

Mental Skills of National Hockey League Players

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Abstract

The purpose of this study was to explore the mental skills used by professional ice hockey players and determine the extent to which Orlick's "Wheel of Excellence" (1992, 1996) could be applied to these athletes. In-depth interviews were conducted with ten National Hockey League players who had collectively played over 4,500 NHL games, and scored 1,025 goals. The results indicated that Orlick's "Wheel of Excellence" elements (commitment, belief, full focus, positive images, mental readiness, distraction control and constructive evaluation) were common to all elite athletes interviewed. The element of fun and enjoyment was also found to be significant for NHL players. The preservation of rich quotes offer valuable insights and strategies for excelling. 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 recent research into the mental aspects of high level performers.

Introduction

This study examined the mental skills associated with professional ice hockey as reported by active National Hockey League (NHL) players. These players are elite hockey performers who participate in the world's top professional hockey league. The National Hockey League places unique demands on their athletes. NHL players compete in 84 regular season games plus between eight and ten pre-season games and up to 28 play-off games, all between mid-September and mid-June. The players have 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.

Literature Review

Applied studies related to the mental aspects of professional hockey are limited. Orlick, Hansen, Reed and O'Hara (1979) studied the psychological attributes of high caliber 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 as being necessary for a player to "make it in the pros". Four major factors related to elite hockey performance emerged from the interviews:

1. desire or determination
2. self-sacrifice or being a team player
3. coping well with pressure or maturity
4. coachability or dependability.

This study offered insight into what coaches and scouts were looking for in players to “make it in the NHL” 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 preparation of professional hockey players in the International Hockey League (one level below the NHL). He concluded that a unique feature of professional hockey players’ mental preparation “involves... developing a diffuse state of emotional readiness” (p. 359). However, specific insights on the internal mental readiness patterns were not presented.

Orlick (1992,1996) 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. Orlick's “Wheel of Excellence” was generated from an immense volume of qualitative research and practical experience working with elite athletes, as was the work of Loehr (1983), Harris and Harris (1984), and Weinberg (1988). The Orlick model however, represented the first move toward a holistic grounded 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 hockey players.

The comprehensive nature of Orlick's “Wheel of Excellence” became clear by examining the mental skills that other researchers have found among elite athletes and by recognizing that virtually all of the important skills identified by these researchers could fit into Orlick's model (see Figure 1). This confirmed the inclusive na-

ture of the “Wheel of Excellence” and indicated that it represented a coherent framework from which to examine the mental skills of elite hockey players.

An interesting and complimentary source of information about the psychological factors necessary for excelling in professional hockey came from top athletes' biographies. They provide an “insider's” perspective on excelling in professional hockey which supported many of the mental elements of success cited by Orlick (1992,1996). Ken Dryden (1983) spoke of the mental discipline or focus that is required to be a professional goalie, which included “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). Oliver (1991) outlined Mike Ricci's constructive evaluation process. “He goes over the game in his mind. 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).

McDonald and Simmons (1987) discussed the importance of belief. Early in his career in Toronto, Lanny McDonald was in a slump and experiencing self-doubt about making 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... then headed for the game. That was one of the turning points. 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 play-offs, the Edmonton Oilers had created “The Door”. Gretzky 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).

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 demonstrated the need for the current study.

Figure 1. Links Between Orlick's Model of Excellence (1992/1996) and Mental Skills Associated with Elite Athletes

| | Orlick (1992/1996) | | | | | | |
|-----------------------------------|------------------------|------------------|--|-------------------------|----------------------------|-----------------------------------|-------------------------|
| | Commitment | Belief | Full Focus | Positive Images | Mental Readiness | Distraction Control | Constructive Evaluation |
| Mahoney & Avner (1977) | | | | Mental Imagery | Self-Verbalizations | | |
| Orlick et. al. (1979) | Desire & Determination | | | | | Copes Well With Pressure | |
| Loehr (1982) | Self-Sacrifice | Self-Confident | Mentally Focused Alert Automatic | | Optimistic | In Control Low Anxiety | |
| Hemery (1986) | | | | Visualization & Imagery | Pre-Competition Planning | Concentration & Control | |
| Orlick & Partington (1988) | Commitment | Confidence | Competition Focus Plan | Imagery Training | Pre-Competition Focus Plan | Distraction Control | Constructive Evaluation |
| Weinberg (1988) | | Highly Confident | Automatic Focused & Concentration | | | In Control | |
| Harris & Harris (1989) | | | Concentration | Imagery | Self-Talk | Avoiding Obstacles | |
| Mahoney, Gabriel & Perkins (1989) | Motivation | Self-Confidence | Concentration | | Mental Preparation | Anxiety Control | |
| Botterill (1990) | | | Focus | Visualization | | Refocusing | |
| Halliwell (1990) | | Confidence | Focus Concentration | | Self-Talk | Refocusing | |
| Cohn (1991) | | Self-Confident | Narrow Focus of Attention Automatic | | | Immersed in Present In Control | |

Method

Statement of the Problem

The purpose of the study was to explore the mental skills used by NHL players. Two assessment measures were developed for the purposes of this study. “The NHL Player Interview Guide” served as a guide for questions concerning the mental aspects of practice and competition, and asked players to reflect on best and worst perform-

ances. Orlick and Partington's (1988) interview guide served as a model for the interview protocol.

The players also completed “The Mental Aspects of Professional Hockey Questionnaire” which was created to evaluate the relative importance of the components of Orlick's “Wheel of Excellence”. The survey asked for the following informa-

tion: number of years in NHL, number of teams played for, number of seasons in the minors, age, as well as self-ratings and ranking of the importance of Orlick's seven major elements of excellence. Each mental skill was presented with a short description or definition. The athlete was then asked to respond on 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 a pilot study, it was evident that "having fun" and "enjoying hockey" were important for professional hockey players. Therefore, this was added as an eighth item to the "Mental Aspects of Professional Hockey Questionnaire".

Procedure

NHL participants were contacted and asked if they would be willing to be interviewed about the mental aspects of professional hockey. 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 explained the purpose of the study, guaranteed their anonymity and asked permission to tape-record the interview. In all cases permission was granted.

It was easy to get the interviews underway since the players enjoyed talking about their experiences in hockey. Players who were interviewed in their homes appeared at ease earlier in the interview than players interviewed in more public places. The interview times ranged from one to 1

1/2 hours. At the end of the interview 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.

The interviews were transcribed verbatim. An independent reviewer checked each transcript against the original audiotape. Transcripts were then returned to the players. Each player was contacted by telephone and asked to ensure that the transcript accurately represented their accounts and opinions. All players confirmed the accuracy of their transcript.

Questionnaires

All of the players interviewed also completed "The Mental Aspects of Professional Hockey Questionnaire". This was done at the end of their interview to ensure that the mental skills identified in the survey did not influence the interviewee during his interview.

Participants

Interview Sample

Interviews were conducted with ten 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 participants had been first round draft picks, three had represented Canada at the World Championships and one had played in the 1992 Olympics. Collectively they had played 4,619 NHL games, scored 1,025 goals and received 1,511 assists.

Questionnaire sample

Twenty seven active National Hockey League players completed the "Mental Aspects of Professional Hockey

Questionnaire”. 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. Seven of the 27 players had been selected for the Canada Cup team, which is considered to include the best players in the NHL. Due to the higher level of status and accomplishment of these seven Canada Cup players, we separated them for analysis and compared their questionnaire responses to the remainder of the NHL sample.

Data Analysis

Qualitative analysis

The qualitative data analysis was carried out in two major steps, first to determine whether Orlick's (1992,1996) “Wheel of Excellence” could be applied to professional hockey players, and second to see if NHL players identified any mental skills which were not included in the Orlick's model.

A single page summary of Orlick's components of excellence was created. Each transcript was then read 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 clearly fell within major components of Orlick's model. Any part of the transcript which did not fall within one of the major components of excellence was saved for later analysis.

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. There was 100% agreement on

which mental skills were evident in each transcript. The researchers then compared the category labels which they had attached to specific text passages. Inter-rater reliability was 90%. Wherever a discrepancy existed it was usually a passage which included more than one mental skill and its label was easily cleared up with a short discussion.

An inductive content analysis was conducted on the remaining parts of the transcripts which did not clearly fall within the seven elements of excellence. This analysis followed the guidelines outlined by Coté, Salmela, Baria and Russell (1993). The only additional category which emerged from this analysis was fun and enjoyment.

Results and Discussion

Questionnaire Study

Opinions on the importance of mental skills

All participants were asked to rate the importance of the following mental skills for playing professional hockey (see Table 1). The results are presented for the NHL players selected for the Canada Cup, the remainder of the NHL players and all players combined.

Self-ratings of mental skills abilities

The players were then asked to assess their own ability to apply the following mental skills (see Table 2 below). Orlick (1992) maintained that “To excel at anything one must have, or develop a high level of commitment...” NHL players who excel at hockey clearly have a very high level of commitment. The ability to fully focus during practice was the mental skill which the NHL players appeared to have the most difficulty achieving. This may be

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

| Mental Skills Rank Ordered | Canada Cup Players M | NHL Players M | Combined M |
|-----------------------------------|-----------------------------|----------------------|-------------------|
| Commitment | 9.71 | 9.52 | 9.56 |
| Full Focus | 9.57 | 9.35 | 9.46 |
| Belief | 9.42 | 9.35 | 9.35 |
| Fun and Enjoyment | 9.71 | 9.21 | 9.35 |
| Mental Readiness | 9.71 | 9.10 | 9.27 |
| Distraction Control | 9.42 | 9.05 | 9.19 |
| Constructive Evaluation | 8.42 | 8.67 | 8.60 |
| Positive Imagery | 7.85 | 8.30 | 8.27 |

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

Table 2. NHL Players' Personal Assessments of their own Mental Skills

| Mental Skills Rank Ordered | Canada Cup Players M | NHL Players M | Combined M |
|-----------------------------------|-----------------------------|----------------------|-------------------|
| Commitment to hockey | 9.42 | 9.15 | 9.27 |
| Belief in potential | 9.14 | 8.85 | 8.89 |
| Fun and enjoyment | 9.57 | 8.57 | 8.85 |
| Mental readiness for games | 9.42 | 8.42 | 8.79 |
| Full focus for entire games | 9.28 | 8.00 | 8.39 |
| Constructive evaluation | 8.42 | 8.20 | 8.35 |
| Distraction control | 8.42 | 7.85 | 8.08 |
| Mental readiness for practice | 8.00 | 7.47 | 7.71 |
| Quality of mental imagery | 7.42 | 7.60 | 7.54 |
| Full focus during practice | 7.14 | 6.95 | 7.08 |

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

Table 3. NHL Players' Season Long Assessments of Mental Skills

| Mental Skills Rank Ordered | Canada Cup Players M | NHL Players M | Combined M |
|-----------------------------------|-----------------------------|----------------------|-------------------|
| Games fully focused | 91.85% | 85.11% | 86.96% |
| Games constructively evaluated | 82.25% | 70.83% | 74.77% |
| Practices fully focused | 67.57% | 73.61% | 70.36% |

explained in part due to the relatively high number of games and 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 fully for high intensity practice everyday could prove to be a difficult or exhausting challenge, especially for those who play most during games.

The 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 3).

When reviewing the players' ratings of the various mental skills, although the sample was small, it is clear that the Canada Cup players had higher ratings on most

mental components than the “regular” NHL players. It is also clear that based on their self-ratings, most players had room for improvement. The weaker mental skills appeared to be related to the use of imagery, constructive evaluation and full focus for practice. The imagery question is an interesting one, as most great individual sport athletes use positive imagery in very refined and extensive ways. This is also the case for NHL goalies. Perhaps the overall lower rating with the NHL players and Canada Cup players is that it has not been a part of the tradition in team sports, it is not as relevant for their role in the game or the best players judge themselves more stringently on self-ratings than their peers.

The ratings of constructive evaluation indicate that few players do thorough constructive evaluation of every game. This may be partially due to the extensive number of games. However, great professional golfers also have extensive schedules and do evaluate every round, every tournament. Improvement in this area may be of practical value for these team sport athletes.

The slightly lower ratings on full focus for practice for Canada Cup players may be directly related to the extensive ice time in games and fatigue as the season unfolds. Having worked with an NHL team for several years (second author), it is clear that the best players are very focused and carry high intensity to most practices. However, after a number of games in a row, extensive ice-time, and travel, they are hurting more and have less to give in practice. It then becomes a question of whether it is more important to practice well or play well that night or the next day. Usually at that point, rest will be more beneficial for those players’ game performance, than will be practice. It may also prevent over-training or injury. When faced with very demanding

schedules such as those in the NHL, often the best way to facilitate high quality practice is to allow more high quality rest, at least for those who are playing most.

Interview Study

The deductive qualitative analysis of the interview transcripts revealed that nine of the ten players clearly referred to using all seven of Orlick's (1992,1996) elements of excellence, while one did not report using positive imagery.

The inductive content analysis on the remaining text revealed the existence of a “new” component of excellence: fun and enjoyment. All ten players 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 their lives. The players were committed to excel and were driven by the desire to be the best that they could be.

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%.

...hockey was always my number one priority and the most important thing, everything else was second to hockey and it has remained that way. ...As long as I can remember it has been my dream to play in the NHL.

These athletes set a high level goal or target to aim for in hockey. All 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 thirteen and sixteen, and

for one it did not occur until his third year of university hockey. While many boys may dream of playing pro hockey the NHL players interviewed were highly committed to act on this goal and prepared to make the necessary sacrifices during their teenage years. These sacrifices included limiting their social activities, training year-round and even dropping out of school.

...[to make it to the NHL] you have to make a lot of sacrifices along the way and growing up which is tough. I had to look down the road and say it's a good possibility it's going to pay off. What was important was 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. 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.

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 requires an ability to set specific 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 a NHL team. The importance of goal-setting indicates that it is a major component of the commitment to excellence.

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 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.

Belief

All of the players interviewed projected a strong belief in their potential as a NHL player. This confers with Weinberg's (1988), Loehr's (1983) and Cohn's (1991) observations about successful athletes' belief. 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.

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.

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. 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.

Eight of the ten players indicated that their parents' belief in their ability played a significant role in their hockey career. Orlick, Hansen, Reed and O'Hara (1979) and Hemery (1986) also reported that parental support was important to an elite athlete's development.

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.

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.

...you start to believe in yourself and your confidence builds when [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 players shared was playing on a team with older players. This experience often confirmed their belief in their hockey potential at a young age.

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 to excel during practice sessions, and by using positive self-talk strategies, or through reas-

suring 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 is an important mental skill in a professional sport setting.

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.

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 players felt that the difference between best performances and poor performances were related to their mental state or focus within the game. However, many players found it difficult to achieve that best mental state on a regular basis.

[Describing a best 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 know I could be a great player if I could do this more often. Why don't I do this every game?

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

[Play-off hockey] is a little more final... all you do is focus on 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 to ...the next game. Everything else in your life is tuned right out. The next game is the most important thing. Come play-off 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, just shuts down for however long you're in the play-offs.

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 players had developed effective strategies to maintain a present focus. One technique which was shared by a few of the players involved breaking the game down into a number of manageable segments. Other players broke their game down into simple tasks, which freed them to perform without thinking about too many performance-related details.

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.

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 I'm doing my job. 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.

Some players were faced with the additional challenge of maintaining full focus while seeing limited ice-time during a game. Botterill (1990) and Halliwell (1990) found their consulting work to be especially effective with players on the roster waiting for a chance to play more regularly. A rookie NHL player offered this insight which explained the strategies he used to maintain focus while receiving limited playing time during games.

...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.

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 imagery. Most professional hockey players used positive imagery as a mental prepara-

tion tool. It was an integral part of the pre-game routine.

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.

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 where they have a Gretzky or Lemieux, I'll start thinking about things that I can do to help the team in stopping them. ...'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.

At the rink I'll get in my long underwear,... and sit there for a good 20 minutes and just think about good things. ...I try to dwell on just good plays in general. A lot of times I picture my feet being quick underneath me, because I have quick feet then the rest of my game will just come. If I'm skating well I can hit, and shoot, I feel like I'm in the game then.

One player discussed using imagery during the action in games as a means of preparing to act on desired performance decisions. Some players were able to pre-experience performance outcomes within a dynamic environment.

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 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.

Mental Readiness

Many of the NHL players felt it was important to carry a positive mental perspective into all situations. They 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 players felt it was important to develop and maintain a positive perspective in spite of these factors. Players attempted to do this by using positive self-talk and positive mental images, as well as looking for the positive in all situations.

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 to benefit me. ...In Toronto I sat for 35 games straight with really no explanation. But in those 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 preparation for games and practices was the mental skill most discussed by hockey players. The players shared many details about their game day and practice day routines.

Most elite hockey players followed a very consistent, individualized procedure to ready themselves for games. The regimental nature of professional hockey ensured that certain parts of the game day routine was similar for all players (e.g., morning skate,

equipment check, pre-game team meeting, pre-game meal, an afternoon nap, on-ice warm-up). The internal nature of the NHL players' mental readying procedures were similar to those used by the best Olympic athletes. Orlick and Partington (1988) reported that Olympians used pre-competition plans which "included mental imagery, warming up well physically, positive thoughts, and reminders on what had previously worked well" (p. 115).

I think about the game all day. What my role will be and what I'm going to do. ...this is my tenth year in the league and I have a pretty good idea about 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.

There was also a delicate balance between knowing enough about who you are playing against and thinking too much about them. One well-established player offered insight about the problems associated with over-preparation.

[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 sometimes you get so worried about what they're going to do that you don't prepare yourself for what you're going to do. ...If I'm too worried about what everybody else is going to do I don't think enough 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 be

prepared for what I am going to do and for them to worry about what I'm going to do.

One of the difficulties many 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 challenge of mental preparation in the NHL.

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. Or the schedule may be driving you crazy and so you may think, I just don't feel like being here. But most of the time I'm ready. I try to be every night.

Orlick (1992), Loehr (1983), Weinberg (1988) and Cohn (1991) each reported that the ideal performance state required one to be physically ready and mentally relaxed. A top NHLer described the special state he attempted to reach as follows:

I just try to relax between shifts, just sit and relax and catch my breath. I 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. You're somewhat tense and intense, but at the same time you are comfortable. Comfortable may be a better word than relaxed. 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 Junior hockey and the NHL. There is a shift away from team preparation strategies to a responsibility for individual mental preparation. This adjustment might explain why some rookies have problems adjusting to the NHL.

As a junior and on the World Junior team, everything was done as a team, you're always together as a team, you eat as a team, you prepare as a team. But in NHL, getting ready for a game is basically done on an individual basis. You have to learn to get yourself prepared.

Mental readiness for practice

While NHL teams may play over 100 games in a season, practices are still very important for team and personal development. A veteran of the NHL explained the importance of practices in simple terms.

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.

Hockey's elite has developed a range of strategies to mentally prepare themselves for practice. Some players carry a high intensity focus to practice because they commit themselves to work hard and “get something out” of each practice. Some teams have also shortened practice sessions to improve the quality and effort that players bring into practice.

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. I try to do the same thing every day, every

game, every practice. ...I work hard every day and it's just become a routine.

The [coaches] shortened up practice last year, they think if we can go hard for 45 minutes to an hour, depending on the situation of games that week. That's a key because if we know we are going to go shorter we go out harder and that prepares you for the game. Preparing for practice mentally prepares you for the game.

Orlick (1992) reported that in order to excel one must “take advantage of learning opportunities, practice and play with focus and intensity” (p. 116). 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.

If I've been in a real slump. ...I may 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.

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 have 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 a NHL season. These distractions occurred both on and off the ice. It was evident from the interviews that the types of the distractions faced by NHL players were similar to those faced by other elite athletes. However, the high-profile nature of professional hockey meant that the off-ice distractions could be rather severe.

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 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 on the ice then usually 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 freedom from distractions as follows:

[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.

Elite hockey players had developed a number of strategies to deal with distractions and re-enter the zone of quality performance. Some of the off-ice distractions re-

quired sheer mental toughness to work through while some on-ice distractions were dealt with by carrying a healthy perspective about mistakes. If a player had developed the ability to turn mistakes into opportunities then he freed himself to perform well more consistently.

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, you just have 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.

...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.

I remember the third series started in Chicago, and starting in that rink can be 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.

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. If you run out of this kind of tape just give me the next kind, I don't care. That's where being laid back will come in and help.

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 players post-game routines involved some form of reflection or evaluation on their performance, even though it was not always a thorough 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 NHL players where "players were asked to periodically reassess their progress on key skills/responses and complete a segment goal setting form every five games" (p. 363).

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

Once these NHL players had targeted areas for improvement most would work on those skills during practice or spend extra time on the ice fine tuning that part of his game. Overall the NHL players' constructive evaluation procedures were well refined.

[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. ...Any good plays I try and use it for positive energy to get better, and for confidence.

I evaluate myself over a period of time to see how things are going. I try not to worry about any individual 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.

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. They were able to draw inspiration and confidence from their reflections.

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 videotape 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 videotaped televised games in order to evaluate his performances, while another checked videotapes between periods of a game.

I try to tape the game, that really helps. I can remember what my decision was and then watch it from a different angle and examine my decisions. I either watch the game on video... or think in my mind something that I did wrong or could have done better. If I missed 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.

If there is a goal scored against me... I'll go into the coach's office between periods and watch the tape and check on my positioning and make a correction for the next time.

Fun and Enjoyment

Fun and enjoyment was found to play a critical role in a professional hockey player's career both at the developmental and elite level. All players shared experiences related to the importance fun in the game of hockey, even though the “NHL

Player Interview Guide” did not include the words fun or enjoyment.

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 (see Figure 2): 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 reported having a 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.

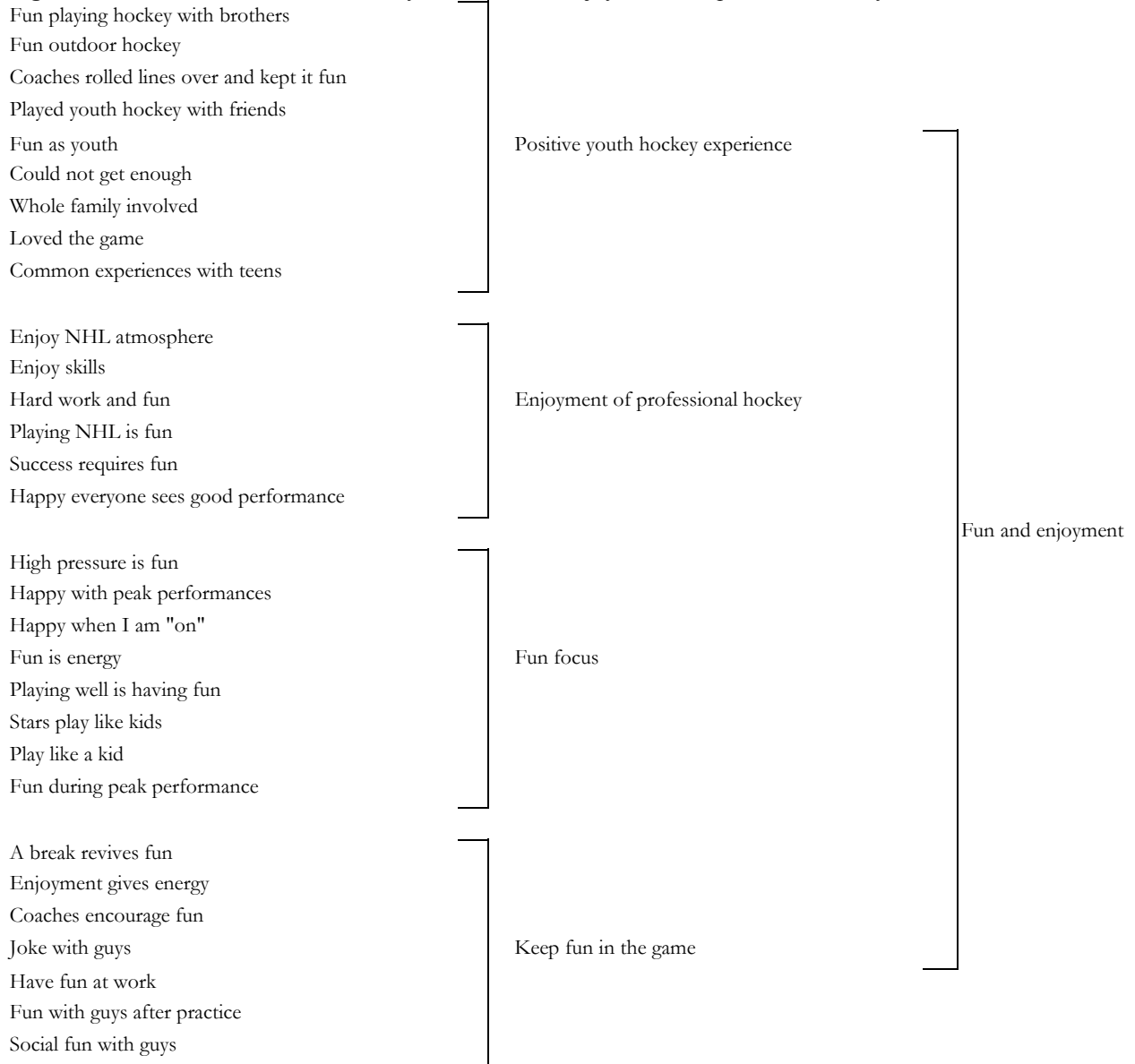
These elite players still enjoyed the NHL game. Despite the demands of playing professional sport, they often stated there was nothing else they would rather be doing. Many thrived on the excitement of the professional sport setting, enjoyed high pressure games and all still enjoyed the simple skills of the game. They explained that while they worked hard, and in some cases earned very high salaries, they still enjoyed playing the game and had a “lot of fun” with it. They felt that when they had fun on the ice and kept a fun focus at the rink they played and practiced better. Best performances were linked to having fun.

One veteran player explained that, “the management often treats you like cattle in this league.” The best players seemed to embrace the game itself as an escape from those 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 usu-

ally in the absence of the coach, or socialize

Figure 2. Inductive Content Analysis of Fun and Enjoyment Component in Hockey



with teammates away from the rink in order to keep the fun in their game and/or in their lives. This fun focus seems to be an important part of regeneration and keeping some joyfulness in their pursuit.

Quotes related to the importance of fun are presented:

For me hockey has always been fun and something that I like doing. I just go to the rink and I play the game of hockey just like I did when I was a kid.... 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 great game. Play-off 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.

I get adrenaline from hockey when I'm having fun, like I did playing shinny on the outdoor rink. ...Enjoying the game gives me energy. It's less like work and more like play, and anytime I get that, I get the adrenaline going. 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 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.

...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 the fact that you have to go out 80 games and play well, perform and produce. I enjoy that aspect of it. ...But I enjoy playing the game. A lot of the outside things can irritate me, but for the most part the game itself is a lot of 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.

When asked what advice they would give an aspiring minor hockey player from their hometown, two players responded

with: 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.

...the biggest thing I learned this year is that even though hockey is 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.

Reflections

This study has shown that elite NHL hockey players share a number of key mental skills: commitment, belief, full focus, positive images, mental readiness, distraction control, constructive evaluation, as well as an ability to embrace fun and enjoyment.

Commitment was the most highly rated component of excellence. All of the players interviewed demonstrated a high degree of commitment to excellence in hockey. Commitment appeared to be enhanced when they had clearly established goals, suggesting a strong link between commitment and relevant goal setting. This study supports the proposition that a huge part of excellence is developing, maintaining and nurturing commitment. Fun and enjoyment were an important medium for enhancing players' commitment and longevity in professional hockey.

Figure 3 provides a conceptual model of the mental skills required for success in the NHL. Commitment to relevant goals and belief in one's potential are considered as core elements of excellence due to the consistently high ratings they received

by NHL players on the surveys and during their interviews. The NHL players also confirmed the importance of full focus, positive images, mental readiness, distraction control and constructive evaluation. New light was shed on the importance of “fun and enjoyment” for excelling in professional hockey.

We are only beginning to understand some of the intricacies of excellence within

team settings. Collectively we still have a tremendous amount to learn from the wisdom and experiences of performers who excel in their sport and life, especially in interactive and team pursuits.

Figure 3. Mental Skills of NHL Players



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