American model with relative ease.
REFERENCES


*Sociological Symposium, 9*, 17-36.


Gee, C.J. (2010). Using a direct observation methodology to study aggressive behavior in ice hockey: The good, the bad, and the ugly. *Journal of Behavioral Health and Medicine, 1*, 79 – 90.


http://www.athleticinsight.com/Vol9Iss3/LegalPunishment.htm


delinquency: Findings from a longitudinal study. *Violence and Victims, 18*,
319 - 334.

attributes questionnaire: An English-French comparison. *Canadian Journal of

Hokanson, J. & Burgess, M. (1962). The effects of three types of aggression on the


relations between children’s exposure to TV violence and their aggressive and
39*, 201 – 221.

(Eds.), *Sport Psychology: An analysis of athlete behaviour* (2nd Ed, pp. 211- 219).
Ithaca, NY: Mouvement.

considerations. In J.M. Silva & R.S. Weinberg (Eds.), *Psychological Foundations
of Sport* (pp. 246-260). Champaign, IL: Human Kinetics.

paradigm for the study of aggression. *Journal of Personality and Social
Psychology, 33*, 663 – 673.


# TABLES

Table 1. Athlete Descriptives

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(N = 356)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal Attributes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>14.9 years</td>
<td>1.24</td>
</tr>
<tr>
<td>Weight</td>
<td>142.2 lbs</td>
<td>26.68</td>
</tr>
<tr>
<td>Height</td>
<td>68.2 inches</td>
<td>3.62</td>
</tr>
<tr>
<td>Years in Hockey</td>
<td>8.6 years</td>
<td>2.35</td>
</tr>
<tr>
<td><strong>Consumption of NHL Hockey</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHL Games Attended / Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>114 (32.0%)</td>
<td></td>
</tr>
<tr>
<td>1 - 2</td>
<td>186 (52.2%)</td>
<td></td>
</tr>
<tr>
<td>3 - 4</td>
<td>33 (9.3%)</td>
<td></td>
</tr>
<tr>
<td>5 - 6</td>
<td>5 (1.4%)</td>
<td></td>
</tr>
<tr>
<td>7 - 8</td>
<td>4 (1.1%)</td>
<td></td>
</tr>
<tr>
<td>9 - 10</td>
<td>3 (.8%)</td>
<td></td>
</tr>
<tr>
<td>10+</td>
<td>11 (3.15)</td>
<td></td>
</tr>
<tr>
<td>Frequency of Watching NHL on TV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>6 (1.7%)</td>
<td></td>
</tr>
<tr>
<td>Couple Times / Year</td>
<td>29 (8.1%)</td>
<td></td>
</tr>
<tr>
<td>Couple Times / Month</td>
<td>60 (16.9%)</td>
<td></td>
</tr>
<tr>
<td>Once a Week</td>
<td>89 (25.0%)</td>
<td></td>
</tr>
<tr>
<td>As Often As I Can</td>
<td>172 (48.3%)</td>
<td></td>
</tr>
</tbody>
</table>
Table 2. Internal Reliability Co-efficients

<table>
<thead>
<tr>
<th>Sample</th>
<th>Instrument</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Athletes</strong></td>
<td>TEOSQ</td>
<td>.79</td>
</tr>
<tr>
<td>(N = 356)</td>
<td>Ego</td>
<td>.82</td>
</tr>
<tr>
<td></td>
<td>Task</td>
<td></td>
</tr>
<tr>
<td>BAGGI</td>
<td>Reactive</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Instrument</td>
<td>.46</td>
</tr>
<tr>
<td>CPAQ</td>
<td>Masculinity</td>
<td>.70</td>
</tr>
<tr>
<td>TNQ</td>
<td>Team Norms</td>
<td>.79</td>
</tr>
<tr>
<td>JAMBYSQ</td>
<td>Preconventional</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td>Conventional</td>
<td>.85</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td>TEOSQ</td>
<td>.84</td>
</tr>
<tr>
<td>(N = 295)</td>
<td>Ego</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>Task</td>
<td>.86</td>
</tr>
<tr>
<td>BAGGI</td>
<td>Reactive</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>Instrument</td>
<td>.65</td>
</tr>
<tr>
<td>CPAQ</td>
<td>Masculinity</td>
<td>.69</td>
</tr>
<tr>
<td>TNQ</td>
<td>Team Norms</td>
<td>.79</td>
</tr>
<tr>
<td>JAMBYSQ</td>
<td>Preconventional</td>
<td>.91</td>
</tr>
<tr>
<td></td>
<td>Conventional</td>
<td>.84</td>
</tr>
<tr>
<td><strong>Coaches</strong></td>
<td>TEOSQ</td>
<td>.87</td>
</tr>
<tr>
<td>(N = 27)</td>
<td>Ego</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>Task</td>
<td>.87</td>
</tr>
<tr>
<td>BAGGI</td>
<td>Reactive</td>
<td>.82</td>
</tr>
<tr>
<td></td>
<td>Instrument</td>
<td>.48</td>
</tr>
<tr>
<td>CPAQ</td>
<td>Masculinity</td>
<td>.67</td>
</tr>
<tr>
<td>TNQ</td>
<td>Team Norms</td>
<td>.64</td>
</tr>
<tr>
<td>JAMBYSQ</td>
<td>Preconventional</td>
<td>.90</td>
</tr>
<tr>
<td></td>
<td>Conventional</td>
<td>.93</td>
</tr>
</tbody>
</table>
Table 3. Univariate Statistics

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (N = 295)</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Athletes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego Orientation</td>
<td>3.42</td>
<td>.81</td>
<td>-.16</td>
<td>-.43</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>3.98</td>
<td>.66</td>
<td>-.73</td>
<td>.75</td>
</tr>
<tr>
<td>BAAGI - Reactive</td>
<td>35.23</td>
<td>6.79</td>
<td>.19</td>
<td>.28</td>
</tr>
<tr>
<td>Preconventional MR</td>
<td>32.52</td>
<td>7.82</td>
<td>-.65</td>
<td>-.19</td>
</tr>
<tr>
<td>Conventional MR</td>
<td>32.04</td>
<td>7.55</td>
<td>-.59</td>
<td>-.05</td>
</tr>
<tr>
<td>PAQ - Masculinity</td>
<td>59.69</td>
<td>6.78</td>
<td>-.52</td>
<td>.71</td>
</tr>
<tr>
<td>Team Norms</td>
<td>20.80</td>
<td>6.30</td>
<td>.12</td>
<td>-.64</td>
</tr>
<tr>
<td><strong>Parents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego Orientation</td>
<td>2.99</td>
<td>.76</td>
<td>-.27</td>
<td>-.05</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>4.22</td>
<td>.52</td>
<td>-.47</td>
<td>.37</td>
</tr>
<tr>
<td>BAAGI - Reactive</td>
<td>26.21</td>
<td>6.27</td>
<td>.40</td>
<td>.04</td>
</tr>
<tr>
<td>Preconventional MR</td>
<td>25.94</td>
<td>9.64</td>
<td>-.03</td>
<td>-.71</td>
</tr>
<tr>
<td>Conventional MR</td>
<td>25.46</td>
<td>9.64</td>
<td>.79</td>
<td>.28</td>
</tr>
<tr>
<td>PAQ - Masculinity</td>
<td>59.96</td>
<td>6.48</td>
<td>-.07</td>
<td>-.26</td>
</tr>
<tr>
<td>Team Norms</td>
<td>14.55</td>
<td>4.46</td>
<td>.89</td>
<td>.51</td>
</tr>
<tr>
<td><strong>Coach</strong></td>
<td>(N = 27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego Orientation</td>
<td>2.73</td>
<td>.82</td>
<td>.93</td>
<td>.96</td>
</tr>
<tr>
<td>Task Orientation</td>
<td>4.04</td>
<td>.57</td>
<td>.93</td>
<td>.91</td>
</tr>
<tr>
<td>BAAGI - Reactive</td>
<td>26.93</td>
<td>5.95</td>
<td>-.45</td>
<td>-.78</td>
</tr>
<tr>
<td>Preconventional MR</td>
<td>24.86</td>
<td>9.39</td>
<td>-.01</td>
<td>-.99</td>
</tr>
<tr>
<td>Conventional MR</td>
<td>24.82</td>
<td>9.87</td>
<td>-.18</td>
<td>-.83</td>
</tr>
<tr>
<td>PAQ - Masculinity</td>
<td>63.79</td>
<td>6.10</td>
<td>-.65</td>
<td>-.31</td>
</tr>
<tr>
<td>Team Norms</td>
<td>13.71</td>
<td>3.08</td>
<td>1.10</td>
<td>1.01</td>
</tr>
</tbody>
</table>
Table 4. Bivariate Correlation Matrix – Athletes and Parents (N = 295)

<table>
<thead>
<tr>
<th></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>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>1.00</td>
<td>.315</td>
<td>-.145</td>
<td>.235</td>
<td>.322</td>
<td>.340</td>
<td>.065</td>
<td>.092</td>
<td>.003</td>
<td>.068</td>
<td>.074</td>
<td>.016</td>
<td>.019</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>.093</td>
<td>.107</td>
<td>.066</td>
<td>.072</td>
<td>.027</td>
<td>-.83</td>
<td>-.033</td>
<td>-.103</td>
<td>-.020</td>
<td>.056</td>
<td>.056</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
<td>-.007</td>
<td>-.018</td>
<td>.013</td>
<td>-.042</td>
<td>-.093</td>
<td>-.042</td>
<td>-.014</td>
<td>.010</td>
<td>.012</td>
<td>.041</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.00</td>
<td>.352</td>
<td>.367</td>
<td>.238</td>
<td>.098</td>
<td>-.090</td>
<td>.117</td>
<td>-.031</td>
<td>.114</td>
<td>.156</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.00</td>
<td>.852</td>
<td>.079</td>
<td>.057</td>
<td>-.025</td>
<td>.084</td>
<td>.034</td>
<td>.124</td>
<td>.144</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1.00</td>
<td>.089</td>
<td>.024</td>
<td>-.025</td>
<td>.074</td>
<td>.014</td>
<td>.120</td>
<td>.158</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1.00</td>
<td>.254</td>
<td>-.189</td>
<td>.347</td>
<td>.168</td>
<td>.398</td>
<td>.453</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1.00</td>
<td>.047</td>
<td>.275</td>
<td>-.002</td>
<td>.295</td>
<td>.245</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1.00</td>
<td>.063</td>
<td>.181</td>
<td>-.080</td>
<td>-.012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1.00</td>
<td>.113</td>
<td>.425</td>
<td>.388</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1.00</td>
<td>.159</td>
<td>.204</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1.00</td>
<td>.823</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Bolded correlations are statistically significant at p < .05

1 – Masculinity (Parent)
2 – BAAGI – Reactive (Parent)
3 – Ego (Parent)
4 – Task (Parent)
5 – Team Norm (Parent)
6 – Preconventional (Parent)
7 – Conventional (Parent)
8 – Team Norm (Athlete)
9 – Ego (Athlete)
10 – Task (Athlete)
11 – BAAGI – Reactive (Athlete)
12 – Masculinity (Athlete)
13 – Preconventional (Athlete)
14 – Conventional (Athlete)
Table 5. Bivariate Correlation Matrix – Coach (N = 27)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.00</td>
<td>.224</td>
<td>.009</td>
<td>.003</td>
<td>-.076</td>
<td>-.042</td>
<td>.005</td>
</tr>
<tr>
<td>2</td>
<td>1.00</td>
<td>-.219</td>
<td>.239</td>
<td>-.020</td>
<td>.084</td>
<td>.112</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.00</td>
<td>.160</td>
<td>.098</td>
<td>.165</td>
<td>.286</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.00</td>
<td>.329</td>
<td>.314</td>
<td>.333</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Bolded correlations are statistically significant at $p < .05$

1 = PAQ (Coach)  
2 = Ego (Coach)  
3 = Task (Coach)  
4 = BAAGI – Reactive (Coach)  
5 = Team Norm (Coach)  
6 = Preconventional (Coach)  
7 = Conventional Coach

Table 6. Correlation Matrix for IVs and DV

<table>
<thead>
<tr>
<th></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>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV</td>
<td>.021</td>
<td>.107</td>
<td>.023</td>
<td>.119</td>
<td>.146</td>
<td>.124</td>
<td>.162</td>
<td>.035</td>
<td>-.091</td>
<td>.242</td>
<td>.115</td>
<td>.161</td>
</tr>
</tbody>
</table>

* Bolded correlations are statistically significant $p < .05$

1 = PAQ (Parent)  
2 = BAAGI – Reactive (Parent)  
3 = Ego (Parent)  
4 = Task (Parent)*  
5 = Team Norm (Parent)*  
6 = Preconventional (Parent)*  
7 = Team Norm (Athlete)*  
8 = Ego (Athlete)  
9 = Task (Athlete)  
10 = BAAGI – Reactive (Athlete)*  
11 = PAQ (Athlete)*  
12 = Preconventional (Athlete)*
## Table 7. Overall Regression on Athlete’s Aggressive Behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - PAQ</td>
<td>.080</td>
<td>1.39</td>
<td>.163</td>
</tr>
<tr>
<td>Athlete – Team Norm</td>
<td>.051</td>
<td>.801</td>
<td>.424</td>
</tr>
<tr>
<td>Athlete - Reactive</td>
<td>.189</td>
<td>2.99</td>
<td>.003*</td>
</tr>
<tr>
<td>Athlete - Preconventional</td>
<td>.027</td>
<td>.414</td>
<td>.649</td>
</tr>
<tr>
<td>Parent - Task</td>
<td>.125</td>
<td>2.27</td>
<td>.027*</td>
</tr>
<tr>
<td>Parent – Team Norm</td>
<td>.087</td>
<td>1.42</td>
<td>.134</td>
</tr>
<tr>
<td>Parent - Preconventional</td>
<td>.070</td>
<td>1.16</td>
<td>.303</td>
</tr>
</tbody>
</table>

**R² = .104; F (7, 294) = 4.75, p < .001**
<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - Ego</td>
<td>.135</td>
<td>2.47</td>
<td>.014*</td>
</tr>
<tr>
<td>Athlete – Team Norm</td>
<td>.184</td>
<td>3.17</td>
<td>.002*</td>
</tr>
<tr>
<td>Athlete - Preconventional</td>
<td>.309</td>
<td>5.39</td>
<td>.001*</td>
</tr>
<tr>
<td>Parent – Team Norm</td>
<td>.024</td>
<td>.460</td>
<td>.646</td>
</tr>
</tbody>
</table>

* R² = .235; F (4, 294) = 22.25, p < .001

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - Task</td>
<td>-.207</td>
<td>-3.71</td>
<td>.000*</td>
</tr>
<tr>
<td>Athlete - PAQ</td>
<td>.226</td>
<td>4.12</td>
<td>.000*</td>
</tr>
<tr>
<td>Parent – Team Norm</td>
<td>.213</td>
<td>3.83</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* R² = .129; F (3, 294) = 14.37, p < .001

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - PAQ</td>
<td>.159</td>
<td>2.76</td>
<td>.006*</td>
</tr>
</tbody>
</table>

* R² = .025; F (1, 294) = 7.59, p < .05
Table 11. Regression - Parents’ Team Norm scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent - Ego</td>
<td>.244</td>
<td>4.30</td>
<td>.000*</td>
</tr>
<tr>
<td>Parent - Preconventional</td>
<td>.267</td>
<td>4.70</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* R² = .176; F (2, 294) = 31.23, p < .000

Table 12. Regression - Parents’ TEOSQ-EGO scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent – Reactive</td>
<td>.315</td>
<td>5.68</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* R² = .099; F (1, 294) = 32.23, p < .000

Table 13. Regression - Parents’ Preconventional scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent – Reactive</td>
<td>.322</td>
<td>5.81</td>
<td>.000*</td>
</tr>
</tbody>
</table>

* R² = .103; F (1, 294) = 33.79, p < .000
Table 14. Regression - Bantam aged players’ aggressive behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - PAQ</td>
<td>.215</td>
<td>2.32</td>
<td>.022*</td>
</tr>
<tr>
<td>Parent - Task</td>
<td>.212</td>
<td>2.35</td>
<td>.021*</td>
</tr>
<tr>
<td>Parent - Preconventional</td>
<td>.186</td>
<td>1.83</td>
<td>.070</td>
</tr>
</tbody>
</table>

**R² = .198; F (3, 120) = 32.22, p = .016

Table 15. Regression - Midget aged players’ aggressive behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - PAQ</td>
<td>.215</td>
<td>2.32</td>
<td>.022*</td>
</tr>
<tr>
<td>Athlete – Team Norm</td>
<td>-.183</td>
<td>-1.93</td>
<td>.056</td>
</tr>
<tr>
<td>Athlete - Reactive</td>
<td>.182</td>
<td>1.74</td>
<td>.085</td>
</tr>
<tr>
<td>Parent - Task</td>
<td>.212</td>
<td>2.35</td>
<td>.021*</td>
</tr>
<tr>
<td>Parent - Preconventional</td>
<td>.186</td>
<td>1.83</td>
<td>.070</td>
</tr>
</tbody>
</table>

**R² = .169; F (5, 173) = 2.73, p < .001

Table 16. Simultaneous regression on Rep players’ aggressive behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - Reactive</td>
<td>.291</td>
<td>3.05</td>
<td>.003*</td>
</tr>
<tr>
<td>Parent - Ego</td>
<td>-.174</td>
<td>-1.79</td>
<td>.076</td>
</tr>
</tbody>
</table>

**R² = .211; F (2, 123) = 2.47, p < .01
Table 17. Simultaneous regression on Midget Rep players’ aggressive behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standardized Beta</th>
<th>T value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete - Reactive</td>
<td>.611</td>
<td>4.15</td>
<td>.000*</td>
</tr>
<tr>
<td>Parent - Ego</td>
<td>-.266</td>
<td>-1.94</td>
<td>.058</td>
</tr>
<tr>
<td>Parent – Team Norm</td>
<td>.291</td>
<td>1.79</td>
<td>.078</td>
</tr>
</tbody>
</table>

** $R^2 = .410; F (3, 64) = 3.01, p < .01$ 

Table 18. Aggressive acts according to age and competitive level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Average acts of aggression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Bantam (N = 121)</td>
<td>.158</td>
</tr>
<tr>
<td>Midget (N = 174)</td>
<td>.175</td>
</tr>
<tr>
<td><strong>Competitive Level</strong></td>
<td></td>
</tr>
<tr>
<td>Rep (N = 124)</td>
<td>.206*</td>
</tr>
<tr>
<td>Local League (N = 171)</td>
<td>.140</td>
</tr>
</tbody>
</table>

* $p < .01$
Table 19. Athlete and parent data by competitive level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athletes</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local League</strong></td>
<td>(N = 171)</td>
<td>(N = 171)</td>
</tr>
<tr>
<td>TEOSQ-task</td>
<td>3.96</td>
<td>4.17</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>3.48</td>
<td>2.94</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>34.9</td>
<td>25.5</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>59.6</td>
<td>59.3</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>31.9</td>
<td>24.7</td>
</tr>
<tr>
<td>Team Norms</td>
<td>20.6</td>
<td>13.2</td>
</tr>
<tr>
<td><strong>Rep</strong></td>
<td>(N = 124)</td>
<td>(N = 124)</td>
</tr>
<tr>
<td>TEOSQ-task</td>
<td>4.02</td>
<td>4.28*</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>3.35</td>
<td>3.06</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>35.6</td>
<td>27.2*</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>59.8</td>
<td>60.8*</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>33.4</td>
<td>27.6*</td>
</tr>
<tr>
<td>Team Norms</td>
<td>21.1</td>
<td>16.4*</td>
</tr>
</tbody>
</table>

* *p < .05
Table 20. Athlete and parent data by age cohort

<table>
<thead>
<tr>
<th>Variable</th>
<th>Athletes</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bantam</strong></td>
<td>(N = 121)</td>
<td>(N = 121)</td>
</tr>
<tr>
<td>TEOSQ-task</td>
<td>4.10*</td>
<td>4.17</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>3.30</td>
<td>2.92</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>35.0</td>
<td>26.5</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>59.8</td>
<td>59.4</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>31.6</td>
<td>26.1</td>
</tr>
<tr>
<td>Team Norms</td>
<td>19.4</td>
<td>14.1</td>
</tr>
<tr>
<td><strong>Midget</strong></td>
<td>(N = 174)</td>
<td>(N = 174)</td>
</tr>
<tr>
<td>TEOSQ-task</td>
<td>3.90</td>
<td>4.25</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>3.50*</td>
<td>3.03</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>35.4</td>
<td>25.9</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>59.6</td>
<td>60.4</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>33.1</td>
<td>25.8</td>
</tr>
<tr>
<td>Team Norms</td>
<td>21.8*</td>
<td>14.8</td>
</tr>
</tbody>
</table>

* p < .05
Table 21. Coach data by competitive level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Local League (N = 16)</th>
<th>Rep (N = 11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEOSQ-task</td>
<td>4.11</td>
<td>3.94</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>2.75</td>
<td>2.69</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>27.7</td>
<td>25.7</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>63.2</td>
<td>64.7</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>25.5</td>
<td>23.9</td>
</tr>
<tr>
<td>Team Norms</td>
<td>13.2</td>
<td>14.5</td>
</tr>
</tbody>
</table>
Table 22. Coach data by age cohort

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bantam</th>
<th>Midget</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(N = 11)</td>
<td>(N = 16)</td>
</tr>
<tr>
<td>TEOSQ-task</td>
<td>4.05</td>
<td>4.03</td>
</tr>
<tr>
<td>TEOSQ-ego</td>
<td>2.85</td>
<td>2.65</td>
</tr>
<tr>
<td>BAAGI-reactive</td>
<td>25.8</td>
<td>28.3</td>
</tr>
<tr>
<td>PAQ-masculinity</td>
<td>65.4</td>
<td>62.8</td>
</tr>
<tr>
<td>JAMBYSQ-preconventional</td>
<td>22.5</td>
<td>26.4</td>
</tr>
<tr>
<td>Team Norms</td>
<td>13.3</td>
<td>14.0</td>
</tr>
</tbody>
</table>
Appendix A: Athletes’ Questionnaire Package
ATHLETE CONSENT FORM

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately 30 minutes to complete.

Dear Athlete,

I am conducting a study that looks at how hockey players such as yourself think and feel about the game of hockey, and how your attitudes and feelings impact your performance. Your parents and coach will also be asked roughly the same questions about hockey. The study will then look to see how similar or different your attitudes and feelings about hockey are from your parents and coach. We will also look at your stats over the season (e.g., goals, assists, penalty minutes) to see how your answers to this questionnaire relate to these metrics.

The completion of this questionnaire should take approximately 30 minutes and your participation is strictly voluntary (you don’t have to participate if you don’t want to). If you agree to participate, you will fill out this questionnaire in a dressing room with the rest of your teammates, while your parents and coach complete their surveys in another room. Your answers will be kept strictly confidential, and all participants (including your parents and coach) will be asked not to ask other people how they answered specific questions. All of the questionnaires will be stored in a locked office in the Department of Exercise Sciences at the University of Toronto and will only be accessed by the two researchers listed below. Finally, if this study is published, your name will not be mentioned.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Chek.

Once again, participation is 100% voluntary, and therefore if you do not wish to participate, or choose to stop completing the questionnaire, you may do so at any time and will still be entered into the draw for the $25 gift certificates. There are no known risks associated with completing the questionnaire, but if you have any negative experiences please tell the researcher or your parent/guardian immediately. If you have any questions or concerns, please feel to contact the researchers at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you in advance for considering this opportunity.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
MSS 2W6
(647) 206 - 7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
MSS 2W6
(416)-978-6531 or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Athlete ___________________________ Date: ___________________________

Researcher _________________________ Date: _________________________

Participants Copy (Tear off)
ATHLETE CONSENT FORM

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately 30 minutes to complete.

Dear Athlete,

I am conducting a study that looks at how hockey players such as yourself think and feel about the game of hockey, and how your attitudes and feelings impact your performance. Your parents and coach will also be asked roughly the same questions about hockey. The study will then look to see how similar or different your attitudes and feelings about hockey are from your parents and coach. We will also look at your stats over the season (e.g., goals, assists, penalty minutes) to see how your answers to this questionnaire relate to these metrics.

The completion of this questionnaire should take approximately 30 minutes and your participation is strictly voluntary (you don’t have to participate if you don’t want to). If you agree to participate, you will fill out this questionnaire in a dressing room with the rest of your teammates, while your parents and coach complete their surveys in another room. Your answers will be kept strictly confidential, and all participants (including your parents and coach) will be asked not to ask other people how they answered specific questions. All of the questionnaires will be stored in a locked office in the Department of Exercise Sciences at the University of Toronto and will only be accessed by the two researchers listed below. Finally, if this study is published, your name will not be mentioned.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Chek.

Once again, participation is 100% voluntary, and therefore if you do not wish to participate, or choose to stop completing the questionnaire, you may do so at any time and will still be entered into the draw for the $25 gift certificates. There are no known risks associated with completing the questionnaire, but if you have any negative experiences please tell the researcher or your parent/guardian immediately. If you have any questions or concerns, please feel to contact the researchers at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you in advance for considering this opportunity.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
M5S 2W6
(647) 206 - 7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
M5S 2W6
(416)-978-6531 or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Athlete ___________________________ Date: ___________________________

Researcher ___________________________ Date: ___________________________

Researchers Copy
SECTION 1: Demographics

Please fill in or circle the appropriate information.

Name

Age

Gender Male
Female

Level of Hockey
Minor Bantam
Major Bantam
Minor Midget
Major Midget
Juvenile
Men's / Senior

What league do you play in? House League
Rep

What is your coach’s name?

What city / league do you play for?

Approximate Height (e.g. 6’ 2”)

Approximate Weight (e.g., 180 lbs)

How many years have you played hockey for?
SECTION 2: Hockey Related Questions (Circle One)

How many NHL games do you go to a year?

None
1 – 2
3 – 4
5 – 6
7 – 8
9 – 10
More than 10 games

How often do you watch NHL games on TV?

Never
Couple times a year
Couple times a month
Once a week
As often as I can

What is your favorite thing about NHL hockey?

Goals
Fights
Nice Saves
Speed
Nice Defensive Plays
Nice Passes

Do you play hockey related videogames (e.g., NHL 2007 for Playstation)?

Yes
No

How often do you play hockey related videogames?

Never
Couple times a year
Couple times a month
Once a week
As often as I can

What is your favorite videogame?

Which hockey behavior do you think people would cheer the loudest for?

Nice Goal
Fights
Nice Save
Hard Body Check
Nice Defensive Play
Rate these hockey skills in order of importance. 1 = most important, 7 = least important. Only use each number once.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skating forwards</td>
<td></td>
</tr>
<tr>
<td>Shooting</td>
<td></td>
</tr>
<tr>
<td>Passing</td>
<td></td>
</tr>
<tr>
<td>Body checking</td>
<td></td>
</tr>
<tr>
<td>Fighting</td>
<td></td>
</tr>
<tr>
<td>Skating backwards</td>
<td></td>
</tr>
<tr>
<td>Stick handling</td>
<td></td>
</tr>
</tbody>
</table>

In your current league, how much fighting is there?

None
Couple Fights a Year
Fight Every 1 – 2 games
Almost a Fight Every Game

With respect of fighting in your league, would you like to see:

A lot less
A little less
About the Same
A little more
A lot more

Would you consider yourself a fighter?

Yes
No

Comparing yourself to your teammates and/or other players in the league, how good of a hockey player are you?

Not very good
Slightly below average
Average
Slightly above average
Very good

What position do you play most often?

Forward
Defense
Goalie
SECTION 3: GENERAL ATTITUDES AND PERCEPTIONS

SECTION 3: General Attitudes and Perceptions

Part 1: Please read the following statements and indicate to what extent you agree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel the most successful when I am the only one who can do the play or skill.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel the most successful when I learn a new skill and it makes me want to practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I feel the most successful when I can do better than my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I feel the most successful when the others cannot do as well as me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I feel the most successful when I learn something that is fun to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I feel the most successful when others mess-up and I don’t.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I feel the most successful when I learn a new skill by trying hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I feel the most successful when I work really hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I feel the most successful when I score the most points/goals/hits/etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I feel the most successful when something I learn makes me want to go and practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I feel the most successful when I’m the best at a particular task.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I feel the most successful when a skill I learn really feels right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I feel the most successful when I do my very best.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 3: General Attitudes and Perceptions

Below are list of statements. Please rate how well each statement describes you.

<table>
<thead>
<tr>
<th></th>
<th>Very True of Me</th>
<th>Somewhat True of Me</th>
<th>A Little True of Me</th>
<th>Not at All True of Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would rather be safe than have an adventure.</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2. I like meeting and talking to new people.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>3. I really want to get ahead in life.</td>
<td>☒</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>4. It is hard for me to make my mind up about things.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>5. I really like to read and think about ideas.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>6. When I meet someone, I am always the first to try and make friends.</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>7. In most ways, I am better than most of the other kids my age.</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>8. I am more busy and active than most of the other kids my age.</td>
<td>☒</td>
<td>☒</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>9. I do not do well in sports.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>10. I would rather do things myself than ask grown-ups and other kids for help.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>11. I hate to lose a game or have other kids do better than me.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>12. When things get tough, I almost always keep going.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>13. I give up easily.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>14. I am often the leader among my friends.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>15. I am scared of other people.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>16. Most of the time, I am not sure that I am right.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>17. When something bad happens, I get very upset and forget what is the best thing to do.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>18. I almost always stand up for what I believe in.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>19. It is easy for people to make me change my mind.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>20. I often do not speak out even when I feel strongly about something.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>
SECTION 3: General Attitudes and Perceptions

Part 3: Please read each of the following statements very carefully and respond using the scoring key provided below.

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am usually unaware of angry feelings when I compete.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>During a hockey game I am often irritated more than people would think.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I enjoy frustrating my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>When things go wrong in a hockey game, I don't often take it out on my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I relish picking my opponent apart piece by piece until he/she has nothing left.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>When I have an opponent down, I enjoy keeping him/her down.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>When my opponent gets the best of me, I often get mad enough to throw something.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>At times I cannot control my urge to harm an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>At times I am surprised by my anger towards an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>When the unexpected happens in a hockey game I always adjust without becoming irritated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I am usually calm and poised before a hockey game.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>It is easier for me to compete against someone I don't know personally.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Performing well is more important to me than beating somebody.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>It does not take much to upset me during a hockey game.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>There have been times where I have &quot;rubbed it in&quot; after I have done something well or my opponent made a mistake.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>You have to punish people if you want to win.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>When my coach doesn't treat me right, I can feel anger build up inside me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I generally perform better when I keep my emotions under control and concentrate solely on my performance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I usually do not withdraw from my teammates following a frustrating loss.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Seldom is my opponent able to pressure me into making an error.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1=Strongly Disagree</td>
<td>2=Disagree</td>
<td>3=Agree</td>
<td>4=Strongly Agree</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>------------</td>
<td>---------</td>
<td>------------------</td>
</tr>
<tr>
<td>21.</td>
<td>There have been times, in the heat of competition, that I have become aware of another side of me that I didn’t know existed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I have never thrown a temper tantrum during a hockey game.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>During competition, I more often go into an inner shell to listen to my own voice rather than paying attention to the outside noise.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>To be a winner you must be able to emotionally detach yourself from your opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>I like to compete in hockey because I can take frustrations out on my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>My anger against referees seldom goes unchecked.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>It is easier for me to get psyched up for a hockey game if I think negative thoughts about my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I have never intensely disliked an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>I have never felt the desire to harm an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>I am aware of my opponent only for the sake of strategy.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: Team Norms

The following questions are concerned with your perception of your teammates and coach. Please read each question carefully, and circle your response.

1. In a close and important game, how many of your teammates would break a rule if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

2. In a close and important game, how many of your teammates would try to injure an opponent if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

3. In your opinion, would your coach want you to break a rule if it would help your team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

4. In your opinion, would your coach want you to injure an opponent if it would help your team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

5. If forced to choose, how many of your teammates would rather cheat than lose?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone
6. If forced to choose, how many of your teammates would rather hurt another player than lose?
   None
   A few
   Several
   About half
   Most
   Everyone

7. Has your coach ever told you or a teammate to go out and “get” another player?
   Yes
   No

8. Has your coach ever taught you how to fight?
   Yes
   No

9. Has your coach ever taught you an illegal tactic (e.g., how to secretly trip a player in front of the net)
   Yes
   No
   If so, please describe the tactic

10. How many of your teammates would fight if the coach told them to?
    None
    A few
    Several
    About half
    Most
    Everyone

11. How many of your teammates have been in hockey fight?
    None
    A few
    Several
    About half
    Most
    Everyone

12. Do you think that your teammates expect you to fight if the situation arises?
    Yes
    No

13. How would your teammates react if you didn’t fight?
    No reaction
    Laugh and tease
    Not talk to you
    Other

14. How would your coach react if you didn’t fight?
    No reaction
    Punish you (e.g., benched)
    Praise you (e.g., you did the right thing)
    Other
SECTION 5: HOCKEY SCENARIOS

In a tied hockey game with thirty seconds left there is a huge scramble in front of the net. Player A, who is a defensive player, sees an opposing player wide open and about to get a chance to score. Player A has no chance to play the puck, and therefore their **ONLY** way to stop a goal is to cross-check the opposing player out of the way. However, a cross-check from behind like this could hurt the other player.

1. What **should** Player A do (circle one of the responses):
   - Cross-check the player
   - Not cross-check the player

2. How many of your teammates would cross-check the player to stop the goal.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would you **do** if you were Player A:
   - Cross-check the player
   - Not cross-check the player

4. Please read the following options and rate how tempted you would be to cross check the player if the following took place.

**How tempted would you be to cross check the player if:**

<table>
<thead>
<tr>
<th></th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player cross checked you earlier in the game</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>b) Your coach would yell at you if you didn’t.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>c) You were up for a defensive award and stopping this goal would all put ensure that you won.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>e) There was a scout in the stands evaluating your defensive ability and toughness</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>f) The game wasn’t tied and by doing so your team would win.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): ________
Late in the third period of the championship game, an opposing player gets a breakaway. Player A is able to catch up to the player by the blue line, but cannot make a play for the puck. Player A’s **ONLY** option to stop the breakaway is to trip the opposing player from behind. However, tripping a player this close to the net and at this speed could cause a fairly serious injury.

1. What **should** Player A do (circle one of the responses):
   - Trip the player
   - Not trip the player

2. How many of your teammates would trip the player to stop the breakaway.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would you **do** if you were Player A:
   - Trip the player
   - Not trip the player

4. Please read the following options and rate how tempted you would be to trip the player if the following took place.

   **How tempted would you be to trip the player if:**

<table>
<thead>
<tr>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

   a) That same player punched you in the face earlier in the game
   b) Your coach had previously told the entire team to take the penalty in this situation.
   c) Tripping the player would likely result in a loud applause from the fans and your teammates.
   d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.
   e) You were tripped on a breakaway earlier in the game and no penalty was called.
   f) This player already scored 3 goals, and therefore would likely score again on this breakaway.

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): ________
Player A and Player B are battling in the corner for the puck. Player B is much larger than Player A, and has won most of the battles in the corner during the game. As they are battling for the puck, Player B elbows Player A in the face. This makes Player A mad, especially because no penalty was called. Player A sees that Player B’s isn’t wearing a slash protector, and therefore there is some exposed skin. By slashing Player B on the arm, Player will likely win the battle in the corner, while also avenging the elbow they took earlier.

1. What should Player A do (circle one of the responses):
   - Slash the player
   - Not slash the player

2. How many of your teammates would slash the player.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would you do if you were Player A:
   - Slash the player
   - Not slash the player

4. Please read the following options and rate how tempted you would be to slash the player if the following took place.

   **How tempted would you be to slash the player if:**

<table>
<thead>
<tr>
<th>Option</th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player had slashed you earlier.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>b) Player B is the other teams best player, and if you knock them out of the game, your team will likely win.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>c) Player B was trash talking you in the corner.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>d) Your coach told you to get that player.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>e) Your assignment was to guard Player B at all costs.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
<tr>
<td>f) Player B knocked out your team’s star player with an illegal hit from behind earlier in the game. No penalty was called.</td>
<td>1</td>
<td>2 3 4 5</td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): _______
Appendix B: Parents’ Questionnaire
INFORMED CONSENT – PARENT VERSION

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately 30 minutes to complete.

Dear Parent,

The purpose of this study is to examine how amateur hockey players’ attitudes and perceptions about hockey impact their performance over the length of a season. Moreover, we are also interested in assessing how your attitudes and perceptions of hockey relate to those of your child. In order to assess this relationship, you will be asked to complete a questionnaire pertaining to hockey and your child’s involvement in the sport. The completion of this questionnaire will take approximately 30 minutes. Your responses to these questions will be matched with your child’s in order to examine the relationship.

Once the data has been entered into a computer, all names will be erased so that all analyses are anonymous and confidential. The questionnaires will be stored in a locked office at the University of Toronto, and will only be accessed by the researchers listed below. Finally, if this study is published, no identifying information (e.g., names, team names, league) will be included.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Check.

Participation is 100% voluntary, and therefore if you or your child do not wish to participate, or choose to withdraw from the study, you may both do so at any time without repercussion (you will still be entered into the draw for the $25 gift certificates). There are no known psychological or physical risks associated with participation in this study. If you have any questions or concerns, please feel free to contact the researcher at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you for your consideration.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
M5S 2W6
(647) 206-7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
M5S 2W6
(416)-978-6531 o or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Participant ____________________________ Date:____________________

Researcher ____________________________ Date:____________________

Participants Copy (Tear off)
INFORMED CONSENT – PARENT VERSION

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately 30 minutes to complete.

Dear Parent,

The purpose of this study is to examine how amateur hockey players’ attitudes and perceptions about hockey impact their performance over the length of a season. Moreover, we are also interested in assessing how your attitudes and perceptions of hockey relate to those of your child. In order to assess this relationship, you will be asked to complete a questionnaire pertaining to hockey and your child’s involvement in the sport. The completion of this questionnaire will take approximately 30 minutes. Your responses to these questions will be matched with your child’s in order to examine the relationship.

Once the data has been entered into a computer, all names will be erased so that all analyses are anonymous and confidential. The questionnaires will be stored in a locked office at the University of Toronto, and will only be accessed by the researchers listed below. Finally, if this study is published, no identifying information (e.g., names, team names, league) will be included.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Check.

Participation is 100% voluntary, and therefore if you or your child do not wish to participate, or choose to withdraw from the study, you may both do so at any time without repercussion (you will still be entered into the draw for the $25 gift certificates). There are no known psychological or physical risks associated with participation in this study. If you have any questions or concerns, please feel free to contact the researcher at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you for your consideration.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
M5S 2W6
(647) 206 - 7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
M5S 2W6
(416)-978-6531 or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Participant _______________________________ Date: _______________________

Researcher _______________________________ Date: _______________________

Researchers Copy (Remains Attached)
SECTION 1: Demographics

Name: 

Gender:  
Male  
Female

Level of Hockey Child Competes at:  
Minor Bantam  
Major Bantam  
Minor Midget  
Major Midget  
Juvenile  
Senior / Men’s

What is your child’s name?  
***This is strictly for matching purposes

How many years has your child played hockey?
Have you personally ever played hockey?  
Yes  
No

How long did you play hockey for?  
Never  
1 – 2 years  
3 – 4 years  
5 – 6 years  
7 – 8 years  
9 – 10 years  
More than 10 years

At what level did you compete in hockey?  
Didn’t play hockey  
House League  
Rep (travel team)  
Junior  
OHL  
University  
Semi-Professional  
Professional (NHL)

If you didn’t play hockey, what sport did you participate in while growing up?  

How many NHL games do you attend a year?  
None  
1 – 2  
3 – 4  
5 – 6  
7 – 8  
9 – 10  
More than 10 games

How often do you watch NHL games on TV?  
Never  
Couple times a year  
Couple times a month  
Once a week  
As often as I can

What is your favorite thing about NHL hockey?  
Goals  
Fights  
Nice Saves  
Speed  
Nice Defensive Plays  
Nice Passes
Which hockey behaviour do you think people would cheer the loudest for?

- Nice Goal
- Fights
- Nice Save
- Hard Body Check
- Nice Defensive Play
Rate these hockey skills in order of importance. 1 = most important, 7 = least important. Only use each number once.

Skating forwards
Shooting
Passing
Body checking
Fighting
Skating backwards
Stick handling

In your child’s current league, how much fighting is there?
None
Couple Fights a Year
Fight Every 1 – 2 games
Almost a Fight Every Game

With respect to fighting in your child’s league, would you like to see:
A lot less
A little less
About the Same
A little more
A lot more

Would you consider your child a fighter? Yes
No

Comparing your child to his/her teammates and/or other players in the league, how good of a hockey player is your child?
Not very good
Slightly below average
Average
Slightly above average
Very good

Please describe your child’s general role on their current team:
Grinder
Goal Scorer
Enforcer / Tough Person
Set Up Person (good passer)
Defensive Specialist
Other

Do you believe that sport participation helps build character? Yes
No
Part 4: Please rate your level of agreement with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hockey helps kids learn to take their lumps.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fighting is a natural part of hockey.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Boys are naturally more aggressive than girls.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>“Rough Housing” allows children to purge the extra pent up energy they have inside.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Body checking should be introduced at a younger age in hockey.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>The physical aspect of hockey is overemphasized.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bigger and stronger kids have a higher chance for success in hockey.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Most acts of violence or aggression are the result of frustration.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Being physical and aggressive on the ice, does not necessarily translate to a child’s behavior off the ice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The debate pertaining to violence should be limited to the NHL, as no such problem exists at the amateur level.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part 5: The next set of questions attempt to get a better understanding of you as a hockey spectator. Please rate how frequently you engage in the following behaviours while at the rink. Please be as honest and candid as possible.

<table>
<thead>
<tr>
<th></th>
<th>1=Never</th>
<th>2=Infrequently</th>
<th>3=Sometimes</th>
<th>4=Frequently</th>
<th>5=Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shout instructions to your child while he/she is playing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Yell at the referees.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cheer equally for both teams.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Boo or jeer the opposing team.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Heckle the opposing team’s fans.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Talk to your child about what they did right/wrong after the game.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Talk to the coach about your child’s playing time, or lack thereof.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Reinforce the importance of a particular game with your child (e.g., playoffs).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Lose your temper or become frustrated by poor performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Gotten angry at another parent for criticizing your child’s performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: GENERAL ATTITUDES AND PERCEPTIONS

Part 1: Please read the following statements and indicate to what extent you agree. You can use a previous sporting experience, or any other task that may be of interest to you when answering the following questions.

<table>
<thead>
<tr>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Neutral</th>
<th>4=Agree</th>
<th>5=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel the most successful when I am the only one who can do the task.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel the most successful when I learn a new skill and it makes me want to practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I feel the most successful when I can do the task better than my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I feel the most successful when the others cannot do as well as me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I feel the most successful when I learn something that is fun to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I feel the most successful when others mess-up and I don’t.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I feel the most successful when I learn a new skill by trying hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I feel the most successful when I work really hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I feel the most successful when I score the most points/goals/hits/etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I feel the most successful when something I learn makes me want to go and practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I feel the most successful when I’m the best at a particular task.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I feel the most successful when a skill I learn really feels right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I feel the most successful when I do my very best.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 3: General Attitudes and Perceptions

Below are list of statements. Please rate how well each statement describes you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very True of Me</th>
<th>Somewhat True of Me</th>
<th>A Little True of Me</th>
<th>Not at All True of Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would rather be safe than have an adventure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I like meeting and talking to new people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I really want to get ahead in life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is hard for me to make my mind up about things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I really like to read and think about ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. When I meet someone, I am always the first to try and make friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. In most ways, I am better than most of the other people my age.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I am more busy and active than most of the other people my age.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I do not do well in sports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I would rather do things myself than ask others for help.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I hate to lose a game or have other people do better than me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. When things get tough, I almost always keep going.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I give up easily.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am often the leader among my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I am scared of other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Most of the time, I am not sure that I am right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. When something bad happens, I get very upset and forget what is the best thing to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I almost always stand up for what I believe in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. It is easy for people to make me change my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I often do not speak out even when I feel strongly about something.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: General Attitudes and Perceptions

Part 3: Please read each of the following statements very carefully and respond using the scoring key provided below.

<table>
<thead>
<tr>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am usually unaware of angry feelings when I compete.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. During a hockey game I am often irritated more than people would think.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I enjoy frustrating my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. When things go wrong in a hockey game, I don’t often take it out on my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I relish picking my opponent apart piece by piece until he/she has nothing left.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. When I have an opponent down, I enjoy keeping him/her down.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. When my opponent gets the best of me, I often get mad enough to throw something.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. At times I cannot control my urge to harm an opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. At times I am surprised by my anger towards an opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. When the unexpected happens in a hockey game I always adjust without becoming irritated.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I am usually calm and poised before a hockey game.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. It is easier for me to compete against someone I don’t know personally.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Performing well is more important to me than beating somebody.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. It does not take much to upset me during a hockey game.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. There have been times where I have “rubbed it in” after I have done something well or my opponent made a mistake.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. You have to punish people if you want to win.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. When my coach doesn’t treat me right, I can feel anger build up inside me.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I generally perform better when I keep my emotions under control and concentrate solely on my performance.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I usually do not withdraw from my teammates following a frustrating loss.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Seldom is my opponent able to pressure me into making an error.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1=Strongly Disagree</td>
<td>2=Disagree</td>
<td>3=Agree</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>------------</td>
<td>--------</td>
</tr>
<tr>
<td>21.</td>
<td>There have been times, in the heat of competition, that I have become aware of another side of me that I didn't know existed.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I have never thrown a temper tantrum during a hockey game.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>During competition, I more often go into an inner shell to listen to my own voice rather than paying attention to the outside noise.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>To be a winner you must be able to emotionally detach yourself from your opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>I like to compete in hockey because I can take frustrations out on my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>My anger against referees seldom goes unchecked.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>It is easier for me to get psyched up for a hockey game if I think negative thoughts about my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I have never intensely disliked an opponent</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>I have never felt the desire to harm an opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>I am aware of my opponent only for the sake of strategy.</td>
<td>○ ○ ○ ○</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: Team Norms

The following questions are concerned with your perception of your child’s teammates and coach. Please read each question carefully, and provide your honest evaluation.

1. In a close and important game, how many of your child’s teammates would break a rule if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

2. In a close and important game, how many of your child’s teammates would try to injure an opponent if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

3. In your opinion, would your child’s coach want them to break a rule if it would help their team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

4. In your opinion, would your child’s coach want you to injure an opponent if it would help their team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

5. If forced to choose, how many of your child’s teammates would rather cheat than lose?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone
6. If forced to choose, how many of your child’s teammates would rather hurt another player than lose?

   None
   A few
   Several
   About half
   Most
   Everyone

7. How many of your child’s teammates would fight if the coach told them to?

   None
   A few
   Several
   About half
   Most
   Everyone

8. How many of your child’s teammates have been in hockey fight?

   None
   A few
   Several
   About half
   Most
   Everyone

9. Do you think that your child’s teammates would expect him/her to fight if the situation arises?

   Yes
   No

10. How would your child’s teammates likely react if he/she didn’t fight?

    No reaction
    Laugh and tease
    Not talk to them
    Other

11. How would your child’s coach react if he/she didn’t fight?

    No reaction
    Punish them (e.g., benched)
    Praise them (e.g., you did the right thing
SECTION 5: HOCKEY SCENARIOS

In a tied hockey game with thirty seconds left there is a huge scramble in front of the net. Player A, who is a defensive player, sees an opposing player wide open and about to get a chance to score. Player A has no chance to play the puck, and therefore their **ONLY** way to stop a goal is to cross-check the opposing player out of the way. However, a cross-check from behind like this could hurt the other player.

1. What **should** Player A do (circle one of the responses):
   - Cross-check the player
   - Not cross-check the player

2. How many of your child’s teammates would cross-check the player to stop the goal.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would you **do** if you were Player A:
   - Cross-check the player
   - Not cross-check the player

4. Please read the following options and rate how tempted you would be to cross check the player if the following took place.

   **How tempted would you be to cross check the player if:**

<table>
<thead>
<tr>
<th></th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player cross checked you earlier in the game</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>b) Your coach would yell at you if you didn’t.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>c) You were up for a defensive award and stopping this goal would all put ensure that you won.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>e) There was a scout in the stands evaluating your defensive ability and toughness</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>f) The game wasn’t tied and by doing so your team would win.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): ________
Late in the third period of the championship game, an opposing player gets a breakaway. Player A is able to catch up to the player by the blue line, but cannot make a play for the puck. Player A’s **ONLY** option to stop the breakaway is to trip the opposing player from behind. However, tripping a player this close to the net and at this speed could cause a fairly serious injury.

1. What **should** Player A do (circle one of the responses):

   - Trip the player
   - Not trip the player

2. How many of your child’s teammates would trip the player to stop the breakaway.

   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would **you** do if you were Player A:

   - Trip the player
   - Not trip the player

4. Please read the following options and rate how tempted **you** would be to trip the player if the following took place.

   **How tempted would you be to trip the player if:**

<table>
<thead>
<tr>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

   a) That same player punched you in the face earlier in the game

   b) Your coach had previously told the entire team to take the penalty in this situation.

   c) Tripping the player would likely result in a loud applause from the fans and your teammates.

   d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.

   e) You were tripped on a breakaway earlier in the game and no penalty was called.

   f) This player already scored 3 goals, and therefore would likely score again on this breakaway.

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): ________
Player A and Player B are battling in the corner for the puck. Player B is much larger than Player A, and has won most of the battles in the corner during the game. As they are battling for the puck, Player B elbows Player A in the face. This makes Player A mad, especially because no penalty was called. Player A sees that Player B’s isn’t wearing a slash protector, and therefore there is some exposed skin. By slashing Player B on the arm, Player will likely win the battle in the corner, while also avenging the elbow they took earlier.

1. What **should** Player A do (circle one of the responses):
   - Slash the player
   - Not slash the player

2. How many of your child’s teammates would slash the player.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would **you** do if you were Player A:
   - Slash the player
   - Not slash the player

4. Please read the following options and rate how tempted **you** would be to slash the player if the following took place.

**How tempted would you be to slash the player if:**

<table>
<thead>
<tr>
<th>How tempted would you be to slash the player if:</th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player had slashed you earlier.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>b) Player B is the other teams best player, and if you knock them out of the game, your team will likely win.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>c) Player B was trash talking you in the corner.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>d) Your coach told you to get that player.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>e) Your assignment was to guard Player B at all costs.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>f) Player B knocked out your team’s star player with an illegal hit from behind earlier in the game. No penalty was called.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line):________
Appendix C: Coaches’ Questionnaire
INFORMED CONSENT - COACH VERSION

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately 30 minutes to complete.

Dear Coach,

You are being asked to participate in a research study being conducted by the University of Toronto. The purpose of this study is to examine how amateur hockey players’ attitudes and perceptions of hockey impact their performance over the length of a season. Moreover, we are also interested in how your attitudes and perceptions of hockey relate to your athlete’s scores. As such, you will be asked a series of questions regarding your beliefs about hockey and hockey related behaviors. The completion of this questionnaire should take approximately 30 minutes.

Your responses to these questions will be matched with your players’ answers in order to examine the relationship.

All responses are 100% confidential and if this study is published, no identifying information (e.g., names, team names, league) will be included in the manuscript. All questionnaires will be stored in a locked office at the University of Toronto and will only be accessed by the researchers listed below.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Check.

Participation is 100% voluntary and therefore if you do not wish to participate, or choose to withdraw from the study, you may do so at any time without repercussion (you will still be entered into the draw for the $25 gift certificate). There are no known psychological or physical risks associated with participation in this study. If you have any questions or concerns, please feel free to contact the researchers at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you for your consideration.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
M5S 2W6
(647) 206 - 7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
M5S 2W6
(416)-978-6531 or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Participant _______________________________ Date: _______________________________

Researcher _______________________________ Date: _______________________________

Participants Copy (Tear off)
INFORMED CONSENT - COACH VERSION

The following study is being conducted by Chris Gee, PhD Candidate as part of his doctoral degree at the University of Toronto. The questionnaire should take approximately **30 minutes to complete**.

Dear Coach,

You are being asked to participate in a research study being conducted by the University of Toronto. The purpose of this study is to examine how amateur hockey players’ attitudes and perceptions of hockey impact their performance over the length of a season. Moreover, we are also interested in how your attitudes and perceptions of hockey relate to your athlete’s scores. As such, you will be asked a series of questions regarding your beliefs about hockey and hockey related behaviors. The completion of this questionnaire should take approximately **30 minutes**. Your responses to these questions will be matched with your players’ answers in order to examine the relationship.

All responses are 100% confidential and if this study is published, no identifying information (e.g., names, team names, league) will be included in the manuscript. All questionnaires will be stored in a locked office at the University of Toronto and will only be accessed by the researchers listed below.

By participating in this study you will be entered into a draw for one of four $25 gift certificates to Sport Check.

Participation is 100% voluntary and therefore if you do not wish to participate, or choose to withdraw from the study, you may do so at any time without repercussion (you will still be entered into the draw for the $25 gift certificate). There are no known psychological or physical risks associated with participation in this study. If you have any questions or concerns, please feel free to contact the researchers at the number below or the University Ethics Review Office at 416-946-3273 or ethics.review@utoronto.ca.

Thank you for your consideration.

Chris Gee
PhD Candidate – Sport Psychology
University of Toronto
55 Harbord St.
M5S 2W6
(647) 206 - 7381 or chris.gee@utoronto.ca

Larry Leith, PhD
Professor
University of Toronto
55 Harbord St.
M5S 2W6
(416)-978-6531 or larry.leith@utoronto.ca

I have read and understood the above letter of information and agree to participate in the research study.

Participant ___________________________ Date: ___________________________

Researcher ___________________________ Date: ___________________________

Researchers Copy (Remains Attached)
SECTION 1: Demographics

Name

Gender
Male
Female

Level of Hockey that you Coach
Minor Bantam
Major Bantam
Minor Midget
Major Midget
Juvenile
Senior / Young Mens

What city / league do you coach for?

What type of league do you coach in?
House League
Rep

How many years have you been coaching hockey for?
Have you personally ever played hockey?  
Yes  
No

How long did you play hockey for?  
Never  
1 – 2 years  
3 – 4 years  
5 – 6 years  
7 – 8 years  
9 – 10 years  
More than 10 years

At what level did you compete in hockey?  
Didn’t play hockey  
House League  
Rep (travel team)  
Junior  
OHL  
University  
Semi-Professional  
Professional (NHL)

If you didn’t play hockey, what sport did you participate in while growing up?  
None  
1 – 2  
3 – 4  
5 – 6  
7 – 8  
9 – 10  
More than 10 games

How many NHL games do you attend a year?  
Never  
Couple times a year  
Couple times a month  
Once a week  
As often as I can

How often do you watch NHL games on TV?  
Goals  
Fights  
Nice Saves  
Speed  
Nice Defensive Plays  
Nice Passes
Which hockey behavior do you think people would cheer the loudest for?

- Nice Goal
- Fights
- Nice Save
- Hard Body Check
- Nice Defensive Play

Rate these hockey skills in order of importance. 1 = most important, 7 = least important. Only use each number once.

- Skating forwards
- Shooting
- Passing
- Body checking
- Fighting
- Skating backwards
- Stick handling

In your current league, how much fighting is there?

- None
- Couple Fights a Year
- Fight Every 1 – 2 games
- Almost a Fight Every Game
- A lot less
- A little less
- About the Same
- A little more
- A lot more

With respect of fighting in your league, would you like to see:

- Not very good
- Slightly below average
- Average
- Slightly above average
- Very good

Comparing your team to other in the league, how good are you?

- Not very good
- Slightly below average
- Average
- Slightly above average
- Very good

Do you believe that sport participation helps build character?

- Yes
- No

What attribute do you believe is the most highly associated with success in hockey?

- Speed
- Agility
- Size and Strength
- Endurance
How realistic do you feel parents are, with respect to their perception of their child’s talent?

- Not at all realistic
- Somewhat realistic
- Completely realistic
Part 4: Please rate your level of agreement with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Hockey helps kids learn to take their lumps.
2. Fighting is a natural part of hockey.
3. Boys are naturally more aggressive than girls.
4. "Rough Housing" allows children to purge the extra pent up energy they have inside.
5. Body checking should be introduced at a younger age in hockey.
6. The physical aspect of hockey is overemphasized.
7. Bigger and stronger kids have a higher chance for success in hockey.
8. Most acts of violence or aggression are the result of frustration.
9. Being physical and aggressive on the ice, does not necessarily translate to a child’s behavior off the ice.
10. The debate pertaining to violence should be limited to the NHL, as no such problem exists at the amateur level.

Part 5: The next set of questions attempt to get a better understanding of you as a hockey coach. Please rate how frequently you engage in the following behaviours while at the rink. Please be as honest and candid as possible.

<table>
<thead>
<tr>
<th></th>
<th>1=Never</th>
<th>2=Infrequently</th>
<th>3=Sometimes</th>
<th>4=Frequently</th>
<th>5=Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Yell at the referee if he/she made a bad call.
2. Bench a player.
3. Emphasize the need to be physical.
4. Develop strategies for particular opponents.
5. Get frustrated or angry as a result of poor performance.
6. Work on being physical and taking the man during practice.
7. Have a tough practice following a disappointing loss.
8. Send players out with an agenda (i.e., get someone back, fight).
## Section 3: General Attitudes and Perceptions

Below are list of statements. Please rate how well each statement describes you.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Very True of Me</th>
<th>Somewhat True of Me</th>
<th>A Little True of Me</th>
<th>Not at All True of Me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I would rather be safe than have an adventure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I like meeting and talking to new people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I really want to get ahead in life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is hard for me to make my mind up about things.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I really like to read and think about ideas.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. When I meet someone, I am always the first to try and make friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. In most ways, I am better than most of the other people my age.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I am more busy and active than most of the other people my age.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I <strong>do not</strong> do well in sports.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I would rather do things myself than ask others for help.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I hate to lose a game or have other people do better than me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. When things get tough, I almost always keep going.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I give up easily.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I am often the leader among my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I am scared of other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Most of the time, I am not sure that I am right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. When something bad happens, I get very upset and forget what is the best thing to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I almost always stand up for what I believe in.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. It is easy for people to make me change my mind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I often <strong>do not</strong> speak out even when I feel strongly about something.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 3: GENERAL ATTITUDES AND PERCEPTIONS

Part 1. Please read the following statements and indicate to what extent you agree. You can use a previous sporting experience, or any other task that may be of interest to you when answering the following questions.

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Neutral</th>
<th>4=Agree</th>
<th>5=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel the most successful when I am the only one who can do the task.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I feel the most successful when I learn a new skill and it makes me want to practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I feel the most successful when I can do the task better than my friends.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I feel the most successful when the others cannot do as well as me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I feel the most successful when I learn something that is fun to do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I feel the most successful when others mess-up and I don't.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I feel the most successful when I learn a new skill by trying hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I feel the most successful when I work really hard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I feel the most successful when I score the most points/goals/hits/ etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I feel the most successful when something I learn makes me want to go and practice more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I feel the most successful when I’m the best at a particular task.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I feel the most successful when a skill I learn really feels right.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I feel the most successful when I do my very best.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: Team Norms

The following questions are concerned with your perception of your players. Please read each question carefully, and circle your response.

1. In a close and important game, how many of your players would break a rule if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

2. In a close and important game, how many of your players would try to injure an opponent if it would help your team win?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone

3. In your opinion, would your players likely believe that you would want them to break a rule if it would help your team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

4. In your opinion, would your players likely believe that you would want them to injure another player if it would help your team win a close and important game?
   - Yes
   - Probably
   - Probably Not
   - No

5. If forced to choose, how many of your players would rather cheat than lose?
   - None
   - A few
   - Several
   - About half
   - Most
   - Everyone
6. If forced to choose, how many of your players would rather hurt another player than lose?  
- None
- A few
- Several
- About half
- Most
- Everyone

7. Have your ever told a player to go out and “get” another player?  
- Yes
- No

8. How many of your players would fight if you told them to?  
- None
- A few
- Several
- About half
- Most
- Everyone

9. How many of your players have been in hockey fight?  
- None
- A few
- Several
- About half
- Most
- Everyone

10. Do you think that your players would expect each other to fight if the situation arose?  
- Yes
- No

11. How would your players react if another player didn’t fight?  
- No reaction
- Laugh and tease
- Not talk to you
- Other

12. How would you react if a player didn’t fight?  
- No reaction
- Punish you (e.g., benched)
- Praise you (e.g., you did the right thing)
- Other
SECTION 5: HOCKEY SCENARIOS

In a tied hockey game with thirty seconds left there is a huge scramble in front of the net. Player A, who is a defensive player, sees an opposing player wide open and about to get a chance to score. Player A has no chance to play the puck, and therefore their **ONLY** way to stop a goal is to cross-check the opposing player out of the way. However, a cross-check from behind like this could hurt the other player.

1. **What should** Player A do (circle one of the responses):
   - Cross-check the player
   - Not cross-check the player

2. **How many of your players would cross-check the player to stop the goal.**
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. **What would you do if you were Player A:**
   - Cross-check the player
   - Not cross-check the player

4. Please read the following options and rate how tempted **you** would be to cross check the player if the following took place.

   **How tempted would you be to cross check the player if:**

<table>
<thead>
<tr>
<th>Option Description</th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player cross checked you earlier in the game</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>b) Your coach would yell at you if you didn’t.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c) You were up for a defensive award and stopping this goal would all put ensure that you won.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>e) There was a scout in the stands evaluating your defensive ability and toughness</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>f) The game wasn’t tied and by doing so your team would win.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): _______
Late in the third period of the championship game, an opposing player gets a breakaway. Player A is able to catch up to the player by the blue line, but cannot make a play for the puck. Player A’s **ONLY** option to stop the breakaway is to trip the opposing player from behind. However, tripping a player this close to the net and at this speed could cause a fairly serious injury.

1. What **should** Player A do (circle one of the responses):

   Trip the player   Not trip the player

2. How many of your players would trip the player to stop the breakaway.

   None   A few   Several   About Half   Most   All

3. What would **you** do if you were Player A:

   Trip the player   Not trip the player

4. Please read the following options and rate how tempted **you** would be to trip the player if the following took place.

**How tempted would you be to trip the player if:**

   Not Tempted   Tempted

a) That same player punched you in the face earlier in the game

   1   2   3   4   5

b) Your coach had previously told the entire team to take the penalty in this situation.

   1   2   3   4   5

c) Tripping the player would likely result in a loud applause from the fans and your teammates.  

   1   2   3   4   5

d) You knew your teammates would see that you had the opportunity to stop a goal from being scored.

   1   2   3   4   5

e) You were tripped on a breakaway earlier in the game and no penalty was called.

   1   2   3   4   5

f) This player already scored 3 goals, and therefore would likely score again on this breakaway.

   1   2   3   4   5

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): 

---

Chris Gee / Department of Exercise Science / University of Toronto

239
Player A and Player B are battling in the corner for the puck. Player B is much larger than Player A, and has won most of the battles in the corner during the game. As they are battling for the puck, Player B elbows Player A in the face. This makes Player A mad, especially because no penalty was called. Player A sees that Player B’s isn’t wearing a slash protector, and therefore there is some exposed skin. By slashing Player B on the arm, Player will likely win the battle in the corner, while also avenging the elbow they took earlier.

1. What **should** Player A do (circle one of the responses):
   - Slash the player
   - Not slash the player

2. How many of your players would slash the player.
   - None
   - A few
   - Several
   - About Half
   - Most
   - All

3. What would **you** do if you were Player A:
   - Slash the player
   - Not slash the player

4. Please read the following options and rate how tempted **you** would be to slash the player if the following took place.

   **How tempted would you be to slash the player if:**

<table>
<thead>
<tr>
<th></th>
<th>Not Tempted</th>
<th>Tempted</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) That same player had slashed you earlier.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>b) Player B is the other teams best player, and if you knock them out of the game, your team will likely win.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>c) Player B was trash talking you in the corner.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>d) Your coach told you to get that player.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>e) Your assignment was to guard Player B at all costs.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>f) Player B knocked out your team’s star player with an illegal hit from behind earlier in the game. No penalty was called.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

If forced to choose, which of the above options would you find the most tempting (please write the letter on the line): ________
SECTION 3: General Attitudes and Perceptions

Part 3: Please read each of the following statements very carefully and respond using the scoring key provided below.

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2=Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am usually unaware of angry feelings when I compete.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>During a hockey game I am often irritated more than people would think.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I enjoy frustrating my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>When things go wrong in a hockey game, I don’t often take it out on my opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I relish picking my opponent apart piece by piece until he/she has nothing left.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>When I have an opponent down, I enjoy keeping him/her down.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>When my opponent gets the best of me, I often get mad enough to throw something.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>At times I cannot control my urge to harm an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>At times I am surprised by my anger towards an opponent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>When the unexpected happens in a hockey game I always adjust without becoming irritated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I am usually calm and poised before a hockey game.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>It is easier for me to compete against someone I don’t know personally.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Performing well is more important to me than beating somebody.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>It does not take much to upset me during a hockey game.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>There have been times where I have “rubbed it in” after I have done something well or my opponent made a mistake.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>You have to punish people if you want to win.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>When my coach doesn’t treat me right, I can feel anger build up inside me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I generally perform better when I keep my emotions under control and concentrate solely on my performance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I usually do not withdraw from my teammates following a frustrating loss.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Seldom is my opponent able to pressure me into making an error.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1=Strongly Disagree</td>
<td>2=Disagree</td>
<td>3=Agree</td>
<td>4=Strongly Agree</td>
</tr>
<tr>
<td>---</td>
<td>---------------------</td>
<td>------------</td>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td>21.</td>
<td>There have been times, in the heat of competition, that I have become aware of another side of me that I didn’t know existed.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I have never thrown a temper tantrum during a hockey game.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>During competition, I more often go into an inner shell to listen to my own voice rather than paying attention to the outside noise.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>To be a winner you must be able to emotionally detach yourself from your opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>I like to compete in hockey because I can take frustrations out on my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>My anger against referees seldom goes unchecked.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>It is easier for me to get psyched up for a hockey game if I think negative thoughts about my opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>I have never intensely disliked an opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>I have never felt the desire to harm an opponent.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>I am aware of my opponent only for the sake of strategy.</td>
<td>○ ○ ○ ○</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>