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**Mental Skills of  
National Hockey League Players**

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Presented to the School of Human Kinetics  
in partial fulfillment of the requirements  
for the degree of Master of Science.



Stuart A. Barbour, Ottawa, Canada, 1994



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**Cheers !**

## Abstract

The purpose of this study was to explore the mental skills used by professional ice hockey players and determine if Orlick's (1992) "Model of Human Excellence" could be applied to these athletes. In-depth interviews were conducted with 10 National Hockey League players who had collectively played over 4500 NHL games, and scored 1025 goals. The results indicated that Orlick's elements of commitment, belief, full focus, positive images, mental readiness, distraction control and, constructive evaluation were common to all subjects. The element of fun and enjoyment was also found to be significant for NHL players. The preservation of rich quotes and experiences offer valuable insights and strategies for aspiring hockey players. A survey of the mental aspects of professional hockey was also completed by 27 NHLers to corroborate the relative importance of each of the mental skills identified in Orlick's model. Overall the results were consistent with other research into the mental aspects of elite athletes.

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## MENTAL SKILLS OF NATIONAL HOCKEY LEAGUE PLAYERS

Elite athletes face many obstacles in their pursuit of sporting excellence. In today's highly competitive sporting world, the gap between athletes' physical skills is narrowing and as a result, so is the margin of victory. Garland and Barry (1990) noted that "As skill increases, the marked improvements with practice that are characteristic with the early stages of skill acquisition no longer take place. Intense and prolonged practice brings minimal improvement. Consequently, further improvements in performance may have to come from psychological factors" (p. 1299). With these forces working simultaneously there comes a need to further understand the mental components of elite athletic performance.

Only since the mid 1980s have sports researchers begun to qualitatively study the mental components of elite athletic performers. This research has tended to focus either on elite amateur athletes (Orlick & Partington, 1988), or on such a limited number of professional athletes (Hemery, 1986), that no sport specific conclusions could be drawn. Sport specific studies have concentrated on individual sports such as tennis (Weinberg, 1988) and golf (Cohn, 1991; McCaffery & Orlick, 1989).

This study examined the mental skills associated with professional ice hockey as reported by active National Hockey League (NHL) players. These players are considered elite

hockey performers due to their participation in the world's top professional hockey league as well as their long term involvement in deliberate practice. Ericsson, Krampe and Tesh-Römer (1993) "view elite performance as the product of a decade or more of maximal efforts to improve performance through the optimal use of deliberate practice" (p. 400). Athletes who make it to the NHL have easily spent a decade involved in deliberate practice. These players have usually spent at least 10 years in a structured hockey environment even before making it to the NHL.

A detailed investigation of the mental skills used by professional hockey players should provide new insight for sport psychology. The National Hockey League places some unique demands on their athletes. NHL players compete in 84 regular season games plus 8-10 pre-season games and up to 28 playoff games, all between mid-September and mid-June. The players have to endure an extensive travel schedule playing teams in four different time zones. The league is also high profile and the players must cope with performing and living in the public eye.

#### Review of the Literature

A review of the literature indicated that studies related to the mental aspects of professional hockey were limited. There are, however, a number of references which provided useful information or insight related to the purpose of this study. The following literature review explored five traditional approaches most relevant in gaining an

understanding of the mental skills of hockey players and other elite athletes, namely: psychological attributes of hockey players, experts working with professional hockey players, interviews and self-report techniques with elite athletes, models of mental components of athletic excellence, and hockey biographies.

### Psychological Attributes of Hockey Players

Studies concerning the psychological dimensions of hockey players tend to be clinical in nature and limited to the personality characteristics of amateur or youth players. Krotee, Alexander, Chien, La Point and Brooks (1979) used the California Psychological Inventory and the Profile of Mood States tests to study the psychophysiological characteristics of university hockey players. The researchers claimed that the male varsity ice hockey player was "less tense, less confused, less depressed and more vigorous than the [student] norm. [The] subjects also exhibited higher anger and fatigue factor scores than the [student] norm" (p. 170).

Novotny and Petrak (1983) investigated the physiological and psychological parameters of junior and schoolboy hockey players in Czechoslovakia. The researchers conducted a battery of tests on the players that included: anthropometric measures, body mass index, pulse frequencies, strength and reaction time. The players' psychological parameters were evaluated using tests of introversion/extroversion, psychic stability, intellectual level and a personality inventory (16 PF Cattell). Novotny and Petrak concluded that "Differences

between the higher and lower competition players manifested themselves in the psychic parameters rather than in the physical ones" (p. 15).

Orlick, Hansen, Reed and O'Hara (1979) studied the psychological attributes of high calibre hockey players from the perspective of professional scouts, coaches and managers. Open-ended interviews were conducted with these professionals to determine which psychological attributes they saw necessary for a player to possess to "make it" in the "pros". The researchers independently coded the responses and then gathered as a group to form a consensus with respect to the major psychological attributes related to elite hockey performance. "Four major factors related to elite hockey performance emerged from the interviews: 1) desire/determination; 2) self-sacrifice/team player; 3) copes well with pressure/mature; 4) coachable/dependable" (p. 151) (see Figure 1). This study offered insight into what coaches and scouts were looking for in players to "make it" in the "pros" but failed to explore the players' perspective on the mental skills required to play professional hockey.

Gallmeier (1987) conducted a participant observation study of the emotional performances of professional hockey players before, during, and after league games. Data were collected using a triangulation of qualitative methods. The researcher spent an entire season with a team in the International Hockey League collecting detailed field notes about the players' emotional displays on game days. He also

Figure 1

## Mental Skills Associated With Elite Athletes

**Mahoney & Avner (1977)**

Dream Frequency  
Self Verbalizations  
Mental Imagery  
Use "Anxiety" as Stimulant

**Orlick et. al. (1979)**

Drive, Determination  
Self-Sacrifice, Team Player  
Copes well with Pressure,  
Mature  
Coachable, Dependable

**Loehr (1983)**

Physically Relaxed  
Mentally Calm  
Low Anxiety  
Energized  
Optimistic  
Enjoyment  
Effortless  
Automatic  
Alert  
Mentally Focused  
Self-Confident  
In Control

**Hemery (1986)**

Athletic Intelligence  
Creativity  
Visualization & Imagery  
Concentration & Control  
Precompetition Planning  
Competitiveness  
The Ability to Get an Edge

**Orlick & Partington (1988)**

Quality Training  
Daily Goals  
Imagery Training  
Simulation Training  
Pre-Competition  
Focus Plan  
Competition Focus Plan  
Distraction Control  
Constructive Evaluation

**Weinberg (1988)**

Highly Confident  
Focused/Concentration  
Physically Relaxed  
Effortless  
Automatic  
In Control  
Enjoyment - Motivation

**Harris & Harris (1989)**

Relaxation  
Concentration  
Imagery  
Self-Talk  
Goal Setting  
Communication  
Avoiding Obstacles

**McCaffery & Orlick (1989)**

Commitment  
Quality Practice  
Goal Setting  
Imagery Practice  
Practice and Tournament  
Planning  
Tournament Focus Plan  
Distraction Control  
Tournament Evaluation

**Mahoney, Gabriel & Perkins (1989)**

Concentration  
Anxiety Control  
Self-Confidence  
Mental Preparation  
Motivation

**Botteril (1990)**

Relaxation  
Energizing  
Focusing/Refocusing  
Communication  
Concentration  
Visualization

**Halliwell (1990)**

Self-Talk  
Relaxation  
Concentration  
Goal Setting  
Focusing/Refocusing  
Confidence

**Cohn (1991)**

Temporary Phenomenon  
Narrow Focus of Attention  
Automatic & Effortless  
Immersed in Present  
In Control  
Self-Confident  
Absence of Fear  
Relaxed  
Fun or Enjoyable

**Orlick (1992)**

Commitment  
Belief  
Full Focus  
Positive Images  
Mental Readiness  
Distraction Control  
Constructive Evaluation

utilized the diary interview method and conducted 20 unstructured, in-depth interviews. The data were analyzed using grounded theory methodology. Gallmeier concluded that a unique feature of professional hockey players' mental preparation "involves... developing a diffuse state of emotional readiness" (p. 359). Gallmeier's research took us into the backstages of professional hockey but it failed to probe deeply into the athletes' internal mental readiness patterns.

#### Experts Working with Professional Hockey Players

Another important source of information about the mental skills required for professional hockey players emerged from sport psychology consultants who worked with National Hockey League teams. The consultants provided their perspectives on the important mental skills required for professional hockey players.

Botterill (1990) discussed the features of a mental skills development program that was initiated with the Chicago Blackhawks between 1988 and 1990. Botterill saw it as his job, "to help identify, develop, and apply mental skills that might enhance performance and help people come closer to their potential" (p. 359). Botterill worked as an expert in an applied setting. The key mental skills in his program included training in relaxation, energizing and "parking" techniques. "Parking" refers to the use of focusing or refocusing skills in order to mentally set aside things that were beyond the players' control. On-ice communication and concentration skills were also identified as important mental skills. As

well, "The use of visualization/imagery to maintain confidence, decrease worry, and facilitate readiness" (p. 361) are illustrated to the players through a videotape. In light of three years of involvement with professional hockey, Botterill concluded that "More studies need to be done on the factors that lead to effective performance and consulting in professional sport" (p. 368).

Halliwell (1990) related his experience and knowledge in providing sport psychology consulting services to professional hockey teams over a six year period. Halliwell used "an educational sport psychology approach... to help the players enhance their performance by improving their mental skills" (p. 370). The mental toughness training program is presented as an opportunity to get an edge on opponents. Halliwell worked with the players on self-talk techniques, relaxation and concentration skills, goal-setting and "parking" skills. He also spent a considerable amount of time working on performance-related matters such as confidence. "Confidence is an elusive state of mind for many professional hockey players, and we have found that by combining peak performance music videos with visualization techniques, players are able to play with more confidence and consistency over longer periods of time" (p. 371).

The problem with studies or observations of this nature is that they represent the sport psychology consultants' and scouts' perspective of the mental skills required to excel in

the NHL. The players' perspective on mental skills has not yet been adequately assessed.

#### Interview/Self Report Techniques with Elite Athletes

Mahoney and Avenier (1977) conducted an exploratory study with 13 male gymnasts to determine the psychological factors that were related to superior athletic competence. The researchers correlated the athletes' performance, measured by their competitive grouping, with results on a standardized Likert-type questionnaire. It was reported that, "dream frequency, self-verbalizations, and certain forms of mental imagery seemed to differentiate the best gymnasts from those who failed to make the Olympic team" (p. 135). Interviews with the athletes revealed that, "the more successful athletes tended to 'use' their anxiety as a stimulant to better performance" (p. 140). Mahoney and Avenier's findings, although interesting, are limited in scope due to the small sample and exploratory nature of the research.

Mahoney, Gabriel and Perkins (1987) quantitatively studied the psychological skills that were relevant to exceptional athletic performance. The researchers administered a 51 item questionnaire to 713 athletes from 23 different sports representing elite, pre-elite and non-elite collegiate athletes. It should be noted that ice hockey players were not included in the study. They found a cluster of five psychological skills - concentration, anxiety management, self-confidence, mental preparation and motivation as having potential importance in sport skill level differentiation.

Hemery (1986) spent over two years interviewing 63 of sports' highest performers, representing 22 sports from 12 different countries. Hemery's research question was quite simple: "What makes a winner?" He examined the physical, social, moral and psychological factors of some of sports' highest achievers. This study clearly emphasized the importance of the psychological factors. The key psychological factors that Hemery identified were athletic intelligence; creativity, visualization and imagery; concentration and control; precompetition planning; competitiveness and the ability to get an edge. Hemery reported that, "These athletes had mental control and could use their imagination to see and feel themselves performing an action before they did it" (p. 107).

While Hemery's study was broad in scope, his results provided only summary survey information. The study lacked depth and a balanced perspective in that 73% of the research was conducted on individual sport athletes and there was only one hockey player interviewed, Wayne Gretzky. In addition, no in-depth information on personal mental preparation strategies was presented, perhaps he failed to probe for such detailed content from the athletes.

Orlick and Partington (1988) interviewed 75 elite Canadian athletes who competed at the 1984 Olympic Games, and found that the most successful athletes were consistent with regard to a number of common psychological characteristics. The researchers were able to elicit detailed

information about actual mental preparation strategies from specific textual citations from each of these athletes. Orlick and Partington reported that "All of the best athletes interviewed (i.e., Olympic and world medalists) were incredibly committed individuals with clearly established goals for success" (p. 110). These members of Canada's sporting elite engaged in quality training which involved mentally preparing for practice, training with the highest quality of execution, intensity and commitment to fully focus for each session. They also established clear daily goals: "They knew what they wanted to accomplish each day, each workout, each sequence or interval. They were determined to accomplish these goals and focused fully on doing so" (p. 111).

These athletes were also actively involved in imagery training. They had highly developed imagery skills and used them constantly to prepare for training, to perfect skills and to imagine themselves achieving their ultimate goal. The top athletes also made thorough use of simulation training. They approached training runs, preliminary competitions and scrimmages as if they were at competitions. The top competitors were not only better prepared for training but had also developed a systematic procedure for their mental preparation for competition. This procedure included a precompetition plan, a competition focus plan, a procedure for drawing out the lessons of competition and a plan for dealing with distractions.

The above-mentioned studies advanced knowledge in applied sport psychology and generated numerous possibilities for future research with top performers in other disciplines. McCaffrey and Orlick (1989) studied the mental factors among top professional golfers. They discovered that the top touring professionals distinguished themselves from the lesser-skilled club professionals on a number of common mental elements. These mental factors were: commitment, quality practice, goal-setting, imagery practice, practice and tournament planning, tournament focus plan, distraction control and tournament evaluation (p. 271-274). It was concluded by Orlick and McCaffrey that, "this study supports the research by Orlick and Partington (1988), in that the success elements identified above were also common to the Olympic medalists and World Champions of 1984" (p. 275).

Cohn (1991) conducted a qualitative study of peak performance in competitive golf in which 10 professional and 9 collegiate golfers were interviewed. The researcher used a semi-structured interview protocol and probed for details about the mental aspects of peak performance. An inductive content analysis was performed on the interview transcripts to determine the major categories related to peak performance in golf. Cohn discovered that 80% of the subjects reported the following categories as part of their peak performance experience: it was a temporary phenomenon, it involved a narrow focus of attention, their performance was automatic and effortless, they were immersed in the present, had a

feeling of control, were self-confident, had an absence of fear, were relaxed and found their performance to be fun or enjoyable.

### Models of Mental Components of Athletic Excellence

Loehr's (1983) "Athletic Excellence Training Model" was designed to enable athletes to create and maintain their "Ideal Performance State" (IPS) more regularly. Several hundred athletes' reports about their mental state during their "finest hour" were studied to determine the common characteristics associated with peak performance. Loehr identified the following 12 aspects as characteristic of the IPS: physically relaxed, mentally calm, low anxiety, energized, optimistic, enjoyment, effortless, automatic, alert, mentally focused, self-confident, and in control.

The "Athletic Excellence Training Model" used a variety of psychological training procedures to help athletes accelerate their control of the IPS. The model was essentially a mental training guide for athletes rather than a complete framework of the mental skills of excellent athletes.

Harris and Harris (1984) identified a series of cognitive skills and strategies that athletes should master in order to maximize their sporting potential. Their thoughts on sports' mental skills are based on years of athletic experience, coaching and consulting with Olympic athletes. Harris and Harris identified the following mental skills as keys to maximizing one's potential: relaxation, concentration, imagery,

self-talk and self-thoughts, goal-setting, communication, and avoiding obstacles.

Weinberg (1988) examined the key psychological skills required to be a successful tennis player. Weinberg based his propositions on his experience as a tennis player, coach and sport psychologist consulting with tennis players of all levels. Weinberg explained that, "The ideal mental state included the following thoughts and feelings: highly confident; focused concentration; physically relaxed; effortless; automatic; in control; enjoyment-motivation" (p. 22). Although Weinberg's conclusions were very applied in nature they are narrow in perspective since they deal exclusively with peak performance in tennis.

Orlick (1992) proposed a model of the psychology of human excellence, based primarily upon self-reported experiences of world class athletes. Orlick reported that there were seven basic elements that allowed humans to excel in their chosen pursuit. The elements were: commitment, belief, full focus, positive images, mental readiness, distraction control and constructive evaluation. Like Loehr (1983), Harris and Harris (1984), and Weinberg (1988) Orlick's "Model of Human Excellence" was generated from an immense volume of qualitative research and practical experience working with elite athletes. The Orlick model however, represented the first move toward a holistic theory of the mental skills required to excel in a variety of sports. It

therefore represented a good starting point from which to examine the mental skills of elite performers.

The comprehensive nature of Orlick's "Model of Human Excellence" became clear by examining the mental skills that other researchers associated with elite athletes (Figure 1) and by recognizing that virtually all of the important skills identified by these researchers could fit into Orlick's model. Figure 2 illustrates the thorough nature of Orlick's model. Nearly all the mental skills identified by the other researchers easily fit into the seven elements of Orlick's model. This confirmed the relatively complete nature of the "Model of Human Excellence" and indicated that it represented a coherent starting point from which to examine the mental skills associated with elite athletic performance.

Orlick invited students studying excellence to utilize this framework to guide their research. He stated, "Our understanding of excellence will be strengthened by testing this model in a wide variety of domains and disciplines, with people performing at various skill levels and by drawing on different methodologies" (p. 121). McDonald (1992) confirmed that Orlick's seven mental elements of excellence also existed within accomplished surgeons. The use of a common framework allowed for the sharing of experiential knowledge concerning concrete ways to nurture each of the mental links to excellence.

**Figure 2**  
**An Integration of Orlick (1992) and Mental Skills Associated with Elite Athletes**

Orlick (1992)							
	COMMITMENT	BELIEF	FULL FOCUS	POSITIVE IMAGES	MENTAL READINESS	DISTRACTION CONTROL	CONSTRUCTIVE EVALUATION
Mahoney & Avner (1977)					- Mental Imagery - Self-Verbalizations		
Orlick et. al. (1979)	- Drive/Determination - Self-Sacrifice	- (Determination)				- Copes Well With Pressure - In Control - Low Anxiety	
Loehr (1982)		- Self-Confident	- Mentally Focused - Alert - Automatic	- Optimistic			
Hemery (1986)				- Visualization & Imagery	- Pre-Competition Planning	- Concentration & Control	
Orlick & Partridge (1988)	- Commitment		- Competition Focus Plan	- Imagery Training	- Pre-Competition Focus Plan	- Distraction Control	- Constructive Evaluation
Weinberg (1988)		- Highly Confident	- Automatic - Focused & Concentration - Concentration			- In Control	
Harris & Harris (1988)				- Imagery - Self-Talk		- Avoiding Obstacles	
McCaffery & Orlick (1988)	- Commitment		- Tournament Focus Plan	- Imagery Practice	- Practice and Tournament Planning	- Distraction Control	- Tournament Evaluation
Mahoney, Gabriel & Perkins (1989)	- Motivation	- Self-Confidence	- Concentration		- Mental Preparation	- Anxiety Control	
Boffterill (1990)			- Focusing/ Refocusing	- Visualization			
Halford (1990)		- Confidence	- Focusing/ Refocusing - Concentration	- Self-Talk			
Cohn (1991)		- Self-Confident	- Narrow Focus of Attention - Automatic			- Immersed in Present - In Control	

### Hockey Biographies

Another interesting and complimentary source of information about the psychological factors necessary for professional hockey are top athletes' biographies. Although these books are neither academic nor devoted to the study of sport psychology, they do provide the insiders' perspectives on excelling in professional hockey. Their unsolicited comments raised many of the mental elements of success cited by Orlick (1992). Dryden (1983) spoke of the importance of full focus, McDonald and Simmons (1987) discussed the role of belief, Gretzky and Reilly (1990) explained the use of positive images and Oliver (1991) outlined Ricci's constructive evaluation process.

Dryden (1983) examined the mental discipline or focus that is required to be a professional goalie. He stated that if you were to ask a coach or a player what they would like to see in a goalie they would settle on something like: "consistency, dependability, and the ability to make the big save. ...What these qualities suggest is a certain character of mind, ...a mind emotionally disciplined, one able to be focused and directed, a mind under control" (p. 119).

McDonald and Simmons (1987) reinforced the importance of belief. Early in his career in Toronto, McDonald was in a serious slump and was beginning to experience self-doubt about his ability to make it at the professional level. At that point an article appeared in the Toronto Star, written by a respected hockey reporter, saying to everyone, "Give the kid a

chance and let his potential shine through." McDonald explained, "The article came out on the day of a game, and I must have read it about ten times. I couldn't sleep that afternoon. I got back up and read it a few more times, then headed for the game. That was one of the turning points. I really believe that. It was as if people were looking at me differently. It gave me renewed confidence. Someone out there, other than my wife, was telling me I could make it. That was all I needed..." (p. 29).

Gretzky and Reilly (1990) referred to the power of positive images. During the 1984 Stanley Cup playoffs, the Edmonton Oilers had created "The Door". Gretzky and Reilly (1990) explained, "We taped a lot of famous pictures on that door: Bobby Orr, Potvin, Beliveau, all holding the Cup. We'd stand back and look at it and envision ourselves doing it. I really believe if you visualize yourself doing something, you can make that image come true" (p. 82). The Oilers won the Cup for the first time that year and as he explained, "To this day I can still see Beliveau of the Canadiens picking it up and holding it over his head. I must have rehearsed it ten thousand times" (p. 252).

Oliver (1991) wrote an insightful book into life in Canada's junior hockey leagues. The book chronicled the lives of six Junior A players from training camp in the fall to the Memorial Cup the following spring. Oliver traveled all over Canada to spend time with these athletes, as well he provided each with a diary and a tape recorder in which to reveal their

emotions over the course of the season. During the World Junior Championships, Oliver revealed that Mike Ricci participated in a constructive evaluation of his performance after Team Canada tied with Czechoslovakia. "He goes over the game in his mind not, once the initial disappointment subsides, to blame himself. He is ruthlessly assessing his own performance so it will be better next time, so he won't make the same mistake twice" (p. 160).

Although there have been no systematic studies on the mental components of high level hockey, it seems probable from excerpts of athlete's autobiographies that there is much to be learned from professional hockey players. The fact that top professionals allude to the importance of the mental game and that no systematic studies have been conducted on mental skills used by NHL players demonstrates the need for the current study. Interviewing a number of hockey's elite should be beneficial in increasing our understanding of the mental skills required to excel in professional hockey.

## Method

### Statement of the Problem

The purpose of the study was to test Orlick's (1992) "Model of Human Excellence". This study drew upon both qualitative and quantitative data. The quantitative data was used to corroborate the relative importance of each element of Orlick's model. The qualitative data was used to determine if Orlick's model could be applied to National Hockey League players. An applied goal of the qualitative research was to

obtain practical information about the mental skills employed by professional hockey players and record their expertise in a comprehensive manner.

### Instruments

Two assessment measures were developed for the purposes of this study: The NHL Player Interview Guide and The Mental Aspects of Professional Hockey Questionnaire.

NHL Player Interview Guide. The "NHL Player Interview Guide" (Appendix 1) was developed specifically for the purpose of this research. The Interview Guide was created after consulting Orlick and Partington's (1988) "Athlete Interview Guide" and Hemery's (1986) "Review of Questions". Orlick and Partington's interview guide served as a model for questions concerning the mental aspects of practice and competition, as well as, a guide to draw out reflections on best and worst performances. Hemery's interview guide was valuable for questions which probed into the evolution of talent and player's early sporting experiences.

The NHL Player Interview Guide utilized a semi-structured interview protocol. The interview approach was considered most appropriate because it allowed the researcher to follow leads from the interviewee, and probe for detailed information about mental preparation strategies used by professional hockey players.

### Mental Aspects of Professional Hockey Questionnaire.

The subjects also completed "The Mental Aspects of Professional Hockey Questionnaire" (Appendix 2) which was

created to evaluate the components of Orlick's (1992) model of human excellence. The survey asked for the following information: number of years in NHL, number of teams played for, number of seasons in the minors, age, as well as self-ratings on Orlick's seven major elements of excellence. Each mental skill was presented with a short description or definition. The athlete was then presented with two 10 point Likert scales, the first to rate the importance of that mental skill for professional hockey players and the second to self-rate either their ability or use of that mental skill.

After completing one pilot interview and conducting the first two research interviews it was evident that "having fun" and "enjoying hockey" was important for professional hockey players. At that time it was decided to add an eighth mental skill to the "Mental Aspects of Professional Hockey Questionnaire". The questions on "fun and enjoyment" were presented in the same manner as the previous seven elements to ensure continuity. The first two research subjects were then sent the revised survey and asked to return it. This revised survey was used with all remaining subjects.

### Procedure

Interviews. The researcher prepared himself to conduct interviews by reading various in-depth interviewing methodologies (Patton,1990; Thomas & Nelson,1990). He had previous research experience using semi-structured interview protocols. A pilot study utilizing the "NHL Player Interview Guide" was then conducted with a Major Junior A hockey player.

The field test proved successful and the instrument as well as the researcher appeared to be ready to interview professional hockey players.

NHL participants were contacted and asked if they would be willing to be interviewed about the mental aspects of professional hockey. A convenient time was set for the interview in a setting suggested by the hockey players: at the player's home, a local fitness club or restaurant. The interviewer attempted to create a relaxed atmosphere and good rapport with the participants. Rapport was established by taking time to meet each player at the practice rink or fitness club a few days before the interview date and engaging in casual conversation. Prior to the interview the researcher consulted the *NHL's Official Guide and Record Book* to become familiar with each player's career. Before conducting the interview the researcher often initiated informal conversation about either the present NHL season or professional sports in general. The interviewer then explained the purpose of the study, guaranteed their anonymity and asked permission to tape record the interview. In all cases permission was granted. The subjects were also asked to read and sign the letter of informed consent (Appendix 3)

It was easy to get the interviews underway since the players seemed to enjoy talking about their experiences in hockey. It was noted that players who were interviewed in their homes appeared at ease earlier in the interview than players interviewed in public places. The interview times

ranged from 50 mins. to 1 1/2 hrs. At the end of the interview the players often provided the researcher with a personal contact for the next player to be interviewed. This referral system proved to be very important in the world of professional sports where personal phone numbers and addresses are often guarded secrets.

Controls for bias. One of the major concerns with qualitative research is researcher bias. Many precautions were built into the research design to minimize researcher bias. All of the interviews were conducted following a standard procedure.

The use of the "NHL Player Interview Guide" minimized interviewer bias by ensuring the same topics were explored with each player. Tape recording the interviews allowed the researcher to remain an active listener and pursue each of the subject's thoughts in detail. The investigator clarified or paraphrased, when necessary, to check the understanding of the subject's experience or perspective.

The interviews were transcribed verbatim. Each transcript was checked against the original tape by an independent reviewer. Transcripts were then returned to the subjects. Each subject was contacted by telephone and asked to ensure that the transcript accurately represented their accounts and opinions. All subjects confirmed the accuracy of their transcript.

Questionnaires. All of the interview subjects completed "The Mental Aspects of Professional Hockey Questionnaire" at

the end of their interviews. The survey was completed at this time to ensure that the mental skills identified in the survey did not influence the interviewee during his interview. In order to expand the survey size the researcher gained permission from an NHL coach to hand out questionnaires after his team's practice session. Surveys were also mailed to the 21 players who had played for Canada during the 1991 Canada Cup. Initial and follow-up mailings yielded a return rate of 33% from the Canada Cup players.

### Subjects

Interview sample. Interviews were conducted with 10 active National Hockey League players. The players ranged in age from 21-35 years; the mean age being 27.2 years. The interview sample represented seven different NHL teams. Six of the subjects had been first round draft picks. Three of the subjects had represented Canada at the World Championships and one had played in the 1992 Olympics. Collectively they had played 4619 NHL games, scored 1025 goals and received 1511 assists.

Questionnaire sample. The "Mental Aspects of Professional Hockey Questionnaire" was completed by 27 active National Hockey League players. These players represented 12 different NHL teams and ranged in age from 21-35 years; the mean age being 27.2 years. They had played an average of 6.8 NHL seasons and had spent an average of 1.2 years in the minors.

## Data Analysis

Qualitative analysis. The qualitative data analysis was carried out in two major steps. The first step was to determine how Orlick's (1992) "Model of Human Excellence" could be applied to professional hockey players. The second step was designed to determine if NHL players identified any mental skills which were not included in the Orlick's model.

The researcher was familiar with Orlick's model and created a single page summary of the mental components of excellence (Appendix 4). The researcher began the analysis by reading each transcript a number of times to become familiar with its content. The data organization stage involved de-contextualizing each transcript by breaking it into representative quotes which illustrated the major components of Orlick's model. In order to maintain the accuracy of category identification the single page summary of the mental components of excellence was constantly referred to. Any part of the transcript which could not be classified as one of the major components of excellence was saved for later analysis. To avoid fatigue effects only two interviews were analyzed per day, with a break in between.

In order to establish the reliability of category identification an inter-rater reliability check was conducted. One other researcher familiar with Orlick's work was provided with the model summary page and independently coded two interview transcripts. The researchers first compared which mental skills were evident in the transcripts. Both agreed the

first transcript contained only six of the elements of excellence while the second contained all seven of the elements (i.e., 100% agreement on category identification). The researchers then compared the category labels which they had attached to text passages. For those transcripts read by both, inter-rater reliability was considered very high. Wherever a discrepancy existed it was easily cleared up with a short discussion. The text file was then tagged with a mutually agreed upon label.

The second step involved conducting an inductive content analysis on the remaining parts of the transcripts, that is those parts which did not fall within Orlick's seven elements of excellence. This analysis followed the guidelines outlined by Coté, Salmela, Baria and Russell (1993). The remaining sections of the transcripts were broken into "meaning units" which were then "tagged" according to their content. The "tags" were then organized into common categories. This method was similar to the approach used in Scanlan, Stein, and Ravizza's (1989) investigation on the sources of stress and enjoyment for former elite figure skaters. The only additional category which emerged from this analysis was fun and enjoyment.

Quantitative analysis. The responses to the "Mental Aspects of Professional Hockey Questionnaire" were analyzed quantitatively. A series of ANOVA's were conducted to determine if there were significant differences between:

1. the players' opinions as to the relative importance of each of the mental skills and
2. the players' self-ratings of their command of each of the mental skills.

Scheffe' post-hoc pairwise comparisons were conducted to investigate statistically significant differences. These analysis were conducted to corroborate the relative importance of each element of Orlick's (1992) model.

### Results and Discussion

#### Questionnaire Study

Opinions on the importance of mental skills. The NHL players were asked to rate the importance of seven key mental skills for playing professional hockey (see Table 1) A one-way within design ANOVA comparing the NHL players' opinions of the relative importance of each of Orlick's "elements of excellence" resulted in a statistical significant difference.  $F(7,175) = 7.08, p < .0001$ . Scheffe' post-hoc pairwise comparisons were conducted to investigate where the differences were.

**Table 1**  
**NHL Players' Opinions of the Importance of Mental Skills for Professional Hockey**

Mental Skills Rank Ordered	NHL Players	
	<i>M</i>	<i>SD</i>
Commitment	9.56	0.64
Full Focus	9.46	0.76
Belief	9.35	0.94
Fun and Enjoyment	9.35	1.16
Mental Readiness	9.27	0.87
Distraction Control	9.19	0.94
Constructive Evaluation	8.60	1.15
Positive Imagery	8.27	1.12

Note: Based on ratings on a 10 point scale:  
1= Not Important, 10= Extremely Important

The results of the post-hoc analysis are listed in matrix format in Table 2. The elements of Table 2 are the Scheffe' F-test; the values in the shaded box are statistically significant. The results show that positive imagery was significantly lower than different six of the other mental skills and that commitment differs from both constructive evaluation and positive imagery. Overall, the results indicated that NHL players considered the mental skills as relatively equally important with the exception of positive imagery. This lower rating, which is still very high (8.27 out of 10), was interesting considering the amount of importance many other

**Table 2**  
**Schéffe Pairwise Comparisons of NHL**  
**Players' Opinions of the Importance of Mental Skills**

Mental Skills	1	2	3	4	5	6	7	8
1. Commitment		0.02	0.11	0.11	0.21	0.33	<b>2.28</b>	<b>4.09</b>
2. Full Focus			0.03	0.03	0.09	0.12	<b>1.85</b>	<b>3.51</b>
3. Belief				0.00	0.02	0.06	<b>1.39</b>	<b>2.86</b>
4. Fun and Enjoyment					0.02	0.06	<b>1.39</b>	<b>2.86</b>
5. Mental Readiness						0.02	<b>1.12</b>	<b>2.47</b>
6. Distraction Control							<b>0.88</b>	<b>2.10</b>
7. Constructive Evaluation								<b>0.26</b>
8. Positive Imagery								

**X** = Significant at 95% (Schéffe F-Test)

athletes attach to mental imagery. Orlick and Partington (1988) reported that "Some 99% of [their sample of Olympic] athletes reported using mental imagery as a preparation strategy" (p. 125). However athletes in their study did not rate the relative importance of various mental skills. Professional hockey players', it would appear, consider seven of the eight mental skills as equally important for success in the NHL.

Self-ratings of mental skills abilities. The NHL players completed 10 questions which asked them to assess their own command of important mental skills. (see Table 3) A one-way within design ANOVA comparing the NHL players' self-ratings on Orlick's "elements of excellence" resulted in a statistical significant difference.  $F(9, 225) = 12.38, p < .0001$ . Scheffe' post-hoc pairwise comparisons were conducted to investigate where the differences were.

**Table 3**  
**NHL Players' Personal Assessments**  
**of their own Mental Skills**

Mental Skills Rank Ordered	NHL Players	
	<i>M</i>	<i>SD</i>
Commitment to Hockey	9.27	0.72
Belief in Potential	8.89	1.07
Fun and Enjoyment	8.85	1.19
Mental Readiness for Games	8.79	1.00
Full Focus for Entire Games	8.39	0.94
Constructive Evaluation	8.35	1.36
Distraction Control	8.08	1.16
Mental Readiness for Practice	7.71	1.48
Quality of Mental Imagery	7.54	0.95
Full Focus During Practice	7.08	1.47

Note: Based on ratings on a 10 point scale:  
1= Poor, 10= Excellent

The results of the post-hoc analysis are listed in Table 4 which is formatted like Table 2. The statistically significant differences are indicated in the shaded box. In summary, the Scheffe' F-test revealed that NHL players rated their commitment to hockey significantly higher than their personal assessments of their distraction control, mental readiness for practice, quality of mental imagery and full focus during practice. This would indicate that commitment was an important mental skill for professional hockey players.

Table 4

Schéffe Pairwise Comparisons of NHL  
Players' Personal Assessments of Mental Skills

Mental Skills	1	2	3	4	5	6	7	8	9	10
1. Commitment		0.21	0.26	0.33	1.13	1.23	<b>2.05</b>	<b>3.49</b>	<b>4.31</b>	<b>6.92</b>
2. Belief in Potential			0.00	0.01	0.36	0.42	0.94	<b>1.98</b>	<b>2.61</b>	<b>4.71</b>
3. Fun and Enjoyment				0.01	0.31	0.36	0.85	1.85	<b>2.46</b>	<b>4.51</b>
4. Mental Readiness for Games					0.24	0.28	0.73	1.67	<b>2.25</b>	<b>4.22</b>
5. Full Focus for Entire Games						0.00	0.14	0.65	1.03	<b>2.46</b>
6. Constructive Evaluation							0.10	0.58	0.94	<b>2.32</b>
7. Distraction Control								0.19	0.42	1.44
8. Mental Readiness for Practice									0.04	0.58
9. Quality of Imagery										0.31
10. Full Focus During Practice										

**X** = Significant at 95% (Schéffe F-Test)

Orlick (1992) explained that "To excel at anything one must have, or develop a high level of commitment..." Those few that play in the NHL clearly excel at hockey and the subjects surveyed indicated that commitment was their strongest mental skill.

The ability to fully focus during practice was the mental skill which the NHL players appeared to have the most difficulty achieving. The NHL players rated their ability to fully focus during practice significantly lower than six of the other skills. This may be explained in part due to the high number of practices an NHL team will hold over a season, Botterill (1990) reported that "In 1989-90 the Chicago Blackhawks played 110 games and put in approximately 250 days of training, travel, and performance (p. 365)." In this environment focusing for practice could prove difficult.

A comparison of Table 1 and 2 indicated that the NHL players rated the importance of each mental skill higher than their personal assessment of the same mental skill. This would indicate that NHL players realize the importance of the mental side of professional hockey and are still in the process of refining and improving their mental skills.

The NHL players also personally assessed the percentage of practices and games for which they were "fully focused" as well as the percentage of games for which they did a complete constructive evaluation over an entire season (see Table 5). A one way within design ANOVA comparing these personal assessments resulted in a statistical significant difference. E

(2, 42) = 4.38,  $p < .018$ . The Scheffe' post hoc pairwise comparison revealed that the only significant difference was between the percentage of games and the percentage of practices "fully focused" for. The occurrence of "fully focused" practices lags behind "fully focused" games, this might be due to the relative importance of games over practices. The large standard deviations in the NHL players' season long assessments of games "fully evaluated" and practices "fully focused" for would suggest the subjects had a very diverse command of the these mental skills.

**Table 5**  
**NHL Players' Season Long Assessments of Mental Skills**

<b>Mental Skills Rank Ordered</b>	<b>NHL Players</b>	
	<i>M</i>	<i>SD</i>
Games Fully Focused	86.96%	9.35
Games Constructively Evaluated	74.77%	25.05
Practices Fully Focused	70.36%	20.62

Interview Study

The deductive qualitative analysis of the interview transcripts revealed that nine of the 10 subjects referred to using all seven of Orlick's (1992) elements of excellence, while one subject revealed only six of the seven components.

The inductive content analysis on the remaining text file, which could not be labeled as parts of Orlick's "Wheel of Human Excellence", revealed the existence of a "new" category of excellence: fun and enjoyment. All 10 of the subjects indicated that fun and enjoyment was an important part of their hockey experience.

### Commitment

All of the NHL players interviewed demonstrated a high degree of commitment to the game of hockey. It was evident from the interviews that hockey was the center or focal point of the subjects' lives. The players were committed to excel and were driven by the desire to be the best that they could be.

P7: I've always trained hard for hockey, just because of the attitude I was taught when growing up that whatever you do you do 100%.

P5: ...hockey was always my number one priority and the most important thing, everything else was second to hockey and it has remained that way.

P1: I always stressed to myself, "Hey, you gotta be better than the guy beside you." My approach was "you've got the talent, but you've got to go out and prove you've got the talent."

This commitment usually began with a childhood dream of playing in the NHL. One subject pointed out that he did not feel that this made him unique since he believed that the majority of young Canadian boys who play hockey dream of someday playing in the NHL.

- P2: As a kid I'd always wanted to play in the NHL. From the time I was eight or nine I'd always wanted to play there.
- P5: As long as I can remember it has been my dream to play in the NHL.

These athletes (consciously or subconsciously) set themselves a high level goal or target to aim for in hockey. Hemery (1986) found that 57% of the elite athletes he interviewed had dreamt, during their youth, about making it to the top of their sport. All of the NHL subjects could recall a specific age when they realized it was possible for their dream to become a reality, for nine of the subjects this occurred between the ages of 13 and 16, for one it did not occur until his third year of university hockey. While many boys may dream of playing pro hockey the NHL subjects interviewed were highly committed to this goal and prepared to make the necessary sacrifices during their teenage years. These sacrifices ranged from limiting their social activities, training year-round and even dropping out of school.

- P8: [to make it to the NHL] you have to make a lot of sacrifices along the way and growing up which are tough. I had to look down the road and say it's a good possibility it's going to pay off. ...Just being strong mentally and not giving up on what you want. If you want to play in the NHL you're going to have to sacrifice some things. You know, Friday nights some people might be going out to a party and I would have a big game the next day, I couldn't really afford to go out to the party.
- P3: I think the time I really decided [I wanted to play in the NHL] was during my third year of college... That summer

I trained harder than I ever had. It was a whole different attitude. It's like anything, if you think you have a chance at doing well and you have any motivation, or any desire to succeed then you are going to pursue it properly, which is working hard.

While the desire to play in the NHL was the long-term goal, the players had developed the ability to break their pursuit into smaller goals. This implies an inherent ability to set realistic goals at a young age. Orlick (1992) explained that, "Commitment is enhanced when goals are viewed as highly worthy and within grasp" (p. 111). Halliwell (1990) reported using hockey-specific goal-setting forms in his consulting with both Canada's Junior National Hockey team and an NHL team. The importance of goal-setting indicates that it is a major component of the commitment to excellence. Since commitment and goals are so inexorably linked with the NHL players it would be best to refer to this core mental component as Commitment/Goals.

P2: The first time I realized I had a shot [at making the NHL] I really focused on it, I gave myself a plan. I wanted to get a scholarship in the States, I wanted to get drafted first year, and I'd like to play some International Hockey, and maybe play in the Olympics as my fourth year. I gave myself a little plan to develop and work up to. I've been lucky it has all worked out.

### Belief

All of the players interviewed projected a strong degree of belief in their potential as an NHL player. This confers with Weinberg's (1988) statement that "Successful players are distinguished from less successful players by their belief in

their abilities" (p. 15). Loehr (1983) and Cohn (1991) both used the term self-confident to describe athletes who had achieved consistent peak performances. Orlick (1992) reported that "The highest levels of personal excellence are guided by belief in one's potential, belief in one's goal, ...and belief in one's capacity to reach that goal" (p. 112). The NHLers interviewed projected strong personal belief in their potential and abilities as professional hockey players.

- P1: Hey you gotta believe. If you don't think you've got the talent, if you don't believe you're going to make it then it's no use even trying. I've always been confident.
- P5: One thing I've found is that all the best players are really strong willed. They all have a great deal of confidence in their ability, not conceit or cockiness, just confidence in their ability. It's really easy to see. A young guy coming up, he knows what he can do, he knows what he has to do, and he really applies himself on the ice. The player might not necessarily stand out on the scoresheet but that part will stand out.
- P1: One thing I've always taken into a game is that I'm cocky. I always believe in myself, as the best... If I don't feel like I'm better than the guy beside me then I'm no good, he might be a better player, he might be Wayne Gretzky, but I feel that "Hey I'm going to be better than him tonight," and that's my approach every game I play.
- P5: I just know what I want to do and I know I can achieve it. I have ideas of what I want to do and I'm pretty much decided I'll work as hard as I can to achieve what I want.

Eight of the 10 subjects indicated that their parents' belief in their ability played a significant role in their hockey career. Orlick, Hansen, Reed and O'Hara (1979) reported that

NHL scouts and coaches looked for players that were "Coachable and Dependable". Some of the off-ice indicators of this trait included : "good family background, parent/child harmony, ...parents at games, [and] players who go home for Christmas" (p. 153). Hemery (1986) reported that 92% of sport's highest achievers indicated that "their parents were both supportive and encouraging of their involvement in sport" (p. 42). Parental belief appeared to be an important in the development of the professional hockey player.

P1: My Dad pulled me aside when I was 13 and he said to me, "Listen, you've got to let me know right now if you think you can make it? If so I'll stick with you. If not, well then that's a different story." I told my Dad right then, "Well I'd be lying if I said that I didn't think that I could make it. I'm small, but I have faith in what's going to happen to me. You know Dad, I'm going to go for it," and from that point on my parents stuck with me right through it.

P1: No one ever thought I was going to make it when I was younger. So my conquest through minor hockey [was] ...to prove everyone wrong. The only people that ever thought that I would make it were my Mom and Dad, because I told them, "Hey Dad, I think I can do it." Determination was one of my fortes, I was determined to do great, and that's more or less what it took.

A number of the players indicated that belief in their potential was bolstered by reports from central scouting agencies, positive media coverage, appointments to all-star teams and words of encouragement from their mentors. These external agencies served to increase the NHL players' confidence and belief.

P7: ...you start to believe in yourself. It builds your confidence that [the scouts] are looking at you. If you believe that you can do it and you believe that other people have faith in you then you're going to perform well but if you don't think that other people have confidence in you then that's going to become a barrier and you are not going to have confidence in yourself.

One common experience that nine of the ten subjects shared was playing on a team with older players. This experience often confirmed their belief in their hockey potential at a young age.

P10: I went out as a 14 year old and made a Junior "B" team. So I'd already had it ingrained in my head that I was moving up levels at a reasonably good clip and I was reasonably successful. So as a 14 year old I was playing against 19 and 20 year old men. I think this was good because it was just the next step for me. I mean I was big at 14, I was 6'1" - 190 pounds so I wouldn't have improved playing against kids that were 5'5".

When confidence ebbed some NHL players enhanced their belief by trying excel during practice sessions, and by using positive self-talk strategies, or though reassuring talks with veteran players. Halliwell (1990) reported that professional hockey players' confidence could be improved through self-talk techniques. He stated that when players were asked to analyze their self-talk before and during games, "the players quickly realized they were saying a lot of things to themselves which were negative or that created doubt and anxiety" (p. 372). Generating and maintaining belief was an important mental skill in a professional sport setting.

P8: Right now, I am not playing a lot and it's mentally tough. I try and build my confidence up through practice. I just try and do extra things after practices and build myself up during practices.

P3: It sounds crazy but during the summer I would wake up and say to myself "you're a good hockey player", just reminding myself to get the confidence and to mentally prepare myself for an entire season and not let setbacks bother me.

### Full Focus

All of the subjects discussed the differences between best ever performances and poor performances in relation to their mental state or focus within the game. For most of the players, their mental state during a peak performance remained an elusive state of mind which they found difficult to achieve on a regular basis.

P3: (Describing a peak performance): You're aware of everything that's going on,... your on-ice focus is phenomenal. You're so into the game, you wonder if someone like Gretzky or Lemieux is like that all the time, maybe that is what sets them apart. Because on a night like that you wonder ...I played so well and so many things went well, everything, offensively, defensively, read the play well, you wonder ...you know I could be a great player if I could do this more often. Why don't I do this every game?

P4: I think the main thing mentally in hockey is to focus on what's in front of you, not the past or what might happen if you do do well or you don't do well. It's the present, it's the night, it's a game-by-game year.

There was agreement that playing well in the regular season required one to focus, but that playoff hockey demanded an even higher degree of focus.

P5: [Playoff hockey] is a little more final... all you do is worry about that one game and forget about everything else. Just play it and play as hard as you can and at the end of the game you usually feel pretty tired, you feel lousy. Then your entire train of thought goes on to ...the next game. It's different in that everything else around you is totally inconsequential now, the next game is the most important thing. Everything else in your life is tuned right out. Come playoff time that's all there is. It is hockey all the time... It's almost a selfish time... you stay home and rest between games and you have a lot of meetings, you tune everything out, all the daily routine. It just shuts down for however long you're playing.

Orlick (1992) explained that, "To excel at anything, one must develop the ability to focus in the present and maintain focus in the 'here and now' for the duration of the action-oriented part of the task..."(p. 115). A number of the subjects had developed effective strategies to maintain a present focus. A technique which was shared by a few of the players involved breaking the game down into a number of manageable segments. Other players would break their game down to specific tasks which freed them to perform without having to be concerned with too many performance related details.

P4: There are only three hours of work every night and that's what you've got to try and base yourself on. You can break it down, there is three hours of work, and divide it into three periods, you get maybe five or six shifts a period... you break that down into 45 seconds a shift. You

just go out there a shift at a time, for five or six shifts a period and then a period at a time,... for three periods. You can break it down and it makes it seem that much easier.

P10: I'm a defenceman and so if I do to the best of my ability the 3 things that I bring to the team every night then my job was paid for. The 3 things I try to do every night are strong in the corner, strong in front of the net and get the puck out of our end. Simple as that for me. But somewhere along the line if I can add a few other things that I do mediocre then I've really done something to help the team.

NHL players were often faced with the additional challenge of maintaining full focus while seeing limited ice-time during a game. Botterill (1990) found his consulting work to be "especially effective with players working through injury rehabilitation and players on the roster waiting for a chance to play more regularly. [This group] took extra pride in training hard, encouraging and challenging one another, and mentally playing every shift they could when watching games..."(p. 363). Halliwell (1990) "found that professional hockey players are very receptive to self-talk techniques" (p. 372). A rookie NHL player offered this insight which explained the strategies he used to maintain focus while receiving limited playing time during games.

P8: ...right now when I do play I'm not guaranteed a lot of ice time. So that makes it tough to stay in the game. I'm always talking to myself, stay in it, stay upbeat. Yelling a bit on the bench helps gets the guys going, which in turn gets me going to stay focused and keep my mind in the game, which is hard when you're not playing. ...over the course of a game if I'm not getting a lot of ice time I

always try and stay as focused as I can. If I realize I'm drifting a bit I try and pull myself back by talking to myself. I'll usually stand up on the bench for a bit and kick my legs out because my feet get numb from my skates being so tight.

### Positive Images

Imagery, mental rehearsal or visualization are mental skills which were used by professional hockey players. All but one of the players discussed the use of mental images. Professional hockey players used positive images as a mental preparation tool, it was an integral part of the pre-game routine. Orlick and Partington (1988) found imagery to be an important element of Olympic athletes' precompetition plans. Most subjects (80%) used an "inside view", as if they were actually playing the game while the remainder saw the game from an "outside view", as if they were watching themselves on television.

- P2: I spend about 20 minutes before the game picturing myself in my mind going through every possible scenario of the game. Me coming out of a one-on-one where I take the guy and the puck gets picked up by one of our guys, ...me in their end taking a shot that goes right by the goalie. I imagine myself as invincible. Because if you prepare to fail, ...when you get out there your mind's telling you how not to do this and it's going to happen that way. ...Sometimes when I get right into [the imagery] it, or if I see myself scoring a goal, ...when I come out of it, I'll have a little adrenaline flow.
- P3: I try and get a mental image of who I'm going to be playing against. I was primarily a checker last year, so if we're playing a real good team like a Pittsburgh or Los Angeles where they have a Gretzky or Lemieux or something, I'll start thinking about things that maybe I

can help the team in stopping them. ...You know when you're checking somebody who is so good, you've seen them a million times, so you know what some of their mannerisms are. You try and think of ways that you can counteract it. "What am I going to do if Gretzky goes behind the net?" or "if Lemieux starts to steamroll down the wing, am I going to go right at him or should I pick up one of his wingers because I think he's going to pass off", that type of thing.

P6: I usually think about the game during my afternoon nap. ...when I wake up I'm usually a little sweaty, a little ready to go. That's when I might lie there for a few minutes and picture something good happening. [At the rink] I'll get in my long underwear,... and sit there for a good 20 minutes, half-an-hour some nights, and just think about good things. ...I try to dwell on just good plays in general, for example a hit. A lot of times I picture my feet being quick underneath me, because if I feel if I have quick feet then the rest of my game will just come. If I'm skating well I feel I can hit, and shoot, I feel like I'm in the game then.

One player discussed using imagery during games as a means of pre-determining performance decisions. McCaffery and Orlick (1989) found that golfers often used "shotmaking imagery" prior to their shots during tournaments, it appeared that some professional hockey players were also able to pre-experience performance outcomes in a dynamic environment.

P4: This year my coach really introduced imagery to me. He said when you're skating back for the puck go as hard as you can and image something in your head, what you're going to do, and take a look back before you get the puck and see where everybody is. And turn and burst to the puck with an image in your head of what you're going to do. ...That was one of the biggest things I learned this year. ...Image out on the ice right before you get the puck what you're going to do with it. A split second before

you get the puck make a decision what you're going to do before you get it.

Orlick (1992) stated that athletes "used positive images to feel the flawless execution of performance skills" (p. 115). There was no evidence in the interview transcripts to suggest that NHL players used visualization as a tool to improve or learn new skills. This was in contrast to studies on professional golfers (McCaffrey & Orlick, 1989) and Olympic athletes (Orlick & Partington, 1988) who used imagery to perfect skills in training sessions. This contrast could be attributed to the difference between individual sports, such as golf and the majority of Olympic events, and a team sport like hockey.

Many of the NHL players felt it was important to carry a positive mental perspective into all situations. The subjects identified a number of factors in their careers which were beyond their control, such as the media, coaching decisions, salary negotiations, being sent to the minors, trade rumours, and trades. The subjects felt it was important to develop and maintain a positive perspective in light of these factors. The elite hockey players were able to maintain a positive perspective by using positive self-talk, finding the positive in all situations and by using positive mental images to enhance their performance.

P10: I always take the positive out of every situation, even in the worst scenarios I always find positives and go out and turn it around and benefit me. ...In Toronto I sat for

35 games straight with really no explanation. But in that 35 games as good as shape as I was in, I got in better shape. So when I got my trade, I owed it to myself to finish the season on a strong positive note.

### Mental Readiness

The mental preparation procedure for games and practices was the mental skill which was most discussed by hockey players. The text file of quotes which were tagged as mental readiness was the largest of all files. The players were very willing to share details about their game day and practice day routines.

Mental readiness for games. Elite hockey players followed a very standard procedure to ready themselves for games. The regimental nature of professional hockey ensured that certain elements of the game day routine was similar for all subjects. It involved a morning skate and equipment check, sometimes followed by a team meeting, a pre-game meal, an afternoon nap, a pre-game warm-up and skate. This procedure confers with Gallmeier's (1987) description of the routine professional hockey players follow when "getting psyched up and 'putting on the game face' " (p. 347).

While the nature of professional hockey ensured that players followed a similar game day routine, it tells us nothing about the players' thoughts or mental perspectives. The mental component of the NHL players' readiness procedure was similar to those used by the best Olympic athletes. Orlick and Partington (1988) reported that Olympians used

precompetition plans which "included the use of mental imagery, warming up well physically, positive thoughts, and reminders on what had previously worked well" (p. 115).

P9: I think about the game all day. What my role will be and what I'm going to do. ...this is now my 10th year in the league and I've a pretty good idea of a lot of the guys on the rosters, so I know each one's characteristics. I know what to expect from each player. ...[This Saturday] in Montreal I'm probably going to play against one of their bigger left wingers who I usually play against and I know it's going to be a tough night because we're going to be hitting each other and knocking the shit out of each other... So I get prepared... to make sure as soon as the puck drops I'm ready to go.

P5: I like to know who I'm playing against, I know the players I'm playing against, I know their habits, who does what and what things work and what things don't work and I know the goalies. But then I just go out and play and hopefully when you get into that situation on the ice, whether it's on the goalie or whatever, you do the right thing right off the top. ...I find the best way to [prepare], is just do what you do. Go out and play and let it happen, let your instinctive ability do it.

There was also a delicate balance between knowing enough about who you are playing against and knowing too much. Botterill (1990), in his experience with the Blackhawks, explained that one of his functions was to "prevent preparation overload" (p. 362). One well established player offered insight about the problems associated with over preparation.

P7: [Our coaching staff] gives us all kinds of video about our opponents before games. They give us so much stuff on the other team that you get so worried about what they're going to do that you don't prepare yourself for

what you're going to do. ...I get a little too mesmerized if I'm too worried about what everybody else is going to do that I don't think about what I'm going to do. So lately I've just said, "O.K. we're playing the Penguins, big deal". I want them to worry about what I'm going to do, I don't want to be always worrying about these guys.

One of the difficulties NHL players faced was being mentally ready for every game of the season. All of the players interviewed indicated that they tried to be ready for each game but the demands of the schedule made this difficult, if not impossible. One veteran player offered insight into the demands on mental preparation in the NHL.

P6: It's tough to be mentally ready 80 nights a year. If you're doing it 60 nights a year you're doing very well. You're going to have nights where you're tired, physically and mentally, that's going to tire you. Or the schedule may be driving you crazy and so physically you may think, I just don't feel like being here. But most of the time I'm ready. You try to be every night.

Botterill (1990) reported that, "in the 1989-90 season the Chicago Blackhawks played 110 games and put in approximately 250 days of training, travel and performance" (p. 365). These demands required a special type of mental toughness. Elite hockey players had developed mental readiness routines which helped control their level of arousal and ensured more consistent performances. Orlick (1992) stated that "consistent high-level performers are proficient at following their own best path... [for] personal excellence"

(p. 117). It is evident that professional hockey players mentally prepare with the same consistency as other world class athletes.

Orlick (1992) stated that one of the key aspects of mental readiness was the ability to "relax oneself and one's focus when away from the performance zone" (p. 116). Loehr (1983), Weinberg (1988) and Cohn (1991) each reported that the ideal performance state required one to be physically and mentally relaxed. A top NHLer described the special state he attempted to reach as follows:

P5: I just try to relax between shifts, just sit and relax and catch my breath. I just try to relax in between periods, just sit and relax. ... You're relaxed but also kind of tense. It's not like you're kicking back and watching TV. You've got your adrenaline flowing and you are into the game but you have to catch your breath and regroup. You feel confident. I know what I'm doing on the ice, I know what I'm supposed to do. You're somewhat tense and intense I guess, but at the same time you are comfortable. Comfortable may be a better word than relaxed. I don't do anything special. I just sit down and wait to go again. I'm not so uptight that I'm gripping my stick. On the other hand I'm not that relaxed that my heart isn't pumping. I'm still aware of everything that's going on.

One young professional offered insight into the difference in preparing for International or Junior hockey and the NHL. There is a shift from team preparation strategies to individual mental preparation, this difference might explain why some rookies have problems adjusting to the NHL.

P8: It just seems on an international basis you're always together as a team, you eat as a team, you do everything

as a team almost. But in NHL, I found getting ready for a game is basically done on an individual basis. But as far as junior and the World Junior Team goes everything was done as a team and team oriented. But in the NHL, I find it's more individual to get yourself prepared. You do whatever you have to do to be ready.

Mental readiness for practice. While NHL teams may play over a 100 games in a season, practices are still very important for team and personal development. Orlick, Hansen, Reed and O'Hara (1979) reported that one of the key factors which professional hockey coaches and scouts looked at when evaluating high calibre players was how "Coachable and Dependable" the player was. The on-ice indicators of "Coachable" were "being willing to take tips, always trying to improve, follows coach's instructions and is always ready to go at practice" (p. 153). A veteran of the NHL explained the importance of practices in simple terms.

P10: Well, You've got to use practice to improve - it's as simple as that. And I think I've become a better player in the NHL because of the practices that I had in the middle stages of my career in Philadelphia.

Hockey's elite have developed a range of strategies to mentally prepare themselves for practice. Some players carry a super focus to practice where they have committed themselves to work hard and "get something out" of each practice. Some teams have also shortened practice sessions to improve the effort and preparation players put into practice.

P5: ...I don't believe in really getting yourself psyched up. Once I am prepared... I like to go out on the ice and work

hard and get things done... I try to come to the rink every day and get something out of it. I try to practice hard and feel good when I get off the ice. Accomplish something. ...It's the same thing I try to do every day, every game, every practice. ...I work hard every day and it's just become a routine. I don't get too excited, or too pumped up for one game. It's a different sport when you play in this league, you're doing it every day. So I find the most progressive labour is just to handle everything well.

- P4: The [coaches] shortened up practice last year, they think if we can go hard for 45 minutes to an hour-and-a-half, depending on the situation of games that week, I think that's the key because that makes us go harder. Because if we know we are going to go shorter we go harder and that prepares you for the game. Preparing for practice mentally prepares you for the game. If you go out on the ice and fool around for the first half-hour of practice then your tendency is to do that in the game too.

Orlick (1992) reported that in order to excel one must "take advantage of learning opportunities [and] practice with focus and intensity" (p. 116). The NHL players indicated that this was easier to achieve when things were going well but required the use of specific mental readiness routines during difficult parts of the season. When players were struggling in league play they would often prepare for practice as if it were a game, while others would feed off the energy of teammates in order to get into practice.

- P3: If I've been in a real slump. ...I may try and get to practice early, I want my equipment to be organized and everything proper. A lot of times for practice I don't worry about my sticks, whether I re-tape them or anything. I'll do all that and prepare for it almost like a

game, take it real serious. I'm a lot quieter because it's on my mind and I want to get out and work on something.

P1: Somedays you just don't want to practice. I just played three games in five nights. I can't practice. But you know you have to. ...the first couple of drills you're going through the motions. And then you look around, and all the guys are doing the same thing. These guys got to get up and come every morning too. You feed off everybody else. There's always certain guys on your team that you look at and think, man he just does it day in, day out. He might not be as good a player as you, but God, when it comes to practice, he's out there flying. You try to feed off him and pick it up.

### Distraction Control

The NHL players reported facing a variety of distractions throughout an NHL season. These distractions occurred both on and off the ice. Orlick (1992) explained that, "distractions may be external, arising from one's environment, or internal, arising from one's own thinking or one's own expectations" (p. 118). It was evident from the interviews that the types of the distractions faced by NHL players were no different than those faced by other athletes. However, the high-profile nature of professional hockey meant that the off-ice distractions could be rather severe.

P10: Nowadays the hardest part of being an athlete is what goes on off the ice, especially in Canada. ...You can't go out because everybody knows who you are, some players can't deal with that. ...if you work hard on the ice then the outside things are very enjoyable. If you slough off your work on the ice then the outside things; criticism, fans booing you, your kids having a hard time at school, can really start to grate on you. If you work hard then

everything goes hand-in-hand and works together, then it's no problem.

When elite hockey players experienced peak performances or were "in the zone", nothing could distract them or take them out of their game. A seasoned professional explained the relationship between a peak performance and on-ice distractions as follows:

P3: [During a great game] ...my concentration is almost like a state of flow, I'm not worrying about anything because it's just going too well. ...It's just unbelievable how into the game I am. ...Can't distract me on a night like that. [The] nights I play great there can be a guy hooking me and I won't even know it. Where on a bad night, a guy could hardly breeze by me and give me a tiny slash and it will drive me nuts.

McCaffery and Orlick (1989) reported that when top touring golf professionals were "in the zone" they too could not be distracted from their performance. Other studies into peak performance have described a mental state which was free from distractions. Loehr (1983) referred to peak performances as being "mentally focused in the present", Weinberg (1988) used the term "focused concentration", and Cohn (1991) described it as a "narrow focus of attention".

During the long NHL season players did not experience peak performances in every game therefore they needed to gain control over distractions in order to ensure consistent performances. Orlick and Partington (1988) reported from their study of Olympic and World Champions that distraction

control was the single most important on-site mental skill affecting the consistency of high level performance. The mental ability to overcome distractions and re-enter the zone of quality performance was a skill frequently used by NHL players.

Elite hockey players had developed a number of strategies to deal with distractions. Some of the off-ice distractions required sheer mental toughness to play through while some on-ice distractions were dealt with by carrying a healthy perspective about mistakes. If a player has developed the ability to turn mistakes into opportunities for improvement then he had freed himself to perform more consistently.

P2: Mental toughness is probably the biggest thing [needed for success] in hockey. Hockey is a game where management or coaches can jerk you around quite a bit. You just may not be in the right place at the right time or someone doesn't like you, there is some favoritism here and there. Just to be tough enough that you play so well that the cream will rise to the top. You just have to keep going no matter what. If you're not getting the breaks, you have to keep fighting. If you give up then you're finished.

P4: Nobody cares if you make a mistake as long as you're trying a hundred percent, it's when you're not trying or you give up [that you run into problems]. You can make a mistake as long as you get up and go out and correct it, or try and correct it.

A number of players were adept at mentally putting aside their mistakes. Halliwell (1990) reported that professional

hockey players and coaches rated the ability to "park" or put aside mistakes as a very important mental skill.

P2: ...on my first shift if I go and put a pass right on the opponents stick, and they go in and score, that doesn't necessarily mean I'm going to have a bad game. I say, "Okay I had a bad shift", because if I say "Geez, I'm going to have a bad game tonight", then the rest of my game will be shot. After a bad shift I just say "screw it". I just like to give my stick a little tap, see myself making the right play, take a deep breath and then forget about it, it's gone, I don't think about it anymore.

Other players explained they were able to re-label or turn distractions into advantages for themselves. This supported Mahoney and Avener's (1977) observation that, "the more successful athletes 'use' their anxiety as a stimulant to better performance" (p. 140).

P4: I remember the third series started in Chicago, and starting in that rink is very intimidating but I always like playing there because I always use it as the opposite, as an advantage. For them to pump up their team, that pumps me up just as much because I like that rink, the loudness, the craziness.

Professional hockey players sometimes dealt with game day pressures and distractions to their pre-game routine by joking and staying loose. The ability to remain flexible in the face of distractions was viewed as an important mental skill.

P4: That's where being laid back will come in and help. If you lose an edge in warm-up and have to get your skates sharpened you can't let that wreck your game. I don't like taking my skates off but it doesn't bother me, I'll take it

off and sharpen it. I used to ask the trainer to get my leg up there to the sharpener, sharpen it for me I don't like taking my skates off, I just don't like the feel when I put them back on after I've sweat. But it doesn't bother me, just here take it, do this, do that, I don't care. If you run out of this kind of tape just give me the next kind, I don't care.

P1: There's more pressure at home because it's your fans, it's your building, and the coach always stresses, "You can't lose at home," where on the road you make excuses. There's always excuses on the road, but there's never excuses at home. ...I'll go to a game two, three hours early. I'm an early bird, I go to a game and I joke. That's all I do. I take my mind off the game by joking. I don't even think of the game, I'll talk about a movie or something else. ...I start focusing in on the game when it's time to put on the equipment and when the guys are around and everyone starts to chatter.

### Constructive Evaluation

All of the subjects post-game routines involved some form of reflection or evaluation of their performance, even though it was not always a through game by game evaluation. In the evaluation process the players did not seem overly concerned about a single performance and tended to look for trends over a number of games. This observation is consistent with the Botterill's (1990) applied work with the Chicago Blackhawks where "Players were asked to periodically reassess their progress on key skills/responses and complete a segment goal setting form every five games (10 days to 2 weeks)" (p. 363).

The most critical aspect of the evaluation process is one's willingness to act upon the lessons drawn from

performances (Orlick 1992). Once these NHL players had targeted areas for improvement most would go after those skills during practice or spend extra time on the ice fine tuning his game. McCaffrey and Orlick (1989) reported that golf's top tour professionals systematically assessed each tournament, selected areas for improvement and acted upon these lessons in practice. The club professional in contrast recognized the importance of self evaluation but failed to do it regularly and would not always act upon the lessons. Overall the NHL players' constructive evaluation procedures were well refined and similar to those of top tour golfers.

- P3: [After a game] I'll take mental notes of what went well and what didn't. But I try not to over-evaluate the game because the season is too long, it's too long to really worry about one game. ...And any good plays I try and use it for positive energy to get better, for confidence-wise.
- P5: I evaluate myself over a course or period of time to see how things are going. You try not to worry about any individual game, I try not to put a lot of stuff into one game. If over ten games I do lousy on face-offs, or if I miss three or four breakaways in a row, I'll say I better spend a little time and work on them. I like to do that a lot. Just fine-tune some things and that's what I do at a lot of the practices. I'll concentrate on these things after practice, for five or ten minutes, shoot some pucks. If I missed a few breakaways, I'll go after them in practice or work on them for ten or fifteen minutes after practice.
- P3: There are times when you're not playing well and you are unconsciously working a lot harder in practice. Doing just everything. You're concentrating more on your passes, all the little things, you're skating a little bit harder. Then there are other times that you consciously

go out early, and work on whether it be skating, or your stick-handling, shooting, passing, whatever. Or you stay out after practice and work on things.

Professional hockey players used the constructive evaluation process to draw out positive aspects of their performances and used that information to improve their confidence and belief. Orlick (1992) stated that "One can draw inspiration, confidence and joy by reflecting on positive experiences and personal highlights" (p. 118). NHL players were similar to other elite performers with respect to using their evaluations to build positive energy and confidence.

P8: Everybody tries to evaluate themselves. I try to look at my game as a whole. You may have one or two mediocre shifts, you just try to forget about those ones, you just try and build on what you did well out there. But I always try and evaluate how my game went. The other night I didn't play in the last five minutes of the third and I didn't play in the overtime. I can't really do much about that, it was out of my hands. But I thought up until then I was jumping out there and basically was in the game. So I try to stay positive and feel good about myself and build on that.

The professional sport setting allowed the opportunity for extensive use of video tape in the constructive evaluation process. One player watched game tapes late in the off-season as a means for preparing for training camp. Another player personally video-taped televised games in order to evaluate his performances, while another checked video tapes between periods of a game.

P4: I try to tape the game, that really helps. You can really see a different angle [and]... I can remember what my decision was and then watch it from a different angle and think if I could have made a different decision there. I either watch the game on video... or think in my mind something that I did wrong or could have done better. If I had a chance to score, I'll dump a bucket of pucks and just practice shooting, just a few different agile moves. Or if someone gets around me in a one-on-one then I'll really bear down in the one-on-ones or two-on-ones in practice and try to get my angles back. I focus on something that I should have done differently or better. I usually pick one or two things, you can't be going out doing a hundred things in practice. I'll usually just pick one or two.

P10: Between periods if there is a goal scored against me I don't hesitate ...I'll go into the coach's office and watch the tape and check on my positioning and make a correction for the next time.

### Fun and Enjoyment

The inductive content analysis of the interview transcripts revealed that fun and enjoyment played a critical role in a professional hockey player's career. All of the subjects shared experiences or explained how they derived fun from the game of hockey. This element of fun and enjoyment played a significant role in both the elite hockey players' development and their professional careers.

Scanlan, Stein, and Ravizza (1989) conducted an in-depth study on the sources of enjoyment in elite figure skaters. Before the interview began they informed the subjects that the interview would focus on their sources of enjoyment. It should be noted that nowhere in the present study did the

researcher ask about or go after the fun and enjoyment component, in fact the "NHL Player Interview Guide" did not even include the words fun or enjoyment. Since elite players raised this issue and freely shared their perspectives on this mental component it is considered an important mental skill for professional hockey players.

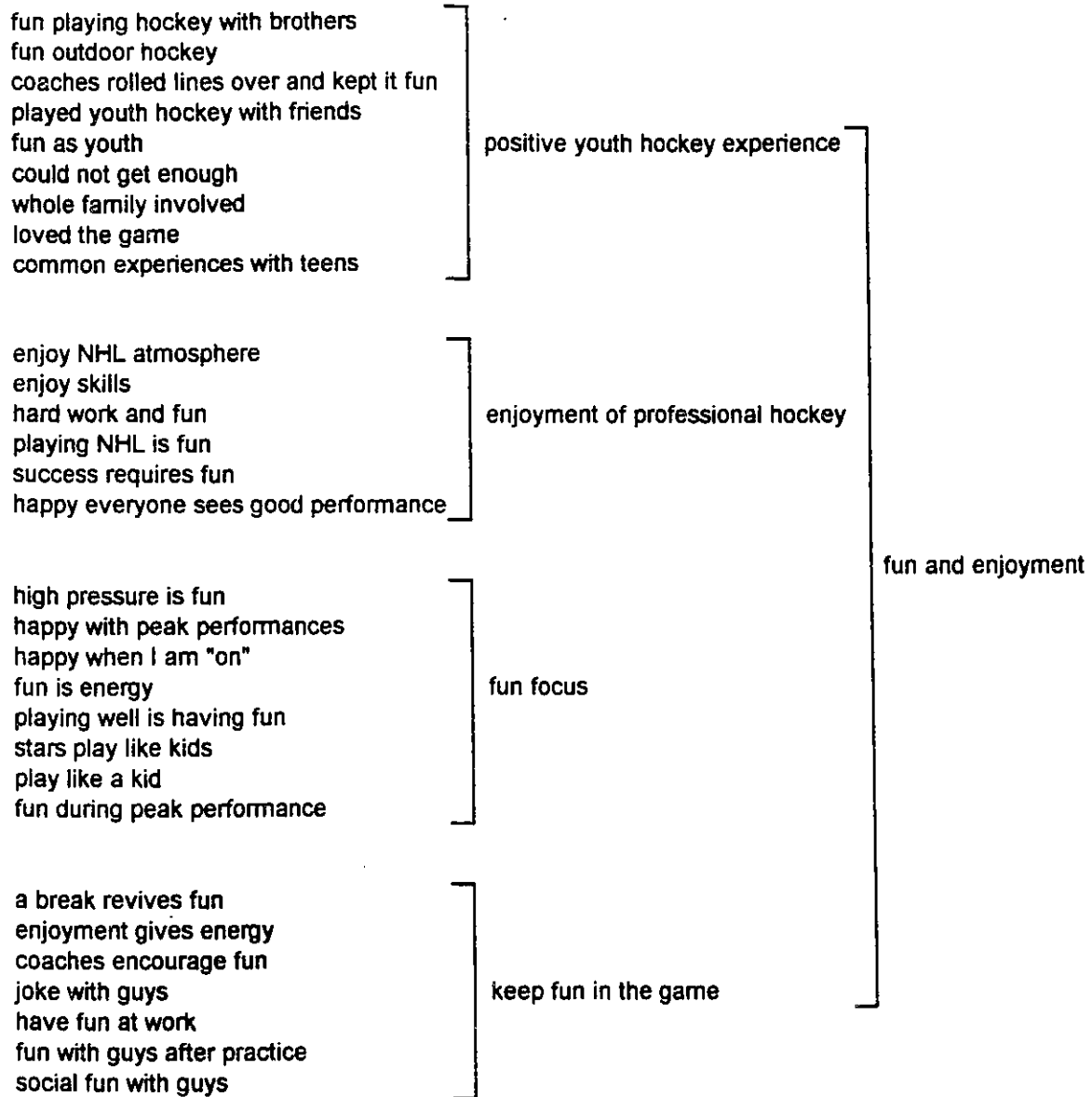
The Orlick (1992) "Wheel of Human Excellence" did not include fun and enjoyment as an element of excellence. The omission of this mental skill may have been due to the predominance of studies which focused on primarily individual sports or events (Kreiner-Phillips & Orlick, 1993, McCaffery & Orlick, 1989, Orlick and Partington, 1988 and McDonald, 1992). The team sport setting may facilitate a more socially enjoyable atmosphere.

It was clear from the interviews that all subjects derived a great deal of fun and enjoyment from the game of hockey. The meaning units were clustered together into four categories (Figure 3): a positive youth hockey experience, enjoyment of professional hockey, a fun focus, and the ability to keep the fun in the game.

All of the players had a very positive youth hockey experience: they played with friends or brothers and typically their entire family was involved in sports. They reported loving hockey and deriving "a lot of fun" from the game as a youth. A number of the players explained they could not get enough of the game and enjoyed the freedom that hockey gave them.

Figure 3

Inductive Content Analysis of Fun and Enjoyment Component



The elite players interviewed still enjoyed the NHL game. Despite the pressures of playing professional sport, the subjects often stated there was nothing else they would rather be doing. Some thrived on and enjoyed the pressure of the professional sport setting. The elite players still enjoyed the simple skills of the game. They explained that while they worked hard, and in some cases earned very high salaries, they still enjoyed the game and had a "lot of fun" with it.

Elite NHL players explained that when they were playing or practicing well they had fun on the ice and kept a fun focus at the rink. Two of the subjects explained that the players who dominate the NHL still play as if they were kids. The subjects reported that high pressure games were fun and enjoyable. Loehr (1983) reported that enjoyment was a critical element of an athlete's Ideal Performance State (IPS). Cohn (1991) found golfers experienced fun or enjoyment during their peak performances. It appears that peak performances are directly or indirectly related to having fun at least for hockey players. Loehr (1983) explained that, "having fun and enjoying yourself is an essential key to staying relaxed, calm, unanxious, positively energized, and optimistic" (p. 31).

NHL players valued the amount of fun and enjoyment they derived from the game. Perhaps this value was increased because of the constant outside pressures of a career in professional hockey. As one veteran player explained, "the management often treats you like cattle in this league." The best players seemed to use the game as an escape from these

pressures. Whenever coaches, management or the press tried to take the fun out of the game, the players made an effort to put it back in. They would joke around in practice, play fun games after practice without the coach, or socialize with teammates away from the rink in order to keep the fun in their game and/or in their lives.

The representative quotes related to the importance of fun are presented below exactly as stated. The italic print indicates the tag which was attached to the passage, these tags are located in the first column of Figure 3.

P5: ***enjoy NHL atmosphere:***

...you have to be able to enjoy the atmosphere. The pressure isn't really a big deal as far as I'm concerned. You have to enjoy that atmosphere and the fact that you have to go out 80 games and play well, perform and produce. I enjoy that aspect of it. ...But in general I enjoy playing the game. It is a lot of the outside things that can irritate me, but for the most part the game itself is a lot of fun.

P5: ***enjoy skills:***

I still enjoy playing the game, I enjoy practicing, I enjoy shooting pucks and staying out on the ice after practice. For me it's not really hard to enjoy the game.

P10: ***hard work and fun:***

When you go to the rink you've got to work hard and do your best and then you're going to have fun, you're going to be joking around with your teammates. As a team this year we were abysmal in the standings, but we have a great group of guys. We worked hard every day in practice, we worked hard every game, ...For the most part we had fun. I think if you ask anybody on the team, it was a fun year given how bad we were. Everyone thought we'd be suicidal but we had a good group of guys. So

you've got to have fun but the fun doesn't come first. It's a product of the hard work which is done at the rink.

P7: ***success requires fun:***

...guys make a lot of money [playing in the NHL] but if it wasn't fun I don't think you could be successful because you wouldn't give it your all.

P2: ***enjoyment gives energy:***

Well, it's funny. To fire yourself up is really just to have fun. If you look at practices like, "Gee, another drill, and another I gotta do this right," then you are cooked. I get adrenaline from hockey, from when I'm having fun like I did playing shinny on the outdoor rink. ...Enjoying the game gives me energy. Less like work and more like play, and anytime I get that, I get the adrenaline going.

P2: ***stars play like kids:***

It's funny, when I think of all the guys who dominate in hockey, Gretzky, Lemieux, Yzerman, they all have been able to play like they played when they were kids. ...they still *play* the game, they don't play it up and down, they play shinny hockey. ...That's when you dominate because then you're crafty, if you watch Gretzky, he's just having fun out there, he's doing stuff that no one else would have the confidence to do, ...He works hard, but he just plays it like an outdoor rink.

P10: ***play like a kid:***

For me hockey has always been fun and something that I like doing and it's easy for me to do. I just go to the rink and I play the game of hockey just like I did when I was a kid.

P10: ***high pressure is fun:***

Well, the highest pressure I've played in is game 7 of the Stanley Cup finals. ...I lived that moment and we lost 3-1. I guess in a way you could say that was a lot of pressure but thinking back, I don't remember the pressure. It was just a good game, it was a great game. Playoff hockey is fun. It's supposed to be the most pressure-packed and all

that, but it's fun. The fun games are highly pressure-packed.

**P7: *a break revives fun:***

...sometimes when you're not winning and things aren't going well you say what the hell am I doing here. Sometimes the coach gives the team a couple of days off and then you get back at it and you realize how much fun it is.

When asked what advice they would give an aspiring minor hockey player from their hometown two players talked about the importance of fun and enjoyment in both youth and professional hockey.

**P3: *enjoy the game:***

I'd tell him to enjoy the game. ...I think you've got to work on your skills and enjoy the game. Play the game because you like it. And if things fall into place then you can move on and be successful.

**P4: *keep the fun in the game:***

...the biggest thing I learned this year is that even though hockey's a serious game at my level, you've still got to have a lot of fun, and keep the fun in the game as long as you can. As soon as you're not having fun, you're not going to play very long after that, it's just too hard on your mind. Fun is the biggest word I've learned this year, I've learned it all over again. It's only a three-letter word but it means a lot.

## Conclusions and Recommendations

### for Future Research

This study has shown that elite hockey players share a number of key mental skills. NHL hockey players demonstrated all seven elements of Orlick's (1992) "Model of Human

Excellence": commitment, belief, full focus, positive images, mental readiness, distraction control, constructive evaluation as well as a "new" element, fun and enjoyment.

The mental skill of fun and enjoyment played a critical role in both the elite hockey players' development and in their professional careers. The ability to continue to have fun and enjoy hockey was viewed as an important mental skill for the overall development and longevity of professional hockey players' careers.

All of the NHL players interviewed demonstrated a high degree of commitment to the game of hockey. Commitment appeared to be enhanced when the players had set clearly established and worthwhile goals. The inexorable link between commitment and goal setting indicated that Orlick's (1992) core mental skill of commitment would be best referred to as Commitment/Goals.

The professional hockey setting with its incredible number of games and practices meant that it was difficult for NHL players to be fully focused for every game and practice. Players also evaluated their performances on a game by game basis but tended not to be overly concerned about individual games but rather looked for patterns over a number of games. The professional nature of the NHL also meant that game tapes were an important part of the constructive evaluation procedure.

The interviews revealed that NHL players used positive imagery for game preparations and evaluations and for

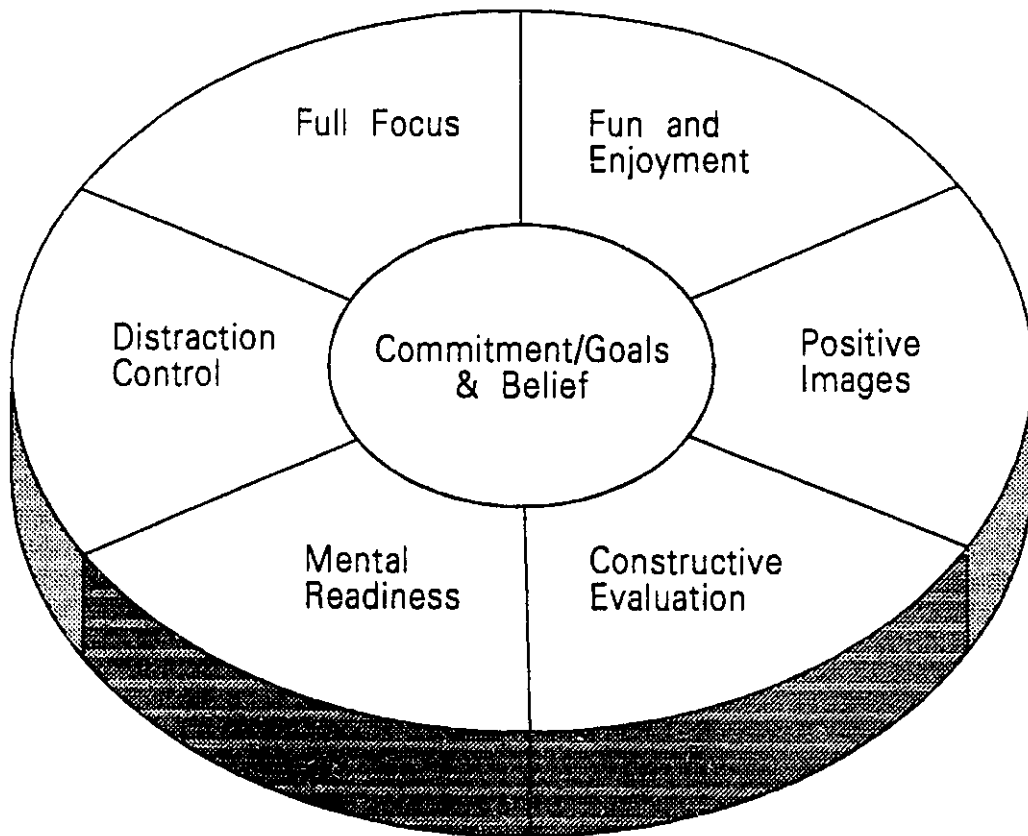
maintaining a positive outlook in the face of setbacks. There was no evidence to suggest that elite hockey players used mental imagery to assist in skill development. The professional hockey players' use of mental imagery is an area where more detailed research could be done. In future studies players could be questioned regarding the vividness of their images, the feeling associated with their images, and their reasons for employing imagery. More detailed questions on the use of imagery will provide further insight into this mental skill as it applies to hockey players.

The "Mental Aspects of Professional Hockey Questionnaire" revealed that NHL players viewed most of the mental skills as relatively equally important. The exception was the importance of positive imagery which was viewed as significantly less important than all other mental skills. The players' self-assessments of their mental skills revealed that commitment was an important mental skill for professional hockey players. The players also had difficulty fully focusing for practice sessions throughout the season.

This study indicated that Orlick's (1992) "Model of Human Excellence" required a number of minor adaptations in order to apply to the world of professional ice hockey. Figure 4 represents a conceptual model of the mental skills required for success in the NHL. Commitment/Goals and belief are considered as core mental skills due to the consistently high ratings these skills received from the NHL players on the surveys and during their interviews. The NHL players

Figure 4

Mental Skills of NHL Players



confirmed the importance of positive images, constructive evaluation, mental readiness, distraction control and full focus while adding the skill of "fun and enjoyment" to our understanding of the mental skills required to excel at professional hockey.

Future research should attempt to determine if there are any significant differences, with regard to mental skills, between regular NHL players and those who have represented Canada in Canada Cup tournaments. In-depth interviews with members of the Canada Cup team would provide a wealth of knowledge and rich insight into what is required to excel at the highest level of international hockey.

A logical extension of this study may involve designing, implementing and field testing a mental skills training program with youth level or professional hockey players which focuses on what athletes feel is most important. This could be a comprehensive program which covers all of the mental skills or could be a detailed study of one skill.

Researchers are encouraged to study the mental skills used in a wide variety of professional athletic settings. We are aware of what an exceptional professional athletic performance looks like from the outside, yet we are only beginning to understand how it works on the inside. A tremendous amount of information can be gained from in-depth interviews with performers who excel in their sport and life.

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## APPENDIX 1 NHL PLAYER INTERVIEW GUIDE

### THE EVOLUTION OF TALENT

1. When did you first get involved in hockey? How would you describe your first experience in hockey?
2. How would you describe your childhood? Did you know then that you wanted to play in the NHL? (probe for details how they knew)
3. Was there an identifiable moment when you knew you could make it to the NHL?

Did this realization or belief change the way you approached hockey?

Did this realization or belief affect other aspects of your life?

The next group of questions refer to your NHL career.

### PRACTICE

4. How do you approach practice sessions? (probe for details with regard to focus and intensity)
5. Do you push yourself to practice even if you don't feel like doing it? (probe for details about why and how or why not)
6. Do you have ways of preparing to get the most out of a practice session? (probe for details about source of ideas, actual strategies, and mental training practices in terms of how often, when, where, with whom and with what success.)

### GAME DAY

7. When the puck drops at centre ice are you mentally ready?
8. We are interested in the types of things that you generally do or think about on the game day. How do you start preparing for the game?

Do you follow a specific pre-game routine? If so please outline. (Probe for details about the nature of images, if any)

Do these routines differ for home and away games, playoff hockey? If yes in what way?

9. Do you know when you are going to have an awesome game ahead of time? If so how do you know? Could you describe this feeling? When does this feeling occur?
10. What do you do, that other players might not do, to get an edge on your opponents? (in games, practice or off-season)
11. We are interested in the types of things that you generally do or think about after a game. Take me through your post game routine for a game that went well and for a poor performance.

### **BEST AND WORST PERFORMANCE**

Take a moment and think about the very best (worst) performance of your career to date.

Which game was it and why was it your best (worst) performance?

12. What were you thinking or saying to yourself:
  - a) immediately before the start of a game
  - b) during the event, on the bench
  - c) between periods
  - d) when shooting, making saves, hitting (depending on position)
  - e) generally, how would you describe your on-ice focus?
13. In summary, what were the major differences between these two events in your preparation, focus or feeling.

### **DISTRACTION CONTROL**

14. What is the highest pressure situation you have faced in hockey?  
How did you handle it? Did you play well?

15. What is your best example of holding together under stress?
16. Do you have any mental strengths that you feel have made you a better player than others?

Which of your mental skills require the most work to stay sharp?

Are there areas where you still need to improve mentally? (to play better or more consistently)?

### **WINNING TEAMS**

17. What has been the winningest team you have played on?
18. What separates that team from others? (probe for details about harmony, common beliefs, experiences in victory)

### **CLOSING QUESTIONS**

19. What are the most important mental skills required for making it in pro hockey?
20. You have just met a talented young hockey player, from your hometown, what kind of advice would you offer to help him in his quest for hockey excellence?
21. Is there anything relating to the mental side of hockey excellence, that I have missed, that you would like to talk about?

**APPENDIX 2:**

**THE MENTAL ASPECTS OF PROFESSIONAL  
HOCKEY QUESTIONNAIRE**

**NAME** \_\_\_\_\_ **AGE** \_\_\_\_\_

**HOCKEY BACKGROUND**

Present Team \_\_\_\_\_

Number of seasons in the NHL \_\_\_\_\_

Number of seasons in the minors \_\_\_\_\_

National Team Experience \_\_\_\_\_

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1. In your opinion, what percentage of National Hockey League performance is mental?

\_\_\_\_\_ %

**Commitment:** To excel at anything one must have, or develop a high level of commitment, passion, joy or love for what one is engaged in. Commitment provides the intensity and dedication to go after your desired goals.

2. How important is commitment for a professional hockey player?

Not Important Extremely Important

1 2 3 4 5 6 7 8 9 10

3. How would you rate your commitment to hockey?

Low Commitment Extremely Committed

1 2 3 4 5 6 7 8 9 10

**Belief:** High levels of personal excellence are guided by belief in one's potential, belief in the significance or meaningfulness of one's goal, and belief in one's capacity to reach that goal.

4. How important is belief for a professional hockey player?

Not Important										Extremely Important
1	2	3	4	5	6	7	8	9	10	

5. What is your level of belief in your overall potential as professional hockey player?

Low Belief										High Belief
1	2	3	4	5	6	7	8	9	10	

**Positive Imagery :** Positive imagery refers to the ability to use positive images or visualization to create positive feelings about one's capacity, to experience positive performance images and feel the flawless execution of skills.

6. How important are mental imagery skills for a professional hockey player?

Not Important										Extremely Important
1	2	3	4	5	6	7	8	9	10	

7. Overall, how would you rate the quality of your mental imagery skills?

Poor										Excellent
1	2	3	4	5	6	7	8	9	10	

8. How often do you use mental imagery or visualization in preparing to meet your goals in hockey?

almost never										All the time
1	2	3	4	5	6	7	8	9	10	



14. Over an entire season, what percentage of the practices do you consider that you are fully focused for?

\_\_\_\_\_ %

15. Overall, how would you rate your ability to focus for the entire game?

Poor Excellent

1 2 3 4 5 6 7 8 9 10

16. Over an entire season, what percentage of games do you consider that you are fully focused for?

\_\_\_\_\_ %

**Distraction Control** : Distraction control refers to one's ability to regain a positive perspective or effective focus when faced with distractions, negative input or setbacks.

17. How important is distraction control for a professional hockey player?

Not Important Extremely Important

1 2 3 4 5 6 7 8 9 10

18. How would you rate your ability to overcome distractions?

Poor Excellent

1 2 3 4 5 6 7 8 9 10

**Constructive Evaluation** : Constructive evaluation involves reflecting on each performance and drawing out lessons for improvement. One should evaluate the overall performance, critical components of the performance, as well as the role one's mental state played in the performance.

19. How important is constructive evaluation for a professional hockey player?

Not Important Extremely Important

1 2 3 4 5 6 7 8 9 10

20. How would you rate your ability to constructively evaluate your performances?

Poor Excellent

1 2 3 4 5 6 7 8 9 10

21. Over an entire season, in what percentage of games do you do a complete constructive evaluation of your performance?

\_\_\_\_\_ %

**Fun and Enjoyment** : Fun and enjoyment refers to coming to the rink and really wanting to be there because of the pleasure it brings you.

22. How important is it for a professional hockey player to have fun and enjoy their sport?

Not Important Extremely Important

1 2 3 4 5 6 7 8 9 10

23. How much fun and enjoyment do you get out of hockey?

Very Little Huge Amounts

1 2 3 4 5 6 7 8 9 10



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### **APPENDIX 3: INFORMED CONSENT FORM**

Dear : Professional Hockey Player;

Whenever a research project that involves human subjects is undertaken at the University of Ottawa, the Ethics Committee of the University requires written consent from the participants. This is to ensure that the project is adequately explained and that all potential risks are mentioned before the subject agrees to participate.

This research project is being conducted by Stuart Barbour, a graduate student in the Human Kinetics Department of the University of Ottawa. The project is supervised by Dr. Terry Orlick from the faculty. The project investigates the mental skills used by professional hockey players that enable them to reach their optimal level of performance.

The subject will be asked to participate in an interview that will take approximately one hour. The subjects are free to refuse to answer any questions which they consider inappropriate. The interview will be arranged at a time that is convenient for the subject. The interview will be tape recorded and later transcribed. The individual results will be strictly confidential and the subjects' names will not be used in the presentation of the results.

Following the completion of the interview the subject will receive a copy of his interview transcript in order to validate the content. Upon completion of the study the audiotape from the interview will be destroyed.

Further information concerning this research project can be attained by contacting Stuart Barbour at 224-6777 in the evening. Dr. Terry Orlick may also be reached at his office 564-9114.

ÉCOLE DES SCIENCES DE L'ACTIVITÉ PHYSIQUE  
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For any further information about the ethics of the research please contact the Chair of the Human Research Ethics Committee, Dr. Marie des Anges Loyer. She may be reached at 787-6550, her office is at 451 Smyth Road, Ottawa, Ontario, K1H 8M5.

=====  
I, \_\_\_\_\_, willingly agree to participate in this study. I understand that it is possible to end my involvement at any time.

I understand that my results will remain strictly confidential and that I will not be identified in the presentation of the results of this study.

\_\_\_\_\_  
NAME OF PARTICIPANT

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
NAME OF RESEARCHER

\_\_\_\_\_  
SIGNATURE

## Appendix 4

### Orlick's (1992) Elements of Excellence:

#### Summary Page

##### **Commitment**

The first element of excellence centers on ones commitment:

- > to excel
- > to be the best one can be
- > to do everything required to excel
- > to develop the mental links to excellence

##### **Belief**

The second element of excellence centers on one's belief

- > in one's own potential
- > in the meaningfulness of the pursuit
- > in one's capacity to achieve his or her goal
- > in those with whom he or she works or plays

The steps to belief normally include

- > someone believing in you
- > thinking you can
- > acting as if you can
- > believing you can
- > knowing you can

##### **Full Focus**

The third element of excellence centers on full focus

- > on the task at hand
- > in the moment
- > in the zone
- > on the performance
- > totally connected to learning, experiencing, or performing
- > fully focused for duration of the action, interaction, or performance
- > on autopilot

##### **Positive Images**

The fourth element of excellence centers on using positive images to

- > prepare oneself to follow a desired path of action
- > prepare oneself to pursue specific targets or daily goals
- > feel the flawless execution of performance skills
- > create positive feelings about oneself and one's capacity
- > remain positive
- > enhance confidence
- > perform to capacity

##### **Mental Readiness**

The fifth element of excellence centers on one's mental readiness to

- > take advantage of learning opportunities
- > create learning opportunities
- > develop essential mental, physical and technical skills requires for one's discipline
- > follow the path that one presumably feels is best for oneself and one's performance
- > practice or prepare with focus and intensity (usually by following an effective prepractice/mental preparation plan)
- > perform at capacity (usually by following an effective preperformance procedure to enter one's best mental "zone" for quality performance)
- > relax oneself and one's focus when away from the performance zone

##### **Distraction Control**

The sixth element of excellence centers on distraction control to

- > maintain an effective focus in the face of distractions
- > stay on ones own best path for personal excellence
- > regain an effective focus when distracted, before, during, or after a performance, event, or experience
- > quickly reenter "the zone" of high performance
- > perform consistently at a high level

##### **Constructive Evaluation**

The seventh element of excellence centers on constructive evaluation

- This includes developing an effective, ongoing system for personal evaluation to
- > reflect upon what went well
  - > reflect upon what would benefit from refinement
  - > draw out important lessons from each experience or performance
  - > assess the role of one's mental perspective and mental skills in relation to one's performance
  - > target areas for improvement
  - > act upon the lessons learned