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Development of Expert Coaches of Figure Skating

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of the University of Ottawa
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ABSTRACT

In depth open-ended interviews were conducted with eight World and/or Olympic figure skating coaches across the three disciplines of singles, pairs and ice dancing. The purpose of the interviews was to investigate the development of expertise in figure skating coaches. It was intended on one hand to reveal their knowledge and procedures within the developmental stages of their careers, and secondly to investigate the role of coaching education and other methods by which they acquired their knowledge. The coaches had on average 23.5 years of experience. The results of the present study identified the following stages: early involvement in sport, transitions into coaching, early coaching career, mature coaching career, expert coaching and future retirement. As athletes, with master coaches and parental support, they were able to achieve high levels of success and learned valuable athletic experiences. All coaches had been fourth or better at national championships, more than half had competed internationally, and half had been world championship and/or Olympic competitors. Their transition into coaching had been made for several reasons. They experienced early successes despite difficulties adjusting to their new role in the early coaching career phase. Emulation of own coaches was evidenced during this phase and mentoring was a common method used to acquire knowledge. During the mature phase of their coaching, coaches had consistent success with athletes at the national level. They had acquired their knowledge through various sources mainly by experimenting, trial and error, watching other coaches, from other sources outside figure skating, as well as the National Coaching Certification Program (NCCP) courses. During this phase, coaches had developed a schemata of procedures for coaching taking into account the training environment, competition and contextual factors. These procedures closely resemble the ones found by Côté et al., (1995) Coaching

Model. During the expert phase, they coached World and/or Olympic athletes. They were able to carry out their coaching tasks with automaticity and without deliberate planning. Expert coaches were very resourceful, working with numerous experts and distinguished themselves by their ability to conceptualize the complete skater. Their personal character traits were founded on personal philosophies of commitment, responsibility, flexibility, and growth. Their roles were extended beyond coaching to roles of teacher, educator, and administrator. They shared a special relationship with their athletes valuing the athlete and their relationship beyond winning. Knowledge was acquired through experience, experimentation, learning from others and structured learning experiences such as seminars. The NCCP courses played a lesser role at this stage of development. Experts suggested that the courses were more useful at earlier stages of coaching, and that the knowledge imparted was obsolete for their level of coaching, they needed to use unconventional methods to be on the leading edge. Coaches shared their thoughts on future retirement, as well as the future of skating and coaching. These results have important implications in the development of future coaches, and their needs in regards to the NCCP.

CHAPTER 1

INTRODUCTION

Formal education has long been studied in order to determine the most effective curriculum and pedagogical tools to develop young children and adults. Outside the structured educational system the majority of children participate in other learning activities such as the arts, recreational and competitive sports. Their involvement in these activities implies a relationship with a teacher or coach. Coaches share similarities with school teachers in their roles to transmit knowledge to their pupils. In return this knowledge is molded and applied in different situations by the pupils. One distinctive feature of coaching is that children usually choose to participate in activities that they enjoy (Salmela, 1992). This may imply that the coach has a privileged role of teaching a pupil who may be more inclined or ready to learn. The coach has the opportunity not only to teach biomechanical principles but may also have a strong psychological influence in building confidence, commitment, and values so that eventually these athletes become more self-directed in their learning process as well as in their lives in general (Dodds, 1994; LeUnes & Nations, 1989; The Coach at Work, 1986).

Research Problem

The importance of good teachers and coaches in developing skilled performers has been outlined by Bloom (1985). More particularly, the subject of coaching expertise has generated a lot of interest in recent years as a natural spin-off of studying expert athletic performers (French & Housner, 1994). In fact, the increased interest in coaching may be the result of an increased interest in sport in general. Commercialization of sports has been evidenced in recent years by its visibility in the media as well as its promotion in the entertainment business which has translated into dramatic increases in salaries for many elite athletes

(Laframboise & Dunfield, 1995). This, in turn, provides a strong incentive to develop elite athletes. People have become more aware of the opportunities and good coaching is an essential component from the onset of the athlete's career.

In recent years, National Sports Organizations (NSO's) and the Coaching Association of Canada (CAC) have invested a lot of time and effort to promote the coaching profession by establishing coaching standards and quality control of services. This was accomplished by developing coaching education through its National Coaching Certification Program (NCCP) initiatives, and in particular the level 4/5 for national and international coaches.

So far the knowledge emanating from expert figure skating coaches has not been integrated into the formal education procedures within skating. The knowledge usually found in books and in the NCCP courses is not found by coaches to be as effective as other methods such as seminars and personal coaching experiences or learning from other coaches (Gould, Giannini, Krane & Hodge, 1990; Gould, Hodge, Peterson and Petlichkoff, 1987). The material found in books and courses is often obsolete and more novel procedures are needed by coaches. The discrepancy that exists between theory and practice suggests that our best source of information for effective coaching are the expert coaches themselves (Gould, Giannini, Krane & Hodge, 1990; Salmela, Draper & Laplante, 1993). Their expert knowledge needs to be tapped and communicated to other prospective coaches (Peterson & Comeaux, 1987).

Purpose of the Study

The purpose of this study is thus to investigate the development of coaching expertise. It is intended on one hand to reveal their state of knowledge and procedures within the developmental stages in their career and, second to investigate the role of the NCCP and other methods of acquiring their knowledge .

The results that will emanate from this study can serve to define a set of sport specific concepts and principles in order to explain expert coaching development and the context in which they operate. Similar research has already been developed for team coaches in the Canadian context (Salmela, 1992; 1993, 1994a, 1994b, 1996; Salmela, Draper & Laplante, 1993). The NSO's can benefit from the study of expert coaches, because this process can uncover a composite picture of the expert coach and provide a model or template from which they can identify and develop potential coaches. This study has practical implications for the development of expert coaches by tapping the knowledge of experts that can be integrated in the design of NCCP curriculum so that beginner coaches can develop the schemata of methods used by the expert coaches (Peterson & Comeaux, 1987).

The unique contribution of this study aside from the fact that it is done in the closed, individual and artistic sport of figure skating, is that these figure skating coaches are not only successful at developing elite performers in Canada but are also distinguished as some of the best skating coaches in the world. Much of the research done with expert coaches has been done with national coaches, but their position at the World and Olympic levels have not yet been established (Salmela, 1992; 1993; 1994a; 1994b; 1996; Salmela, Draper & Laplante, 1993; Schinke, 1995). Because figure skating was deemed into existence in the seventeenth century, its long history has made it evolve into a very sophisticated as well as a biomechanically and artistically complex sport in comparison to other sports that are in their infancy (Skating..an inside look, 1990). Therefore, these coaches must possess a wealth of knowledge and skills, be sophisticated and accurate in their teaching in order to consistently produce exceptional athletes and to be on the leading edge.

The Expertise Approach

Originally artificial intelligence (AI) started as the study of machine intelligence through the design and construction of intelligent machines. A major component of AI is expert systems or knowledge engineering, whereby intelligent computer programs are constructed to emulate human experts in their ability to solve problems (Elio & Scharf, 1990; Wilkins, 1980). They borrow techniques of traditional AI in their symbolic representation of knowledge and in their heuristic processing. AI began as a distinct field from computer science with a shift from algorithms to heuristics which are basic to any intelligent process.

Most important and relevant to this study is the methodology used to construct such programs. Expert systems has been developed by tapping the domain-specific knowledge and production rules of experts using introspective methods (Dehn & Schank, 1982). Experts systems are built by codifying knowledge about a task. The basic method of constructing an expert system is to sit down with a human expert and extract the knowledge that the expert has of a particular field, to codify that knowledge by building production rules to represent various pieces of knowledge these experts possess in their domain of expertise, put it into a computer system capable of applying that knowledge, and hence emulate human expertise (Anderson, 1990).

What began as a spin-off of AI has progressed into an effective methodology for studying human intelligence (Sternberg, 1982). AI research in its attempts to simulate human intelligence has revealed how human cognitive mechanisms operate.

AI is now beginning to converge with research in cognitive psychology and cognitive science. In developing expert systems, it has given scientists reasons to study experts, or human expertise, in an attempt to understand the content or

abundance of knowledge that these individuals possess as well as how they effectively structure or organize their knowledge and use heuristic strategies in order to minimize the burden on memory (Anderson, 1990). The thought processes involved in producing such skilled performances have been investigated in an attempt to understand the strategies these individuals use in the application of their knowledge (Anderson, 1990).

The purpose of this study is not to construct an expert system but to interview experts in a similar manner. Although interviews were used in the present study, there has been several other methods previously used to study experts, such as the novice-expert paradigm, longitudinal studies, cross-sectional studies, and combinations of the above. One of the first methods ever used is the novice-expert paradigm where novices and experts are compared on domain specific tasks which are limited to delineating the major differences between novices' and experts' skilled performance (Peterson & Comeaux, 1987). Sometimes experts are also studied longitudinally from their introduction to the discipline to the development of expertise. This method is more time consuming and costly and there is also no guarantee that skilled performance will develop. More realistically, research samples would include people with different levels of skill where they could be compared to see how experience makes people more skilled (Anderson, 1990).

Structured interviewing and stimulated recall may be used to generate domain specific constructs and responses to a variety of situations which are central components of expert performance. Orlick and Partington (1986), for example, conducted in-depth interviews with successful Canadian Olympians. These athletes used introspective recall to tap into their inner performance scripts, which enabled them to become skilled performers. Similar techniques of

introspection have been used with coaches to uncover the psychological strategies used in their work (Kimiecick & Gould, 1987; Salmela, 1992; 1993, 1994a; 1994b, 1996; Salmela, Draper & Laplante, 1993; Schinke, 1995; Walton, 1992).

Although interviews can provide an interesting source of experiential knowledge about how successful athletes and coaches operate and apply their knowledge in different situations, caution is in order when generalizing these findings. They must be anchored by stringent procedures put in place to analyze this rich qualitative data. Some studies such as Walton (1992) did not clearly outline the methodology used, unlike the present study which clearly shows a high standard of methodological rigor.

The expert coaches in this study will be studied retrospectively through in-depth interviewing techniques so that the development of their expertise can be uncovered, first by studying their initiation to the sport and evolution to their present state as experts. Interview techniques as a methodology, reflect the complexity of an ill-defined task such as coaching or teaching by capturing more than just the process-product variables (Peterson & Comeaux, 1987), and is regarded as the preferred methodology to study experts (Patton, 1990).

Concluding Remarks

The conceptual framework and methodological considerations used to attain the objectives of this study are clearly defined in the review of literature in Chapter Two. An overview is provided of major findings and methods used in the study of expertise in different domains. In Chapter Three the methodology and procedures applied to analyze the data will be outlined. Lastly, the results identifying stages of development and methods of knowledge acquisition as well as its discussion are presented and illustrated with specific examples in Chapter Four and Five. This final chapter also includes recommendations.

CHAPTER 2

LITERATURE REVIEW

In order to address some of the issues regarding the development of expertise in coaching, we need to examine the roots of research in this field which are in cognitive psychology and the study of human intelligence. It is essential to first identify what is expertise and what are its underlying features. We will examine some of the research identifying novice-expert differences between athletes, coaches and in teaching. Secondly, the literature on the development of expertise will be examined, exposing proposed developmental stages of talented athletes, teachers and other individuals that have attained standards of excellence.

Cognitive Science Research

The study of experts has generated much interest in the past 20 years among cognitive psychologists who have used the information processing approach to study the processes in the development of intelligent behavior and performance (Dodds, 1994; Sternberg, 1982; Sternberg, 1984). Sternberg (1982) views individual differences in intelligence as an indicator of different levels of expertise in different types of problem-solving performances. Chi, Glaser and Rees (1982) stated that “the analysis of expertise in semantically rich knowledge domains is quite relevant to understanding the nature of intelligence”. Two areas related to intelligent behavior have been studied: memory and problem-solving. Enhanced memory was explained by changes in memory processes, in the use of strategies such as rehearsal, organization, elaboration, and allocation of study time, in the development of metamnemonic knowledge and of extensive knowledge bases. Problem-solving was explained as the retrieval processes from memory of the necessary knowledge to solve the problem, using problem representation, and solving strategies.

Memory development was also believed to involve metacognition which are executive processes postulated to control or activate non-executive cognitive processes. Metacognition involves the ability to understand memory processes which may be important in the application of strategies. People may use strategies in response to their knowledge concerning the capabilities of their potential success of the strategy to increase the performance of memory. Usually knowing about knowing enhances one's capabilities to become more of an expert in learning and teaching (Rissland, 1985). Such results were found with athletes during the learning of a five-step metastrategy to perform sport skills (Singer, 1988).

According to Chi, Glaser and Rees (1982), there is an increased emphasis on the structure of knowledge as a significant influence on intelligence and high level performance. According to Sternberg (1984), knowledge is the most determining factor in performance and may compensate for other factors such as age and capacity: "...differences in content knowledge can outweigh all other age-related differences; more knowledgeable younger children can recall more material in their area of expertise than less knowledgeable adults". Memory is also believed to be improved with knowledge of specific content domains and has consequences on the use of strategies: "Knowledge of content domains influences the ease with which mnemonic strategies can be acquired" (Sternberg, 1984). Knowledge also enhances memory recall because it facilitates the reconstruction of memory using implicit cues. Existing knowledge and new information are integrated, and the gaps in the reconstruction process are filled with prior knowledge. More knowledge also increases the chance of drawing appropriate inferences (Sternberg, 1984).

Knowledge is the underlying feature that distinguishes skilled performers (Anderson, 1990) and is the basis for explaining human intelligence (Sternberg,

1984). The domain-specific knowledge base is represented by three types of knowledge: declarative, procedural, and conceptual knowledge. Collectively they are referred to as antecedent knowledge and are interdependent. *Declarative knowledge* is static and represents the factual information. It is "knowing that" as opposed to the "knowing how" of procedural knowledge. The information is encoded in the form of schemes. This representational construct was developed in the field of artificial intelligence and is useful for organizing as well as reasoning about large and complex knowledge bases. *Procedural knowledge* is referred to as the "knowing how" as opposed to the "knowing that" of declarative knowledge. It is dynamic in nature and underlies skillful action. Unlike declarative knowledge, proceduralization is implicit and is not usually described verbally. Rules called productions underlie the response action. They have if-then conditions specific to the domain of knowledge. Procedural knowledge is organized around conditions and actions, is dependent upon current goals and the context of the environment, and is represented by scripts (Anderson, 1990). *Conceptual knowledge* is schematically represented prototypes that are referred to as a measure of correctness (Dodds, 1994). This type of knowledge structure changes over time as a result of incremental learning (Rutt-Leas & Chi, 1992).

Dodds (1994) proposes that the abundance of knowledge of experts is interconnected, organized and represented by an internal schemata which are stored in long-term memory, whereas the knowledge of novices is represented by a less sophisticated schemata.

Expertise Defined

It is important to define how to identify experts, and what are the characteristics of expert performance. An expert is a person who is a specialist or excels in their domain or occupation (Hoffman, 1992). One of the characteristics

of expert performance is the effortlessness, fluidity, and unconscious control referred to as automaticity with which the task is performed (Dodds, 1994). Glaser and Chi (1988) provided a summary of characteristics of experts that are consistent and generalized across different domains:

- 1) Experts excel mainly in their own domain.
- 2) Experts perceive meaningful and large patterns in their domain.
- 3) Experts' performance is faster than novices at performing skill in their domain and make fewer errors when they quickly solve problems.
- 4) Experts' short-term and long-term memory is superior.
- 5) Experts represent domain-specific problems based on deeper principles whereas novices represent problems at a superficial level.
- 6) Experts spend more time analyzing qualitative features of a problem.
- 7) Experts have a stronger ability to monitor their skilled performance.

O'Sullivan and Doutis (1994) proposed other characteristics in addition to the above:

- 8) Expertise develops from knowledge initially acquired by weak methods.
- 9) Expertise is based on automatic evocation of actions by conditions.
- 10) Expert problem solvers search forward from given information rather than backwards from goals.
- 11) One's extent of expertise increases with practice.
- 12) Learning requires specific goals and feedback.
- 13) Teaching expert rules usually results in the development of expertise.
- 14) Performance of experts can be predicted from knowledge of rules they claim to use.

Some researchers have used experience as a basis in identifying experts, but this approach has been shown to be erroneous since some individuals have practiced many years without increased performance beyond novice levels whereas some have shown high levels of skilled performance with less practice (Hoffman, 1992). Ericsson et al., (1993) has shown the importance of not simple practice, but the number of hours of deliberate practice in expert performance. Siedentop and Eldar (1989) further discuss how expertise and effectiveness are confounded. “Effectiveness and experience are necessary but not sufficient conditions for achieving it [expertise]”. In pedagogy, effectiveness is defined in terms of teacher performance and student outcomes. Other confounding variables are the ability to articulate about performance and the performance itself. Some experts may not be able to articulate about the nature of their performance. Technical virtuosity and knowledge of the context has been clearly outlined as an underlying feature of expertise (Anderson, 1990). Lack of such knowledge poses the largest barrier in expertise development.

Experts can be more easily and clearly identified in well structured domains by their performances in producing the correct response to a problem. In ill-structured domains such as pedagogy and coaching, the tasks are more complex and correct responses are not as clearly defined. Experts in structured domains in cognitive science illustrate the characteristics of experts as stated above by Glaser and Chi (1988).

Expertise Research in Cognitive Science

Early research on expertise was first conducted in cognitive science using the novice-expert paradigm where experts and novices are compared in order to identify the characteristics of expert performance. Initial studies were conducted with chess experts who displayed enhanced memory for more and larger of chess

board configurations by storing patterns or chunking (Chase & Simon, 1973; de Groot, 1965, 1966; Wilkins, 1980) and storing consequent moves (Newell & Simon, 1972) allowing the application of strategies (Chi, 1978). Similar chunking strategies were also found in the game Go and in bridge (Charness, 1979; Reitman, 1976). Similar hierarchical structure of high level goals, sub-goals were also found with experts in Star War problem solvers (Mean & Voss, 1985).

Studies done with experts in physics also showed the use of forward thinking inferences to solve problems (Larkin, 1981), speed in solving complex problems using pattern-indexed schemata (Larkin, McDermott, Simon & Simon, 1980), and in problem representation by mapping surface features onto deeper physics principles (Chi, Feltovich & Glaser, 1981; Larkin, 1985). Novices classified physics problems intuitively, based on similarities of the surface features (Chi, Feltovich & Glaser, 1981; Larkin, 1985).

Similar findings emanated from studies of children who were dinosaur experts, where they hierarchically classified dinosaurs using novel and relevant features. In comparison, novices used irrelevant features to make inferences about novel dinosaurs and use more general knowledge to make less accurate and often inappropriate inferences (Chi, Hutchinson & Robin, 1989)..

Sternberg (1982) clearly summarized the enhanced memory capabilities of experts for representing knowledge: “Experts tend to have very good memory organizations for representing the areas of their expertise and thus are very good at knowing where to direct their attention, a facility that in turn allows them to penetrate to the heart of the matter. Novices have crude memory organizations and are likely to be distracted by irrelevancies, thrashing around for a long time without much success. Novices become experts by having experiences that build memory adequately”.

Experts in mathematics showed superior linguistic knowledge, schema for problem types, strategies, speed and consistency in applying arithmetic and algebraic algorithms (Mayer & Larkin, 1984). On the other hand geometry experts demonstrated abstract planning behaviors focusing on key steps while less important ones were skipped, parsing geometry problem diagrams into perceptual chunks capturing relevant cues, while using forward inferences (Koedinger & Anderson, 1990).

In computer programming, experts organize knowledge hierarchically and efficiently by expanding the decision tree in breadth into a full layer before proceeding to expanding down to the next layer. Novices on the other hand expand by depth, the whole problem is solved down to its lowest levels first before moving across a layer (Jeffries, Turner, Polson & Atwood, 1981; McKeithen, Reitman, Rueter, & Hirtle, 1981).

Expert Performers in Sport and Dance

Experts performers in sport share many of the same characteristics than expert performers studied in cognitive science. Skill in sport has been regarded by many as the ability to produce a consistent motor pattern (Allard & Burnett, 1985; French & Housner, 1994; Ericsson, Krampe & Tesch-Roemer, 1993; Thomas, 1994), and the identification of expert athletes have often been based on their results: number of tournaments won, medals won, titles, rankings and membership into the Hall of Fame (Dodds, 1994). In addition, the performance of expert athletes has been qualified with such adjectives as effortless, fluid, and with an unconscious quality that is often referred to as automaticity (Dodds, 1994). The skills required are specific to the type of sport and can be categorized into open and closed skills. In closed skill sports such as gymnastics, diving and figure skating, the athlete is assessed on the basis of how closely they are able to produce

a motor pattern that has already been established in a routine performance with pre-established standards. Therefore, in closed sports, the movement techniques are synonymous with skilled performance or “how to do the skill” (Allard & Burnett, 1985; French & Housner, 1994; Thomas, 1994). In comparison, in open sports such as hockey, tennis, and basketball, movement techniques are not sufficient in themselves for skilled performance, the techniques are means to an end. In open or high-strategy sports, the athlete’s attention must be external in monitoring the position of the opponent and in producing the appropriate strategies during a game (Allard & Burnett, 1985; Durand-Bush, 1996; French & Housner, 1994; Thomas, 1994).

It has been stated that sport expertise has two components: a cognitive component which includes declarative and procedural knowledge and a kinesthetic component which is the actual performance of the motor skill (Allard & Burnett, 1985). Thomas (1994), states that knowledge is the result of instruction and practice which are essential to the development of skill learning and execution. Goulet, Bard and Fleury (1989) stated that experts in sport develop a sophisticated knowledge base and some of the characteristics of their superior cognitive processing capabilities are as follows:

- 1) Chunking and categorization.
- 2) Recall of structured game situations.
- 3) Use of advanced visual cues.
- 4) Quality of perceptual anticipation.
- 5) Organization of visual search patterns.
- 6) Simple and complex decision speed and accuracy.

Expertise has been studied in several sport domains such as tennis, basketball, badminton, and figure skating and other motor skilled tasks such as

dance. Some of the literature in the skilled performance of athletes will be examined next to uncover some of the similarities found with cognitive science.

Basketball

Basketball experts chunk information about playing positions in their domain similar to chess players, showed consistency in their recall strategies for typical playing positions, used their knowledge of the game to decode and interpret the displayed game positions based on significant features (Allard & Burnett, 1985).

French and Thomas (1987) found that young expert basketball players had superior shooting skills and more semantically structured basketball knowledge. Their knowledge was related to decision-making skills whereas dribbling and shooting skills were related to the motor components of control and execution. The extensiveness of their knowledge assists in the representation and solving of problems by recalling game-structured information, and in making predictions. Mistakes commonly observed in sport often stem from lack of knowledge about what to do in the context of a sport situation or lack of procedural knowledge. Knowledge was related to the number of years spent practicing the sport where cognitive and motor skills are learned.

Baseball

Chiesi, Spilich and Voss (1979) showed that baseball experts who possessed high knowledge need less information to make recognition judgments than novices. Experts also demonstrated a greater percentage of high-level goal state outcomes, that is ways of winning a game, superior ability at recalling sequences by relating successive segments of information, and an ability to recognize new information that was highly relevant to the game.

Learning about a given topic is facilitated by prior schematic knowledge of the topic, and experts are better able to use the context in processing this new information, by mapping new information onto existing knowledge structures. Therefore differences in acquisition reflect differences in knowledge structures (Chiesi, Spilich, & Voss, 1979; Spilich, Vesonder, Chiesi, & Voss, 1979).

Three loci of differences between novices and baseball experts are proposed: knowledge of goal structure or the means of winning the game, relating actions or states to this goal structure, and relating successive actions to each other and to the goal structure or means of winning the game. It was found that experts are more knowledgeable about how actions of the game are related to the way a game is won. Experts in baseball have superior long-term memory and access for identifying patterns of play (Chiesi, Spilich, & Voss, 1979; Spilich, Vesonder, Chiesi, & Voss, 1979).

Interpretation of the events in a baseball game may be viewed as a type of problem-solving activity for experts. It is suggested that knowledge development is most effective if the goal structure is initially understood. Exposure to numerous games coupled with instruction or explanations of how actions relate to the goals, enables individuals to learn to interpret the game actions in terms of the goal structure (Chiesi, Spilich & Voss, 1979; Spilich, Vesonder, Chiesi & Voss 1979).

Spilich, Vesonder, Chiesi and Voss (1979), showed that there exist quantitative and qualitative differences between experts and novices in the recall of a typical baseball text. Experts show a greater ability to maintain the most important information in a complex working memory system (Spilich, Vesonder, Chiesi, & Voss 1979).

Soccer

Expert soccer performers in sport possess rich domain specific knowledge which enables them to automatically recognize many domain-specific patterns in problem-solving. High and low aptitude individuals in global reasoning skills, but who were experts in the domain of soccer did not differ in their memory capacity and ability to draw inferences in recall tasks in soccer (Schneider, Koerkel, & Weinert, 1989). Prior knowledge of soccer was a stronger predictor of recall for the content of texts concerning soccer than general intellectual abilities. The impact of domain specific knowledge on text recall and comprehension was found to be a function of task difficulty and the richness of domain-specific knowledge. The more difficult the task and the less available the specific knowledge, more important were the general intellectual capabilities and strategic processes.

Racquet Sports

Racquet sports experts were found to be superior to novices in their perceptual skills and in their utilization of different temporal and spatial cues for the anticipation of the opponent's movement. They were able to extract more relevant information from earlier display cues such as the playing side arm and the racquet, recognizing redundant features of the display, and allowing the player to respond earlier to the event sequence (Abernethy & Russell, 1987).

Tennis experts demonstrated superior knowledge, decision-making ability and actions during the actual tennis game (McPherson & Thomas, 1989). Novices had reasonable knowledge of the means by which a game was won, but were less knowledgeable how actions, successive actions and changes in game states were related to winning the game. Besides having superior declarative and procedural knowledge, experts have sophisticated metacognitive strategies, that is monitoring, planning, and self-regulatory strategies (McPherson, 1994).

The quality of decisions, rather than the quality of execution, was the discriminating factor between experts and novices. In the process of a game, expert tennis players made superior decisions in less time and with less information because they accessed information more rapidly. The expert knowledge base is based on highly structured offensive and defensive sport concepts, with more conditional and alternative action concepts and inter-connections which are relevant to the game's goal structure. (McPherson & Thomas, 1989).

Expert tennis players have efficient visual information processing and scanning procedures of pre-flight visual cues, but their superior performance is explained by how information is used and processed, rather than by differences in visual search strategies. During this execution phase, experts and novices differed in their eye fixations. Experts used information from the racquet and from the arm holding the racquet while the novices focused more often on the ball. Knowledge of the most informative cues was evidenced by experts who were able to establish the relationship between these cues and produce the appropriate motor responses (Goulet, Bard, & Fleury, 1989).

Figure Skating

Expert figure skaters displayed skilled long-term memory and use of mnemonics in their recall and rehearsal of a large number of individual techniques within a skating program. Expert skaters had superior recall and performance of choreographed skating sequences than novices (Deakin & Allard, 1991).

Modern Dance

Similar to results found with expert figure skaters, modern dance experts showed superior recall for dance step sequences by either better performing or naming the steps (Starkes, Caicco, Boutilier, & Sevsek, 1990).

Thomas (1994) stated that in order to develop expert performance, teachers and coaches should focus on efficient and effective skill execution by enabling athletes to acquire declarative and procedural knowledge. Much practice is needed to develop these skills, and experience in context is essential in order to apply those skills effectively. Next, the subject of skillful teaching and coaching will be addressed.

Expertise in Pedagogy and Coaching

Traditionally researchers have studied coaching and teaching separately, even though the roles are quite similar. Differences lie in the context and the goals of participation. Teachers display more managerial concerns by keeping the students busy, happy and well behaved, whereas, the coach is more concerned with motor engagement, feedback, student interaction, questioning, and praise (Faucette & Patterson, 1990; Rupert & Buschner, 1989). This distinction, in terms of teaching expertise, has not been identified, but one could hypothesize that it would depend on the level at which they would be teaching. Teachers are usually more generalists, whereas coaches and some teachers are more specialized.

Given that pedagogy is an ill-defined domain, defining expertise can be quite problematic. In coaching high performance athletes, one can judge the coach based on the success of the athletes, or the number of games won, while this is more difficult for teaching (Claxton, 1988).

Another problematic area in expertise research had been the confounding of research terms used: some researchers use terms such as experienced versus inexperienced, specialist versus non-specialists, and novices versus experts. Even the term expertise is often confounded with experience and effectiveness. One such definition describes expert teachers as virtuosos in technical content, sensitive to their learners and context as well as being responsible educators (Dodds, 1994;

O'Sullivan & Doutis, 1994, Thomas, 1994). Furthermore, the pedagogical knowledge required for successful classroom performance is ill-defined because of the complexity of classroom problem-solving effectiveness (O'Sullivan & Doutis, 1994).

Berliner (1986) identified the importance of studying expert teachers because it gives information about the routines, scripts, and schemes used by experts and allows the identification of problems and weaknesses in novices. Such studies also influence the design of training programs for beginning teachers by providing a template for the instruction of novices so that they can acquire some of the experts' skills. Experts have also been studied for the purpose of developing an expert systems in pedagogy where they share a common body of knowledge (Berliner, 1986; Thomas, 1994) Another reason for studying expert teachers, is that we know expert performers develop with practice and instruction, and therefore require expert pedagogues. We can hope that with better teachers we can develop more skilled performers (Thomas, 1994).

Berliner (1986) was able to identify major domains of knowledge: knowing the subject matter which is considered to be declarative knowledge, knowledge of organization and management of the classroom which is considered to be procedural knowledge, and pedagogical content knowledge which is the ability to transform content knowledge into an appropriate form as to facilitate its assimilation (Berliner, 1991; Ennis, 1994). Ennis (1994) claims that curricular expertise blends both knowledge and beliefs. Beliefs are represented as a form of conditional knowledge which mediates pedagogical decision-making about what to teach and how to teach it (Housner & French, 1994). Peterson and Comeaux (1987) explained that differences in teaching ability indicate that the experienced teacher have developed better knowledge in the form of schemata. The experts'

schemata would include both declarative and procedural knowledge, whereas the novices' schemata are mostly declarative in nature (McPherson, 1994; Peterson & Comeaux, 1987).

Routines and Procedures

Berliner (1986) gives an account of novice expert differences in pedagogy. In particular he mentions that mathematics teachers make effective use of opening homework routines. These routines were virtually automated scripts of actions. Experts were much more effective in carrying out these homework review routines, which helped to pick up information about attendance, to identify who has done their homework and who was going to need help in the next lesson. Experts required one third the time taken by novices to complete these tasks, because they are embedded into the lesson routine which they were able to carry out at a brisk pace without losing control of the lesson. On the other hand, novices were not familiar with routines or scripts, and were not efficient in taking attendance, checking homework and identifying difficulties (Berliner, 1986; Carter, Sabers, Cushing, Pinnegar, & Berliner, 1987).

Housner and Griffey (1985), studied experienced and inexperienced teacher differences in their decision-making abilities. Differences were found, where experienced teachers made more decisions concerning strategies for implementing instructional physical activities. During the actual teaching sessions, the experienced teachers were more concerned with individual student performance whereas inexperienced teachers paid more attention to managerial tasks such as maintaining the students on task and attend to the overall interest of the class. (Graham, French, & Woods, 1993; Sharpe & Hawkins; 1992).

The experienced teachers possessed a vast number of strategies for managing and facilitating the physical performance of students, as well as

contingency plans where they modified their lessons to meet students' needs (Graham, Hopple, Manross, & Sitzman, 1993; Housner & Griffey, 1985). The experienced teachers knew which tasks were more appropriate and focused on fewer tasks and provided more learning cues in comparison to novice teachers (Graham, Hopple, Manross, & Sitzman, 1993). The experienced teachers were also sensitive to the context in which they taught and showed more flexibility and creativeness in the use of teaching equipment, whereas the inexperienced teachers showed a functional fixedness in the way they employed the equipment (Berliner, 1986; Housner & Griffey, 1985; Housner, Gomez, & Griffey, 1993). Experts were better than novices at anticipating and planning for student problems based on their experiences. As well, novices had problems when they deviated from the lesson plan, or had to deal with student questions because they were limited in their ability to improvise. This is because they were still struggling with the content to teach and were not sufficiently comfortable with the subject matter to attend to the development of teaching strategies and routines. Several studies show that experts have more knowledge about the skills or subject matter (Berliner, 1986; Berliner, 1991; Dodds, 1994; Block & Beckett, 1990) and have better organization of their knowledge. Experts' skills were represented by an extensive network of interconnected and easily accessible schemata (Borko & Livingston, 1989; Dodds 1994). In devising plans and mental scripts, experts were more efficient because their experience allowed them to combine information from existing schemata to fit the particulars of a given lesson (Borko & Livingston, 1989; Graham, Hopple, Manross, & Sitzman, 1993).

Problem-solving

When a classroom problem-solving scenario was presented, novices held literal views of events whereas experts made inferences about the events by

applying their domain specific knowledge to make sense of the classroom. Similarly to problem-solving in physics, novices tend to focus on surface features of the classroom presentation, while the experts are able to classify problems by using higher order features, that is to separate the relevant from the irrelevant. Overall, experts were faster and more accurate in recognizing patterns in their assessment of a classroom, but were slower than novices in the initial stages of problem-solving. They took longer to read the problem, to build a representation of the problem, or to reason the initial solving strategies. In solving a classroom problem, experts represent the problem in two parts: finding out what the students already know and starting the class from scratch. In assessing the students, experts were able to see beyond the results and to assess students based on their level of understanding of the subject matter (Berliner, 1986; Carter, Sabers, Cushing, Pinnegar, & Berliner, 1987).

Skill Diagnosis

Skill diagnosis is related to one's problem-solving capabilities since it involves the correct representation of a problem and a comparison process, such as the diagnostic skills of clinical psychologists in classifying individuals with mental illnesses (Murphy & Wright, 1984). It was found that experts categorized different mental problems based on more facts, but also showed more flexible boundaries in the establishment of these categories allowing for overlapping of features between different categories. In sport, athletes depend on good coaching and teaching which focuses on the execution of the correct skill technique (Salmela, 1996; Thomas, 1994). Diagnostic decision-making is a problem-solving skill of the utmost importance in effective coaching and teaching (Dodds, 1994, Pinheiro & Simon, 1992). Diagnosis is based on acquiring and interpreting the appropriate cues in the athletic performance. Experts acquired more cues than

novices, made cue interpretations, and diagnostic decisions, and showed more diagnostic accuracy whereas novices diagnosed the performance superficially and missed important performance errors. This has been explained by expert schemata which contain more procedural and declarative knowledge which allow experts to compare and contrast the actual performance and draw more inferences from it (Pinheiro & Simon, 1992).

Findings by Rutt-Leas and Chi (1992) provided better insights into the knowledge base and structures of expert swimming coaches. A clinical diagnostic paradigm is used in order to investigate their expert knowledge, since the diagnosis is based on rich domain specific knowledge. Experts distinguish themselves from the novices in their ability not only to identify a problematic skill but also in providing a "how to fix it" solution. A great degree of skill is required in interpreting and correcting what is wrong. Finding the cause of an error involves deeper levels of analysis. Experts are able to see beyond the explicit cues or surface features and recognize the meaningfulness of certain patterns and configurations. Expert knowledge is required for elaborate discussion of these second order features. Expert coaching knowledge is superior in quantity, in its connectedness and in its level of representation. This is evidenced in the quantity and cohesiveness of causal and relational statements produced in the expert's diagnosis protocol. Experts know more facts and are able to extract more features in their analysis of a motor skill. These facts are embedded in more and larger reasoning chains, as well as more and larger clusters. Experts also represent their knowledge at a deeper level using a more holistic approach elicited by second order features instead of surface features. These quantitative and qualitative qualities are prerequisites to their discrimination abilities. Therefore, by studying the coach's skill analysis we are able to infer their level of expertise.

Beveridge and Gangstead (1988), also found that experts showed more accuracy in both visual retention of performance and knowledge of correct motor patterns. Dodds (1994) identified observation skills as a key component to teaching expertise because you must first be able to see it to fix it. Observation skills are the intersection of subject matter knowledge and pedagogical content knowledge. Expert teachers are superior in their ability to analyze motor skills qualitatively better than novices by identifying appropriate and inappropriate components of movement skills. Superior observational skills are based on selection of the relevant cues, prioritize and interpret cues and then pose a diagnosis. The complex cognitive schemata that the experts possess allow them to compare actual performance to this internal representation (Dodds, 1994).

Coaching Process

Most research done on teaching and coaching has addressed the differences between experts and novices but have not identified the content knowledge and cohesiveness of that knowledge. Several coaching models have been elaborated to represent particular components of the coaching process, but do not represent all the components of coaching (Côté, 1993; Horn, 1992).

Partington (1988) described positive coaching characteristics based on a study done with Olympic athletes. The following characteristics were defined as being essential to becoming a complete coach and to provide a challenging, competitive and rewarding environment in which to train: a winning competitive attitude, commitment, confidence, love and caring, social skills, imagination, an open-minded and playful attitude, a systematic approach, and a positive reliable presence at the competition site.

Walton (1992) did not profess a coaching model, but used a holistic approach to provide insight into the qualities that make some of the greatest

coaches. Retrospective portraits of six outstanding coaches were presented and were referred to as philosopher coaches. Competitive zeal, commitment to excellence, wisdom, leadership, hard work, personal integrity and vision are only some of their qualities. Walton succinctly summarized the essence of the philosopher coach by providing some of the common denominators. Each one of these coaches were very unique, but they did have several factors in common:

1. Committed to individual integrity, values and personal growth.
2. Profound thinkers who saw themselves as educators, not just coaches.
3. Well educated (formally and informally) in a liberal arts tradition.
4. Long-run commitment to their athletes and their institution.
5. Willingness to experiment with new ideas.
6. Valued the coach-player relationship, winning aside.
7. Understood and appreciated human nature.
8. Love their sport and work.
9. Honest and strong in character.
10. Human and therefore imperfect.

Because of their outstanding qualities, they provided quality leadership and serve as role models or mentors to their athletes. Coaching is a special instructional setting of the coach-athlete relationship, since it was a voluntary union, which made the coach's instructional environment especially effective. The coach enjoyed a special opportunity as a role model and mentor. One of the mentoring objectives was to develop strength of character in the athlete without compromising their integrity and values. The philosopher coach was in an ideal position to teach honesty, commitment, self reliance and integrity (Bloom, 1996a).

Salmela, Russell, Côté and Baria (1991) studied expert gymnastic coaches' to uncover the nature of their knowledge base. Daily coaching activities and

effective strategies used in the process of training and competition were investigated and through content analysis of interview transcripts a hierarchical arrangement of categories was proposed to represent the structure of coaching knowledge. Gould, Giannini, Krane and Hodge (1990) identified the need for research in order to identify key principles used by successful coaches. This led to Côté's Coaching Model (CM) which was unique in that it captured the complexity and structure of expert coaching knowledge and coaching process based upon analysis of in-depth interviews with expert coaches in the sport of gymnastics (Côté, 1993; Côté & Salmela, 1996; Côté, Salmela, & Russell, 1995a; Côté, Salmela, Trudel, & Russell, 1995a). This general model of coaching, by its content and its connectedness attempts to make sense of coaching knowledge which in the past had been largely a disorganized body of information on coaching (Côté, 1993; Côté, Salmela, Baria, & Russell, 1993c). Salmela, Draper and Laplante (1993) interviewed coaches of team sport in volleyball, basketball, hockey and field hockey and found that the results validated the Coaching Model (CM).

Development of Expertise

While studies previously presented illustrate the context in which expert coaches organize and interpret their interventions, the focus of this study centers around the developmental process of the expert coach. While the former provides a snapshot picture of knowledge representation, the later will illustrate how such knowledge and processes are acquired. Next we will outline research that looked at the development of expertise. Although previous research has been done in the field of development of expertise in coaching (Salmela, 1996; Schinke, 1995), the unique contribution of the present study is that it has been done in the sport of

figure skating and the expert coaches that were interviewed had extensive success at the international, World and/or Olympic levels.

In fact there is a limited amount of research that has been done on the process by which novices become experts. There are few longitudinal studies of experts, and those that do exist focus on initial stages of development (Borko & Livingston, 1989). In general, most studies have used an expert-novice paradigm which focused on comparing novices to experts at a particular point in time. There is a great need to pursue this line of research and to examine the entire process of becoming an expert. Methods by which knowledge structures are acquired need to be investigated as well as the appropriate learning mechanisms using a process-oriented approach so that this knowledge can be imparted to prospective experts (O'Sullivan & Doutis, 1994; Housner & French, 1994; Miller, 1996; Peterson & Comeaux, 1987; Thomas, 1994, Thomas, French, & Humphries, 1986).

The pedagogical expertise model proposed by Dreyfuss and Dreyfuss (1986) and later adapted by Berliner (1991), outlined five developmental stages of expertise: novice, advanced beginner, competent performer, proficiency, and expertise. This model involves stages of knowledge growth over an extended period of time. The *novice stage* is the first stage where a set of context-free rules are learned and usually involves a novice teacher. Performance is very deliberate and inflexible in nature for student and first year teachers. At the *advanced beginner stage*, behavior starts to be influenced by context which in turn influences the development of procedural knowledge with second to third year teachers. The *competent performer stage* involves self-monitoring skills of setting goals, and priorities while being able to integrate some flexibility with third to fourth year and some more experienced teachers. The *proficiency stage* involves the ability of making predictions, with the use of intuition, a holistic sense of the situation, and

pattern recognition for fifth year teachers or more. The *expert stage* involves perceptual ability and intuition married with a smooth and effortless performance (Berliner, 1991; Dodds, 1994).

Expert pedagogues have more extensive procedural knowledge which allows them to carry out class curriculum with flexibility and without deliberating (Berliner, 1986; Berliner, 1987; Dodds 1994). Other studies have also used a developmental stage approach in explaining expertise. One such study was conducted by Graham, French and Woods (1993) which involved three stages analogous to the Dreyfuss and Dreyfuss model, that is with novice, experienced beginner and expert teachers. The distinctions in skill are easily identifiable between these stages, but differences between proficient and expert are slightly more difficult to substantiate (Graham, French, & Woods, 1993).

Many studies have compared experts and novice performers, while skill starts to developed in childhood and is mediated by numerous factors. More studies need to address the developmental process of expertise (Housner & French, 1994). Some studies have made use of interview techniques to elicit knowledge on how experts develop their athletic skills (Orlick & Partington, 1986; Orlick, 1990; Partington, 1995). Studying expert performers' knowledge base helps understand the antecedents of expertise and can assist in identifying future outstanding performers (Régnier, Salmela, & Russell, 1993).

One of the most important studies in the development of expert performers was conducted by Bloom (1985). The development of talent of concert pianists, sculptors, mathematicians, neurologists, Olympic swimmers, and world-class tennis players was investigated and presented using a developmental stage approach. In-depth structured interviews were conducted in order to investigate the career development of 120 skilled performers who were acknowledged by their peers to

be in the top 25 performers in their domain. Interviews were also conducted with parents, coaches and mentors to uncover the contribution of social and pedagogical factors that nurture the development of expertise. It was concluded that each domain had its own timetable, but that the process involved in achieving excellence was analogous.

Bloom (1985) identified three developmental stages or levels of expertise: *initiation*, *development*, and *mastery*. The *initiation stage* is centered around fun and skill proficiency. The *development stage* involves belief and commitment. The athletes were goal-directed, and they practiced carefully under a coach or mentor who had superior technical knowledge, and provided guidance and discipline.

The *expert or mastery phase* implied an obsession or preoccupation with the activity in question which dominated their lives. Everything else was secondary to this primary occupation. There was total devotion to their domain. The athletes were aware that they were more than special, and were conscious of their uniqueness. There was also the awareness of their own knowledge base or what was referred to as metacognitive knowledge, that is “knowing about knowing”. These individuals put whatever time and effort was required in order to achieve the highest level of excellence. Skill was automated and more time was spent towards developing strategies for high level competition. They had a profound and intuitive understanding of the underlying structures or dynamics of the sport which resulted in automaticity (Bloom, 1996).

These expert athletes shared stronger emotional ties with their coaches. The expert athletes eventually became autonomous in their learning process and no longer required the close scrutiny of the master coach. Motivation to excel became internalized, and the coach was only consulted for fine tuning. This stage

involved an awareness of some extraordinary talent which was often triggered by a great performance. The athletes saw themselves as unique achievers who set them apart from others. The master coach usually had a global view and a reputation of producing champions. The master coach conveyed a broader perspective to training and performing. The relationship with the coach involves fear and respect at first but at the master level it is more collaborative allowing the athlete more autonomy.

Similar investigations of expert coaches proposed transitions as the central component to the understanding of the evolution of a career in sport (Salmela, 1992; 1993, 1994b; 1994c; 1996; Salmela & Durand-Bush, 1994; Schinke, 1995; Schinke, Bloom, & Salmela, 1995). In addition to the three stages presented by Bloom (1985), a fourth *phase of retirement* was proposed. This transition is one of gradual detraining and a readjustment to normal life revealed the factors involved in the development of their expertise (Salmela, 1992).

Although the study conducted by Bloom (1985) provided a fresh new approach to studying expertise, the methodology used was not clearly defined. Although the use of interview techniques are a legitimate method of investigation, a stringent and scientific approach needs to be applied to the analysis to validate the developmental stages of expertise.

More recent studies explain the acquisition of expert performance as the result of deliberate practice. Skilled performers improve through prolonged efforts while struggling to maximize effort and motivation while controlling the external resource constraints. Many of the behaviors formally thought to be a result of innate talent have now been identified as the result of intense practice over a minimum of 10 years involving extreme environmental adaptation and learning (Durand-Bush & Salmela, 1996; Ericsson & Charness, 1994; Ericsson, Krampe &

Tesch-Roemer, 1993; Ericsson & Lehmann, 1996). Consequently, coaches facilitate the development of expertise by structuring the training environment and facilitating deliberate practice as well as assisting the athlete in overcoming the training constraints (Durand-Bush & Salmela, 1996; Salmela, 1994a). Such research validates the importance of studying expertise in coaching with the intent of developing expert performers.

Development of Expertise in Coaching.

Bloom (1985) related the development of skilled performers to different levels of competence in coaching. The expert performer has different coaching needs than a performer during the initiation stage. The coach or mentor of the skilled performer is considered to be a master or expert himself and has developed specific characteristics that merit to be studied. Some of the earlier life experiences of expert coaches of team sports have been examined (Miller, 1996; Salmela 1992; 1993; 1994a; 1994b; 1994c; Miller, Bloom, & Salmela 1996). These coaches did not clearly indicate one single path for the development of expertise in coaching. By determining the evolution of the expert coaches' careers from player, to novice, to expert may enhance the preparation of future coaches (Miller, 1996; Salmela, 1994b). Essential components have been identified as precursors to the development of coaching expertise (Salmela, 1996). Coaching expertise entails the development of philosophies of success and the establishment of coaching mission statement (Bloom, 1996a; Desjardins, 1996) that are translated into well structured practice conditions (Durand-Bush, 1996) and performance strategies in competition (Bloom, 1996b). Furthermore, Draper (1996) clearly defined the coaching context in which these philosophies and missions are realized and how coaches can acquire expert knowledge through

formal learning, experience, networking, learning from other experts, mentoring and teaching (Moraes, 1996)

Perreault (1990) outlined the profound influence that a mentor coach may have in molding the athlete's future, by instilling the desire to learn as well as building character and self-confidence. Similarly, mentoring within coaching also has benefits and can accelerate the learning process. It encourages particular individuals to make a change and to reach for their potential by promoting personal growth and development (Heidman & Cobbold, 1995). Coaches found that structured learning experiences as well as mentorship programs may enhance the coaching education process (Moreas, 1996). Similarly, Berliner (1986) found that supervising teachers during student teaching experience made the most significant impact on the career of the novice teacher because they are portrayed as the model, expert, master, mentor, coaches, and have the ability to lead the novice in developing competencies in teaching. It is suggested that rookies in teaching may benefit from a jump start in the careers by working with a veteran (Dodds, 1994). Some of the problems found with such apprenticeship programs is that experts lack the ability to articulate their knowledge, because procedural knowledge is tacit or implicit in nature and is embedded in actions. These procedures or teaching routines are automated which provides great economy of efforts.

Coaching Education and Learning from Expert Coaches

Tabachnik (1991) explains the tremendous success that the Soviet sport system has had by focusing heavily on training their coaches. Soviet coaches can obtain two different degrees: one in physical education the other in coaching, in addition to two years of higher level education to coach high performance athletes. Aspin (1983) also promoted similar coaching centers in order to promote excellence and success of coaches and athletes.

Haslam (1990) stipulated that experts in Canadian coaching education, such as master course conductors, and provincial coaching coordinators, agree on the NCCP objectives, albeit these results do not tell us if the curriculum meets the needs of the coaching participants in the courses.

Salmela et al. (1991) recognized that despite the existence of coaching certification programs, the effectiveness of such programs have not yet been proven and must face resistance from several of the elite coaches. Most of the information delivered to coaches comes from academics and may in fact not be applicable by the individuals that carry out the daily task of coaching.

Gould, Giannini, Krane, and Hodge (1990) identified the educational needs of elite American coaches. Less than half of the coaches sampled thought that there existed a defined set of concepts and coaching principles. This indicates that these coaches have had experience and success but are in need of coaching education in order to acquire an organized coaching knowledge system.

Salmela et al. (1993) proposed studying experts in order to develop this defined set of concepts and principles. Such a taxonomy of expert coaching knowledge will also facilitate the study of expert and novice coaches, and will also provide a model which novices can emulate.

Coaches sampled across 30 sports agreed that more elite coaching clinics, coaching science courses, and mentoring and apprenticeship program should be held (Gould, Giannini, Krane, & Hodge, 1990). These elite coaches also stipulated that the most important sources of knowledge to developing their own coaching were not formal education but more experiential in nature: they included experience and other coaches as sources of learning. This is often referred to as experiential knowledge because it is developed and tested through experiences such as observing other successful coaches rather than experiments which enables

us to understand the complexity of athletic performance and coaching (Martens, 1979; 1987; Salmela, 1994b, Salmela et al., 1993). Coaching books, journals and coaching courses contributed to a lesser extent the coaching development of these elite coaches because it did not address some of the realities of training and competition (Gould, Giannini, Krane, & Hodge; 1990; Salmela et al.; 1991). This offers some insight into the application of sport science knowledge upon the practice of coaching in general. Salmela, et al. (1991) suggested to sample the coaches themselves in order to access expert coaching knowledge, so that novices can learn from experts.

Gould, Giannini, Krane and Hodge (1990) concluded that there is a need for both formal and informal education for coaches. This premise is based on the need to develop basic and advanced knowledge that is sound through a unified coaching education system and yet have mentoring and apprenticeship programs to facilitate and monitor experiential education for potential elite coaches. Weiss, Barber, Sisley and Ebbeck (1991), gained more insight into the positive experiences of coaches participating in an internship program by accessing their knowledge base through qualitative interviewing methods.

The fact that 80 percent of coaches sampled had a four-year college degree and that 36 percent had a physical education degree advances a strong argument that we must not discard the value of formal education but supplement it with other forms of learning (Gould, Giannini, Krane, & Hodge, 1990). Kimiecik and Gould (1987), attempted to tap the experiential knowledge of the great swimming coach James "Doc" Counsilman who exemplified a balance between both formal education and experiential knowledge. Counsilman has advanced the sport of swimming by his application of scientific principles (Kimiecik & Gould, 1987). Counsilman suggested that researchers are too preoccupied in complying with the

demands of academia, and that this type of research is not as useful to coaches as is descriptive research (Kimiecik & Gould, 1987). Similarly, Tabachnik (1991) discussed the importance of sport science education and argued that some of the best research scientists' work is locked up in the university laboratories and scholarly journals which are only read by other scientists instead of being put to more practical use. It was found that some of the coaches' training seem to be self-directed, that is, following in the footsteps of their former coaches and colleagues. This valuable information needs to be gleaned from experts in different domains. Kimiecik and Gould (1987) concluded that experiential knowledge is not the only answer, but this source of knowledge must be integrated with other ways of learning. Coaches' untapped knowledge base needs to be accessed with the use of more in-depth interviews in order to uncover the richness of this qualitative data (Gould, Hodge, Peterson, & Giannini, 1989; Gould, Hodge, Peterson, & Petlichkoff, 1987). This situation has been partially addressed with expert coaches of team sports (Salmela, 1996)

Methodological Considerations

Traditionally sport scientists had preferred the use of quantitative research in sport psychology (Horn, 1992; Martens, 1979; 1987). In recent years, scientific knowledge had been generated by using what is now considered legitimate methods of naturalistic inquiry (Horn, 1992). Experiential knowledge is a rich and valuable source of information which may be tapped using idiographic approaches, introspective methods, or field studies. These legitimate methods of conducting research are referred to as naturalistic inquiry and have been open to criticism and under scrutiny, suggesting that they are subjective in nature (Horn, 1992).

Rather than studying athletes and coaches using traditional quantitative methods, a number of researchers have begun to study the pertinent dimensions of

athletic components (Scanlan, Stein, & Ravizza, 1989; 1991; Russell & Salmela, 1992). These research thrusts have provided new insights into common phenomena that are central to the training and performance of athletes, without using traditional, orthodox methods of science. Similarly research on coaching using qualitative methods has been occurring to lesser extent, Some studies have indicated the importance of such initiatives (Gould, Giannini, Krane, & Hodge 1990; Gould, Hodge, Peterson, & Petlichkoff, 1987). They suggested using in-depth interviews so that reality is grounded in a 'bottom-up' approach allowing for the investigation of complex and ill-defined domains such as coaching.

It is within such a framework that research was carried out with a sample of eminent Canadian coaches of team sports. The process for the in-depth study of coaches and the resulting model of the coaching process (Côté & Salmela, 1996; Côté, Salmela & Russell, 1995a; Côté, Salmela, Trudel, & Russell, 1995; Côté, Salmela, Baria, & Russell, 1993a; 1993b; Salmela, Draper, & Laplante, 1993) was initially developed using in-depth interviews with expert Canadian gymnastic coaches on the structure of their knowledge.

The purpose of the present project was to examine in detail the development and evolution of the applied knowledge and procedures of expert figure skating coaches using in-depth interviews and inductive content analysis. By initiating the research process with information that is grounded in reality, it is hoped that we may gain insight on how expert figure skating coaches develop their knowledge which in turn may serve other coaches by enhancing coaching education.

Research that uses qualitative methods such as structured interviewing and inductive content analysis, are considered most appropriate for the present research and relies on sound research procedures (Strauss & Corbin, 1990),

interview process (Côté, Salmela, Baria, & Russell, 1993a), and computerized interpretation and organization of qualitative data (Côté & Salmela, 1994; Côté, Salmela, Baria, & Russell, 1993c; Côté, Salmela, & Russell, 1995b). Next, the qualitative research paradigm used in the present study will be briefly discussed.

Qualitative Research Paradigm

It is essential to briefly look at the research tradition and what qualitative methods has to offer in light of the present study. In turn it will justify the methodological approach.

Qualitative research in sports sciences is relatively new, and started mainly in the 1980's (Thomas & Nelson, 1990) to take precedence as a legitimate way to acquire knowledge (Martens, 1979;1987). Although traditional research methods such as those conducted in laboratories have been effective in the natural sciences, it does not accurately capture the complexities of human behavior and help us understand sports in real settings: "While orthodox science has worked wonderfully in the physical and biological sciences despite the failure to fulfill the doctrine of objectivity, orthodox sciences has worked miserably in the in the study of human behavior, and therefore in sport psychology. Consequently, orthodox science, which itself is a paradigm and not a sacrosanct, is a paradigm in crisis" (Martens, 1987; p37).

While quantitative research methods is founded on *rationalism, empiricism, positivism and reductionism*, qualitative research methods are founded on *synthesis*. Researchers cannot understand the complexity of human interactions by studying isolated behaviors . It is the dynamic process itself that needs to be understood. What is needed is *synthesis*, using a holistic approach to seek patterns in human behavior (Martens, 1987).

Furthermore orthodox science assumes *objectivity* by removing the person from the process of knowing. This doctrine has prevented scientists from developing alternative ways of knowing which are more suitable in studying human behavior. Naturalistic inquiry is based on a philosophy that gives central importance to humans in understanding other humans, so that experiential knowledge can be articulated through elicitation of the researcher's questions (Martens, 1987).

The following qualitative methods are used as a paradigm and source of experiential knowledge in sport sciences, suggesting three approaches; idiographic, introspectionism, and field studies. The idiographic approach assumes that the best way to get to know people is to ask them questions and have them divulge information about themselves, and the researcher may help the subject by increasing awareness of what cannot be articulated but may be accessed by encouraging the use of introspectionism. Lastly, field studies bring the researcher's tacit knowledge to the research process in order to gain knowledge, whereas traditional science manipulates the participant and removes him from the context, so that the phenomena has no real significance to the science of sport.

Qualitative Inquiry: Theoretical Orientation

There exists several theoretical orientation traditions in conducting qualitative inquiry. How the questions are being asked to affect the qualitative methods used. Grounded theory depends on methods that take the researcher into and close to the real world so that the results and findings are grounded in the empirical world. Different approaches use qualitative methods, but vary in their conceptualization of what is important to ask and to understand. They include: human etiology, ecological psychology, holistic ethnography, cognitive anthropology, ethnography of communication, symbolic interactionism,

ethnomethodology, structural functionalism, psychological anthropology, symbols anthropology, heuristic inquiry, systems perspective and systems theory, chaos theory, hermeneutics, and orientational qualitative inquiry (Jacob, 1987, 1988; Patton, 1987, 1990).

In the present study cognitive anthropology traditions will be used in order to guide its research, and will be discussed next.

Cognitive Anthropology

Cognitive anthropology, also referred to as ethnoscience or new ethnography, draws upon methods in linguistics. Cognitive anthropologists have a mentalistic view of culture as a 'cognitive organization of material phenomenon'. They assume that each group of individuals has a unique way of perceiving and organizing their world, and that this culture is organized into related categories which are hierarchically organized into larger groups. Its cultural knowledge is reflected in the semantics of the language (Jacob, 1987; 1988)

“Cognitive anthropologists see the study of the semantic systems of a group as the easiest way to study the organization of cultural knowledge of a people” (Jacob, 1987, p.23)

Cognitive anthropologists try to understand how knowledge is organized in a semantic system as well as implicit cognitive understandings. Words and their meanings are examined from the data collected by formal elicitation procedures such as interviews. Data analysis involves the identification of domains of knowledge, studying the nature of their contents and its organization, as well as discovering the relationships between different domains (Jacob, 1987; 1988).

“Cognitive anthropologists assume that culture is reflected primarily in language, and specifically semantics. They study a culture’s categories and the organizing principles underlying them through the study of semantic systems in the language”(Jacob, 1987; Jacob 1988).

Cognitive anthropologists have described the organization of a particular cognitive system, entailing the identification of its components and the relationship. They identified knowledge conceptualized by the people of a culture and how they organize this knowledge (Jacob, 1987). Cognitive anthropologists have explored new domains such as the classification of plants, colors, insects and diseases, different sub cultures, bars and schools (Jacob, 1987).

In concluding, no single epistemological perspective needs to be adhered to in order for qualitative methods and research to be pragmatic (Patton, 1990, p.89).

Nature of Qualitative Inquiry

Philosophers of science have been engaged in a epistemological debate about which method is the best to conduct research. This debate has centered around two fundamentally different and competing paradigms: (1) logical positivism, which has used quantitative and experimental methods to test hypothetical-deductive generalizations, versus (2) phenomenological inquiry, using qualitative and naturalistic approaches to inductively and holistically understand human experience in context-specific settings.

Lincoln and Guba (1985) believe that naturalistic inquiry is the only valid and meaningful way to study human behavior. Paradigms rely on epistemology and philosophy of science, and theoretical constructs behind the assumptions about the nature of reality. Qualitative inquiry cultivates the construction of knowledge through our capacity to learn from others (Patton, 1990).

Qualitative research methods are holistic in nature and seek to understand the meaning of people's experiences in their natural setting and how the specific components interact and function (Griffin & Templin, 1993). Qualitative research focuses on the essence or the nature of the phenomenon (Thomas & Nelson, 1990).

The main objectives are description, discovery, understanding and meaning. The researcher provides a rich narrative account of the process rather than in the product or outcomes (Griffin & Templin, 1993). The data collected by in-depth, open-ended interviews; consists of direct quotations from people about their experiences, perceptions, opinion, feelings, and knowledge. The raw data are usually voluminous and through content analysis is organized in readable narrative. description which are categorized and illustrate major themes. Subsequent analysis of qualitative inquiry results in categories illustrating major themes from which findings emerge our understanding and insights. This type of fieldwork has no constraints of predetermined categories of analysis and allows for depth, openness, and the detail of qualitative inquiry.

Quantitative methods on the other hand requires the use of standardized measures so that experiences of people can be fit into a limited number of predetermined response categories to which numbers are assigned. This method facilitates comparison and statistical aggregation of the data and gives a generalizable set of findings presented succinctly and parsimoniously. By contrast, qualitative methods typically produce a wealth of detailed information about a much smaller number of people and cases. There is increased understanding of the cases and situations which are not generalizable.

A parsimonious overview of aggregate results does little to understand what individual variation means. Statistical data provides a succinct and parsimonious summary of major patterns, while select case studies provide depth, detail, and individual meaning. The data may provide statistically generalizable patterns, but these standardized questions only tap the surface of what it means. The much smaller sample of open-ended interviews add depth, detail, and meaning at a very personal level of experience. Quantitative data are systematic,

standardized, and easily presented. By contrast, qualitative findings are longer, more detailed, and variable in content: analysis is difficult because responses are neither systematic nor standardized, yet the open-ended responses permit one to understand the world as seen by the respondents. The purpose of gathering responses to open-ended questions is to enable the researcher to understand and capture the point of view of other people without predetermining those points of view through the prior selection of questionnaire categories (Loflan, 1971).

Direct quotations are the basic form of raw data in qualitative inquiry, revealing the way in which the respondent organizes thoughts, experiences, and perceptions. The task of the qualitative researcher is to provide a framework within which people can respond in a way that accurately represents their thoughts and perceptions.

Qualitative researchers seek to understand the perceptions, feelings and knowledge of people through in-depth, intensive interviewing. It is important for the researcher not to impose their expertise, but instead, make clear that the participants are the real experts. In raw qualitative data, the purpose of the description is to take the reader into the setting.

Loflan (1971), suggested the following mandate in the data collection; that we must get close enough to the people and the situation being studied to gain a personal and in-depth understanding.

Strategic Themes in Qualitative Inquiry

Qualitative inquiry emphasizes and builds on several themes: naturalistic inquiry, inductive analysis, holistic perspective, qualitative data, personal contact and insight, dynamic systems, unique case orientation, and context sensitivity, empathic neutrality, and design flexibility (Patton, 1990).

These themes can be contrasted with those of traditional experimental or quantitative designs and will be discussed. A summary of these themes are found in Table 1.

Table 1

Comparison of strategic themes in quantitative and qualitative designs

<u>Qualitative</u>	<u>Quantitative</u>
Naturalistic inquiry	experimental
Inductive analysis	deductive
Holistic perspective	reductionist
Qualitative data	quantitative
Personal contact and insight	objectivity
Dynamic systems	
Unique case orientation	
Context sensitivity	
Empathic neutrality	
Design flexibility	

Naturalistic Inquiry

The naturalistic paradigm underlies qualitative methods (Lincoln & Guba, 1985). It is naturalistic in that the researcher does not manipulate or tamper with the research setting, the events are occurring in their natural state, placing no prior constraints on research outcomes (Griffin & Treplin, 1993). Naturalistic inquiry focuses on capturing process, documenting variations, and exploring individual differences in experiences and outcomes. Experimental conditions and designs are selected to introduce control, reduce variation in extraneous variables, and focus

on a limited set of predetermined measures. Naturalistic inquiry or an experimental approach is a design issue, as opposed to the kind of data that can be collected which can be quantitative, qualitative or a combination of both (Patton, 1990).

Inductive Analysis

Qualitative methods are oriented towards exploration, discovery, and inductive logic. It is inductive to the extent that the researcher attempts to make sense of the situation without imposing preexisting expectations on the setting under study. Inductive analysis begins with specific observations and builds towards general patterns. Categories or dimensions of analysis emerge from observations as the researcher discovers the patterns that exist in the empirical worlds under study. The researcher develops hypotheses from the observations by induction as opposed to quantitative methods whose mode of analysis is by deduction. (Thomas & Nelson, 1990). Theories about what is happening is grounded in direct experience rather than imposed on the setting à priori through hypotheses or deductive constructions (Glaser & Strauss, 1967). Inductive analysis may generate general patterns across cases when case materials are content analyzed, but initial focus is on full understanding of individual cases before those unique cases are combined or aggregated. This means that the findings are grounded in specific contexts; theories that result from the findings will be grounded in real-world patterns (Glaser & Strauss, 1967; Patton, 1990).

Holistic Approach

The holistic nature of qualitative research captures the unifying nature and complex systems which is greater than the sum of its parts. The primary critique of quantitative approaches by qualitative-naturalistic evaluators, is that such an approach (1) oversimplifies the complexities of the real-world experiences, (2)

misses major factors of importance that are not easily quantified, and (3) fails to portray a sense of the complete picture of the social dynamic (Patton, 1990).

Qualitative Data

The data that emerged from this qualitative research as direct quotes that have been qualified as rich, detailed and in depth descriptions of people's personal experiences or perspectives (Patton, 1990).

Direct Personal Contact

Another theme of qualitative research is the direct and personal contact with people under study in their own environments. It emphasizes getting close to people in order to understand the realities of their world. Closeness develops through physical proximity, social context, and shared experience and confidentiality. Getting close to the situation increases understanding of naturally occurring events, by actively participating in the life of the observed and gaining insight by means of introspection. Proximity with the sources of data make key insights possible. Closeness does not make bias and loss of perspective inevitable, and distance is no guarantee of objectivity (Patton, 1990).

Dynamic, Developmental Perspective

The qualitative-naturalistic approach views the context as dynamic, developing, assuming an ever-changing world rather than trying to control, limit, or direct change (Patton, 1990).

Unique Case Orientation

The depth and detail of qualitative methods derive from a small number of case studies which are too small for confident generalizations. Cases are selected for study because they are of particular interest as special people, a particular problem, or a unique situation.

Context Sensitivity

The qualitative research paradigm has the unique ability to temporally contextualize its findings in history and society (Patton, 1990)

Empathic Neutrality

Qualitative researchers have personal contact, being the instrument of both data collection and data interpretation. Both qualitative-naturalistic inquiry and quantitative-experimental inquiry seek meaningful, credible, valid, reliable, accurate, and confirmable findings. Credible research requires the investigator to adopt a stance of neutrality, meaning that the investigator does not set out to prove a particular perspective or manipulate the data to arrive at predisposed truths, with no theories to prove, and no predetermined results to support. The investigator's commitment is to understand the world as it is, to be true to complexities and multiple perspectives as they emerge, and to report both confirming and disconfirming evidence. In qualitative inquiry researchers are the instrument of data collection, and require that potential sources of bias and error be reported. Systematic data-collection procedures, rigorous training, multiple data sources, triangulation, external reviews, and other techniques are aimed at producing high quality qualitative data that is credible, accurate and truly represent the phenomenon under study.

Neutrality does not mean detachment. Qualitative inquiry depends on, uses and enhances the researcher's direct experiences in the world and insights about those experiences. This means learning from empathy, meaning to be able to understand the feelings and experiences of others. It refers to the unique human capacity to make sense of the world, which has profound implications for how one studies human behavior (Patton, 1990).

Design Flexibility

A qualitative design unfolds as fieldwork unfolds, the design emerges as the study occurs. Design flexibility stems from the open-ended nature of qualitative inquiry as well as pragmatic considerations. It is important to understand that real-world situations seldom resemble the theoretical ideals taught in the classroom.

The 10 themes presented are not absolute characteristics of qualitative inquiry, but rather strategic ideals that provide a direction and framework for developing specific designs and concrete data-collection. As the research begins, the investigator is open to whatever emerges from the data, a discovery or inductive approach. As the inquiry reveals patterns and major dimensions of interest, the investigator will begin to focus on verifying and elucidating what appears to be emerging, a more deductive approach to data collection and analysis.

The qualitative methodologist consciously works back and forth between parts and wholes, separate variables, and complex interwoven ones, in a sorting-out then putting-back-together process. Closeness to and involvement with the people under study are the most usefully viewed as variable dimensions. Qualitative methods can be used both to discover and to verify what has been discovered. Discovery and verification means shifting between induction and deduction, between experience and reflection on experience. In the paradigm of choices, the ideal is methodological appropriateness, design flexibility, and situational responsiveness, not absolute allegiance to some ideal standard of paradigm purity and methodological orthodoxy.

Qualitative Methods in Developmental and Learning Processes

Qualitative methods can contribute to generating or confirming social science theory and to solving practical problems. This type of inquiry focuses on

the process of how something happens rather than the outcome or results, and by focusing on the process of learning, experiential learning can be used to help other people learn. (Patton, 1990). This method also captures the unique differences, and idiosyncrasies. Patton (1990) stated that failing to find statistically significant differences in comparing people on some outcome measure does not mean that there are no differences between people on those outcomes. As small as those differences may be, they may be qualitative rather than quantitative, and not necessarily unimportant.

Development is a process which usually progresses and regresses. Quantitative methods can only tell you where you started and where you ended, but qualitative methods are more appropriate at capturing developmental dynamics (Patton, 1990).

Goals Involved in Applied Research

Applied research implies gathering information and generating findings that are useful. The purpose of academic research is to generate theory and discover truth, that is, knowledge for the sake of knowledge. The purpose of applied research is to inform, enhance decision-making and apply knowledge to solve problems. Basic research is judged by its contribution to theory and explanations of why things occur as they do, while applied research is judged by its practical use in making human actions and interventions more effective.

Data collection is based on who the information is for, who will use it, what kinds of information is needed, how the information is to be used, the purpose for the evaluation, when is it needed, what resources are available to conduct the evaluation, and what methods are appropriate. This information is meant to determine the kind of data that will be the most useful. The challenge is getting the best possible information to the people who need it, and getting people

to actually use it in appropriate and intended purposes. The art of evaluation includes creating a design and gathering information that is appropriate for the specific situation and particular decision-making context.

Concluding Remarks

In the present chapter the context in which studies of expertise took place has been well established from its root in AI and cognitive sciences. Expertise in the context of sport and pedagogy had also been discussed to better understand research that has been done in coaching expertise and its development. Lastly, a brief description of the theoretical orientation and choice of qualitative inquiry is outlined.

CHAPTER 3

METHODS

Subjects

Selection of Participants

The sample of participants was, small, non-random, and purposeful. Criterion-based sampling was used to establish certain criteria or standards to be met by the subjects prior to their inclusion in the investigation (Goetz & LeCompte, 1984; Thomas & Nelson, 1990).

The sample for this study was eight expert figure skating coaches. Sampling bias was minimized by selecting experts on the basis of three criteria: coaching experience, an outcome measure of success, and peer recognition.

Coaches were also selected so that all figure skating disciplines were represented, with several coaches being multi-disciplinary. The profile of the eight interviewed coaches are captured in Table 2.

Table 2

Coaching Discipline of Expert Figure Skating Coaches

Code	Coaching Discipline		
	Singles	Pairs	Ice Dancing
MOSC1	√		
MOSPC1	√	√	
MOSPC2	√	√	
MOSC2	√		
MOPDC		√	√
MWDC			√
FWDC	√		√
MWPC		√	
Total=8	5	4	3

* Legend: M=male, F=female, O=Olympic, W=World, S=singles, P=pairs, D=dance, and C=coach.

Coaching Experience

The extent of the coaches' experience, was based on the number of years or hours coaching. A minimum standard of 12 years or 20,000 hours is required to achieve the status of expert coach (Rutt-Leas & Chi, 1992). Coaching experience in this study ranged from 12 years to 39 years with an average of 23.5 years of coaching experience. Collectively they had 189 years of experience (see Table 3).

Table 3Number of Years of Coaching Experience

Coach	Number of Years of Coaching Experience
MOSC1	24
MOSPC1	33
MOSPC2	39
MOSC2	18
MOPDC	16
MWDC	23
FWDC	24
MWPC	12
Total=8	189
$\Sigma X/N=23.5$	

* Legend: M=male, F=female, O=Olympic, W=World, S=singles, P=pairs, D=dance, and C=coach.

Outcome Measure of Success

All eight coaches were present or past Olympic and/or World championship coaches. These coaches were selected on the basis of their consistency in producing national and international athletes. As well, these expert coaches had demonstrated the ability to coach athletes from the grass roots to being world competitors.

Peer Recognition

Expert coaches were also identified as experts by the Canadian Figure Skating Association because of their experience and consistency in producing elite athletes.

Materials

Materials included: an audio tape recorder, an interview guide and a coaching experience form.

Audio Tape Recorder

An audio tape recorder was used to record the interview.

Interview

A semi-structured interview was conducted using an interview guide (Appendix A). The interview guide was developed in a previous study done with expert coaches of team sport (Salmela, 1993, 1994c; Salmela, Draper & Laplante, 1993). The interview protocol was comprised of open-ended questions concerning the development of their expert coaching knowledge pertaining to the technical aspects as well as their procedures for teaching in practice and in competition.

Coaching Experience Form

The Coaching Experience Form pertained to the number of years of coaching experience, the coaching of successful athletes, education, and coaching certification level (Appendix D).

Procedure

Data Collection

Data collection was elicited through a semi-structured interview with each coach, as well the Coaching Experience Form. A pilot study with three coaches was conducted in order to assess the adaptability of the interview guide for expert figure skating coaches and to ensure that the interview techniques were adapted to the actual study. However, since the interviews were judged against standards in the literature, and were found to be satisfactory in terms of quality, they were included in the sample (Patton, 1990).

During the semi-structured interviews, procedures were followed as outlined in the literature (Agar, 1983; Jacob, 1987; Patton, 1987, 1990), subjects were asked all the same questions, but not necessarily in the same order nor with the exact wording. Different follow-up questions, as well as probing techniques were used to elucidate the participants' statements.

Dunham (1988) stated that all scientific inquiry is subject to error and that is far better to be aware and identify possible sources of error or bias, so that proper procedures can be put in place to minimize them. Since the study was qualitative in nature, and the researcher was the instrument of data collection and analysis, potential biases such as observer bias and subject compliance were introduced.

In order to minimize observer bias, a stance of neutrality was maintained in order not to identify too closely with the participants and directing questions and answers along a personal agenda. As well, it was established at the onset of the interviews that there were no right or wrong answers to the questions so as to minimize observer bias and subject compliance. Subject compliance was identified as a potential bias since the researcher in the present study was a figure skating

official. Such tendencies were minimized by using appropriate communication skills such as active listening, a non-judgmental attitude in questioning, and developing mutual respect and trust. In this way, feelings and perceptions could be shared in an honest and open way. Feelings, values, thoughts, and intentions were monitored during the interview by observing non-verbal cues in order to disclose any level of discomfort and potential research bias (McBride, 1993).

Contact

In this study, eight coaches were contacted by letter and asked to participate in this study (Appendix B). Shortly after, they were contacted by telephone in order to setup an interview date and time suitable to their busy schedules.

Consent

Prior to the onset of the interviews, coaches were provided with an informed consent form (Appendix C). The purpose of this form was to protect the anonymity and confidentiality of participants, provide information in regard to their participation, explaining the nature of the study as well as the task demanded of them (Thomas & Nelson, 1990).

Interview

The interview took place in a quiet room, either at a hotel, rink, or residence and duration was between 1.5 to 3 hrs in duration. The length of the interviews varied, they terminated when saturation was reached, that is until nothing new was added or learned (Agar, 1983). The interview was audio taped with coaches' permission. The interview technique used was a semi-structured interview format comprising of open-ended questions.

All coaches were interviewed in regards to their athletic history, early careers as coaches, as well as how they matured as coaches to the point of

becoming and remaining experts in their field. The interviews elicited information on their coaching procedures, but more specifically the methods and strategies used to acquire their knowledge.

Coaching Experience Form

The Coaching Experience Form was completed and captured information on coaching experience, NCCP status, education and successes (see Appendix D).

Debriefing

The subjects were then verbally debriefed following the interview and all questions raised concerning the study were answered (Appendix E).

Data Analysis

The Data Analysis

The data analysis and collection in the present study occurred in a cyclical fashion where analysis and initial data collected guided subsequent data collection (Griffin & Tremplin, 1993). Subsequent data collection and analysis was used to confirm or reject, or modify themes that had emerged. Both inductive and deductive processes took place to establish relationships while attempting to develop a theory that is grounded in the data (Glaser & Strauss, 1976). Phases of the analysis included sorting and analysis during data collection, analysis and categorization, and interpretation (Thomas & Nelson, 1990).

The process used to make sense of the data collected was to content analyze the data and generate categories. After categories have been assigned, information across categories was analyzed as part of the inductive process. After organizing and sorting, the data were merged into a holistic portrayal of the phenomenon (Thomas & Nelson, 1990).

Descriptive Nature of Qualitative Inquiry

Analytic narratives were used in this instance to describe and assign meaning to the data. The descriptive narrative vignettes were generated to give holistic meaning and to provide evidence for their assertions. The research process allowed for interpretations and connections between the narrative vignettes, as well as the content and frequency of direct quotes (Glaser & Strauss, 1967; Griffin & Tremplin, 1993; Thomas & Nelson, 1990).

Quantifying Qualitative Research

Qualitative research may include quantitative measures, from frequency tables to multivariate analysis. In the present research, tables were generated which captured the categories and their frequencies. The findings were also captured in a figure which produces a pictorial representation or tree diagram of the coded categories and their relationship (Thomas & Nelson, 1990).

Authentication of Interview Content

The interview recorded on audio tape was transcribed verbatim which resulted in the interview transcript. The transcript was then returned by mail to the coach for authentication. Coaches were asked to verify the accuracy of the content, correct any inaccuracies, to delete any unwanted portions, and to add anything that might have been omitted.

Categorical Identification of Expert Knowledge Development

The objective of the qualitative analysis of unstructured data obtained from interviews with expert figure skating coaches was to build a representation of the developmental and learning process based from the categories that emerged from the data (Côté & Salmela, 1994; Côté, Salmela, Baria & Russell, 1993c; Côté, Salmela & Russell, 1995b; Tesch, 1990).

The following two steps as suggested by Tesch (1990) were used in the data analysis in order to build a categorical system: the topics emanating from the text segments were identified, and relationships between the segments of text were determined. Furthermore, specific procedures in the hierarchical organization and interpretation of unstructured data were utilized (Côté et al., 1993c). The method used entails the creation of tags, which were then organized into properties, dimensions, and categories. The following three characteristics were necessary in the categorization of the data: experience in coding and tagging large amounts of data into meaning units, inductive inferencing, and judging similarities.

Creating tags. The objective of this first step in the analysis was to extract concepts that represented the content of the interview transcripts by using what is called an open coding strategy. This procedure involved the examination of the interview text and the identification of its meaningful pieces of information which are referred to as meaning units (Tesch, 1990). The process used to establish these meaning units was to divide the interview text into segments that were comprehensible and contained one idea or piece of information (Glaser & Strauss, 1990; Tesch, 1990).

The meaning units were coded by allocating a tag which represented the topic of the text segments. The tags were temporarily assigned and subsequently changed during the process of analysis. The main objective of this exercise was to decontextualize the information from the interview into tags which could represent the content.

Creating properties. The next step in the analysis was to create properties. The tags created in the first step of the analysis were compared for similarities in meaning, and hence were grouped and assigned a property that represented this cluster of tags. Properties were judged by their similarity, so that the data within

each property was judged on internal homogeneity, and external heterogeneity with other properties (Patton, 1980). The properties that emerged from the data and created through this inductive process, were modified and refined until a sound system was established (Tesch, 1990). The purpose of this second step was to re-contextualize the clusters of categories into distinct properties (Tesch, 1990).

Creating categories and developing dimensions. The next step in the data analysis was to establish major categories on the basis of properties and dimensions, that was to further categorize properties to a higher level of abstraction. Hence categories were created by judging the similarities among the properties (Glaser & Strauss, 1990).

Dimensions were established in order to quantify a behavior along a continuum by examining the content of each meaning unit for each property, summarizing the content, and identifying similarities among coaches as well as their uniqueness (Strauss & Corbin, 1990; Tesch, 1990). To illustrate this concept, not every coach would exhibit the same learned behaviors, and those who did might not do so with the same frequency, therefore, the dimension of a property would vary along a continuum. This process sheds light on individual differences between coaches' learned behaviors.

Conceptualization of categories of knowledge development. The next step was to establish relationships between categories as well as properties and dimensions in order to develop a representation which would describe and explain the development of expert coaching knowledge in figure skating. This conceptualization was done using methods of grounded theory (Strauss & Corbin, 1990).

This integration of knowledge elicited by the interviews into a conceptual framework is complex. The first step in the process involved the identification of

the main categories which related to the goal of the present research. The central phenomenon of this study was to identify developmental stages of expert figure skating coaches and their personal learning methods for developing their knowledge. This goal is central to the conceptual model, and categories are peripheral to this central component (Strauss & Corbin, 1990).

The second step in the integration process of representing knowledge was to prioritize which categories were essential for achieving the central goal. Each category partly described the phenomenon, therefore they are regrouped into broader components in order to reflect the main ideas involved in the development of expert skating coaches. The integration process involved comparing categories of learning, and creating a higher level of abstraction. Components and categories were arranged and rearranged in terms of their relation to the central goal, and were grounded with quoted from the interview transcripts. The category description, representation and narrations of the following analysis were used in the validation of the analysis process which will be discussed further in the next section.

Methods of Establishing Trustworthiness of Data Analysis

Trustworthiness of qualitative analysis was established by methods different than those traditionally used in quantitative analysis. Corresponding methods of trustworthiness for qualitative analyses have been established by Lincoln & Guba (1985): credibility, transferability, dependability, and confirmability (see Table 4).

Table 4

Methods of Trustworthiness Used in Quantitative, and Corresponding Terms used in Qualitative research as Suggested by Lincoln and Guba (1985)

<u>Quantitative Research</u>	<u>Qualitative Research</u>
(logical positivism)	(naturalistic inquiry)
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

Credibility

Research is credibility in so far that its findings match the reality of what is happening in the field. The present qualitative research is high in internal validity since it is holistic in nature, and because it captures reality and the dynamic processes. Hence, credibility depends on the instruments of measurement, which in the present study are the interview guide and the researcher. Instruments measured what they intended to measure without the presence of confound variables. The fact that the interview guide had also been used in studies with other expert coaches increased the credibility of the present research.

The researcher as an instrument of measurement, had to rely heavily on rigorous research skills, and integrity. In the present study, credibility was ensured by consciously taking into account the possibility of an observer effect. Research standards during the interview process were in put in place which included behaviors which were unobtrusive, sensitive, honest, and constructive in establishing a relationship with the subjects. Furthermore the researcher as

instrument of measurement in the present study, had developed experience with interviewing techniques and communication skills.

Establishing credibility involved accurately interpreting and reporting the perceptions or thoughts of expert coaches and not presuming what these realities were. Strategies that promoted credibility were:

- More than one source of data used, that is an interview and questionnaire.
- The involvement of both the researcher and the coach took place during the interview. Probing was used in order to elicit an in depth understanding of concepts and perceptions and coaches' interpretation.
- Computerized data handling, using the program Microsoft ACCESS database facilitated the organization of the data into meaning units, facilitated interpretation of results, and reduces chances of errors in tagging, categorizing seen in manual handling of data.
- Peer evaluation of findings reduced the researcher's bias by having the data verified by experienced researchers. The process of questioning the findings promoted refinement and clarification.
- Coaches' verification of the findings also enhanced the credibility of the research.
- The identification and monitoring of potential research biases during the interview process and data analysis enhanced the credibility of the present study.

Transferability

Transferability occurs when findings are generalizable and expected to be observed over a wider range of conditions than those specifically used in the original study. The knowledge generated from the present research was generalizable with regards to the findings that are generated by specific cases and

cases with the same underlying principles. Therefore, these rich contextual findings were generalizable to similar situations.

Dependability

Dependability or reliability, is the ability to produce consistent measurements, therefore obtaining the same results when retesting occurs. In the present research every meaning unit, property and category was verified by an independent assessor which confirmed the reliability of the instrument.

Confirmability

Confirmability, previously referred to as objectivity in quantitative research, is the ability to retrace the steps of the analysis, from the findings to the original data in order and to determine the appropriateness of the interpretations and patterns that emerge. Griffin and Tremplin (1993), stated that objectivity or confirmability is impossible within the naturalistic paradigm, only neutrality could be achieved, which was done in the scope of the present research.

Concluding Remarks

The current chapter has outlined the research procedures as well as the methods of data analysis used to uncover the development of expert figure skating coaches and methods of knowledge acquisition. It also provided details on strategies put in place to promote the trustworthiness of the research process and interpretation of the findings.

In the next chapter results and their interpretation will be presented as well as discussed. Implications for coaching development and education will be outlined. Lastly, recommendations will be made in regards to coaching and possible future research.

CHAPTER 4

RESULTS AND DISCUSSION

This research was intended to investigate the development of expertise of figure skating coaches so that on one hand it would reveal the state of knowledge within each of the developmental coaching stages and to uncover the means and methods that are used to acquire this knowledge. Secondary to these objectives emanated the concerns and reflections of coaches on the future direction of skating and coaching. The consultation process in attempting to capture the essence to coaching development and the importance for coaches to verbalize their knowledge and thoughts was well iterated by one of the Olympic coaches:

“What you are doing is excellent, it needs to be done, but my concern is that enough people with control get a hold of it. So often these things are done in University venues and sit, and then they lose their timeliness. This is timely right now and the world is moving much faster than most Universities are, and we see this with our educational system, with people who can't get jobs because there is nothing there anymore in that field, so basically you need to get this information dispersed, not cloistered. Its not for people to learn, but for people to act on. So I hope what we have done today and with other coaches in other sports can be circulated to powers that can understand what is happening and have the authority to make some changes”.

(MOSPC2)

The Nature of the Data

Initially all meaning units were categorized by the primary researcher. Then all MUs were reassessed by an independent researcher and an Interater agreement of 91% was obtained. Those MUs for which there was no agreement were then discussed and reassessed until 100% interater agreement was achieved.

The data analysis yielded a total of 1055 Meaning units (MUs). Forty MUs, which account for four percent of the total number of MUs were rejected

from further analysis and categorized as ‘Other’ on the basis that they were in no way related to the subject matter and are not discussed any further. The remaining 1015 MUs were content analyzed, 971 MUs which account for 92% of MUs were categorized as expert coaching development process. As few as one percent of MUs (8 MUs) were related to coaches’ thoughts on their future in skating and their prospective retirement. Thirty six MUs accounted for three percent of all MUs and were categorized as concerns about the future of coaching and skating or thoughts on the subject of coaching expertise (see Table 5).

Table 5
Total Number of Meaning Units

Categories	MUs	%MUs
Expert Coaching Development Process	971	92%
Expert Coaches Thoughts on their Future in Skating and Retirement	8	1%
Concerns on the Future of Skating and Coaching and reflections on Coaching Expertise	36	3%
Other	40	4%
Total	1055	100%

First the results capturing the developmental phases of expert figure skating coaches’ careers are presented in Table 6. Early Involvement as an Athlete account for 97 MUs or 10% of MUs, seventeen MUs (2%) were categorized as Transition into Coaching, 54 MUs or six percent concerned the Early Coaching Phase, 46% of MUs (451 MUs) are on the Mature Coaching Phase, and 36% (352 MUs) are on Expert Coaching Phase (see Table 6). Mature and expert phases were more extensively discussed for several reasons: first because of a recency effect where it is easier to recall more recent events with more detail, but also

because coaches during these phases possessed and had acquired more knowledge than in other stages. Hence they had more content to verbalize.

Table 6
Developmental Phases of Expert Coaching Process

Developmental Phases of Expert Coaching Process	No. MUs	%MUs
Early Involvement in Sport	97	10%
Transitions into Coaching Career	17	2%
Early Coaching Phase	54	6%
Mature Coaching Phase	451	46%
Expert Coaching Phase	352	36%
Total	971	100%

Along each phase of development, these coaches shared their coaching methods and the learning process used to acquire their knowledge. In the final section of this chapter, expert coaches offered their views on the future of skating and coaching as well as their views on coaching expertise.

Early Involvement in Sport

The Early Involvement in Sport phase describes expert coaches' experiences as athletes and are summarized in Table 7. Their experiences with masterful coaches were more frequently discussed 30% of MUs, experiences of success and failures 22%, how they got started in the sport 20% of MUs, followed by athletic achievements 9% of MUs, and family support 8% of MUs.

Table 7
Early Involvement in Sport

Early Involvement in Sport	No. of MUs	% MUs
1. Starting in the Sport	19	20%
2. Inspiration from Ice Shows	3	3%
3. Growing up in a Small Town	3	3%
4. Family Support	8	8%
5. Athletic Experiences	21	22%
6. Coached by Master Coaches	29	30%
7. Athletic Achievements	9	9%
8. Formal Education	5	5%
Total	97	100%

Starting in the Sport

All expert coaches shared similar experiences as athletes, in the way they first got involved in the sport. All expert coaches were intensely involved in the sport of figure skating as athletes in the same manner as the athletes in previous studies (Bloom, 1985; Salmela, 1992; Salmela et al., 1993). Most coaches did not necessarily start figure skating at a very young age, but similar to what was found by Miller (1996), they started participating as children in several other sports prior to committing to particular sport. Most male coaches started skating and playing hockey on outdoor rinks at a fairly young age. Stereotypes about figure skating as a male sport as well as the popularity of hockey in Canada were the main reasons given by coaches for their initial choice of participation in childhood sports. They had not necessarily intended to figure skate, but happened to start in the sport of figure skating by chance alone as stated by the following coaches.

On a Sunday afternoon we thought nothing about taking our shovels and making rinks at the public school. Because there was always a rink at the public school. Everyone loved to skate and our geography button in Canada is every kid has a pair of skates, or just about. Whether it is figure skates or hockey skates that is just where we are. In Florida where they are doing something else, we are here. So I had access and opportunity. Why did I want to be a hockey player because most of the guys did. While I figure skated I always played hockey, only one outgrew the other. I didn't give up one for the other, I got better at one than the other and if I had turned out to be 6 ' 2" I probably would have been a hockey player. But I wasn't. So lucky me that I had a choice. (MOSC1)

I started skating like most Canadian kids, I had hockey skates when I was probably 6 or 7, and skated on the road and skated on a pond and so on, but my mother noticed that even when scoring a goal there would be more activity in my body than a normal hooray. I would be leaping and jumping up on my skates. So I don't know if she was the one that kind of linked the two.(MOSPC1)

Inspiration from Ice Shows

Most coaches in the study started to figure skate at around the age of eight or nine years old, which is rather late by today's standards. Some coaches had been inspired by the various ice shows seen in their home towns, and from that point on wanted to take up figure skating:

I remember her taking me to a performance of the Ice Follies in Toronto at the Maple Leaf Gardens when I was probably 8 or 9. That was probably the trigger, I remember seeing Richard Dwyer, who used to be dressed in top hat and tails with all these beautiful girls skating and my imagination was ignited and I thought I want to do that. (MOSPC1)

It is kind of a funny story how I started skating in as much as one of my aunts took me to see a local skating show. We watched the show, and the costumes attracted me originally, like most kids. I was 7 years old and like most kids of that age there was a number with cowboy costumes, with the guns and the fringe pants, the fringe jackets, the hats and all of that. It really attracted me. My aunt would have liked to have signed my sister up for figure skating but she was very young and they couldn't find skates small enough for her at the time, so for two years I kept telling

her that she should sign me up. Finally after two years she signed me up. And that was it, I started that way, but it took two years of convincing. So I didn't start skating until I was nine, which was a little bit late.(MOPDC)

Growing up in a Small Town

Similar to Miller (1996), most coaches grew up in small towns, in an environment that provided spirit and enthusiasm as well as the opportunity to get involved in skating and many other activities in the community.

The main thing I did, I grew up in a small town. I have worked that same attitude where I am now. I grew up in a small town where it was safe to walk the streets, where there was terrific community spirit, where there were successful hockey teams, lacrosse teams, figure skating was doing well. There were also good coaches, and a number of other figure skaters. Five of us all male got our gold figure test in a little town, not even heard of. So we had the opportunity of doing everything. We knew most of the kids in the town, because it was small. That enthusiasm is probably very important and our parents got us involved in everything. I had access. (MOSC1)

They mentioned that this environment also helped shape their attitudes and beliefs.

Family Support

These coaches showed great commitment as athletes, but also received tremendous support from their families. Their families showed belief in them as athletes and many sacrifices were made on their part. : They also provided support through difficult periods in their athletic career. Similar to what was found in previous studies (Bloom, 1985; Miller, 1996; Salmela, 1992), parents served as mentors, directing them, and instilling values of hard work and commitment which is captured by the following quotes:

It was a great cost to my family, so there was no help at all from the association or any source. I can honestly say that there was two people that helped me. But it was a great burden on my family, because I came from a large family. (MOSPC2)

I had anything but a pushy dad. He drove me everywhere to get lessons or something. If I was going to be having lessons and Carol Devin was in North Bay at that point of time, then he would drive me to Huntsville and North Bay for lessons, back to school, and then go to work. He would drive me to North Bay for an hour, three or four times a week. He would drive me to Toronto to the Tammy Shanter club, where I had lessons from the Highlands. Hans Gerschwiller was gone, because he was in Schumacker for the summer. There is lucky me again, an interested parent. I had access. (MOSC1)

Athletic Experiences

Their successes and failures as athletes were diversified and helped to shape their attitudes as future coaches. Valuable lessons were drawn from these experiences which include commitment to hard work and positive focus. They were exposed to tremendous learning environments as well as dealing with many personal challenges and struggles. These results are similar to what was found in other studies (Bloom, 1985; Miller, 1996; Salmela, 1992; Salmela et al., 1993) and are illustrated by the following quotes:

The following coach describes the difficulties encountered juggling school and skating.

Then as I got out of grade school and into high school at North Toronto collegiate, I had a difficult time getting off to skate because our training time was in the morning. I would be on the ice at 6 o'clock. I had to take 4 different modes of transportation to my high school, street car to street car, to bus, to bus. If I missed a connection, I was late. So I had a reputation of being continually late which my parents had to write notes for. I was told by the principle that if I had to take time off for skating, I just simply had to write a note that I was sick.. (MOSPC2)

As I look back it was tough with my school, I had good friends in my courses, and I gave at least one person in every class a carbon copy paper for them to take notes so that I could get their notes when I came back. If you can imagine being away for 6 weeks to 2 months at college. I had to come back and pick all of that up and the exam was very early after. It was really tough, I

really had a tough time. I managed to get through the first year and my second year of competing I just couldn't, it had to be one or the other. (MOSPC2)

Another coach described some of the difficult times experienced as a skater

I stopped skating when I was 16, that was sore. I had no confidence, skated poorly, you are only judged on performance and not your good intentions. Performance in competitions was poor at best. As far as I was concerned I got there because I was lucky, I skated well that day. It wasn't my average, so I skated. When you let so many goals in the net, you lose your confidence. I wasn't a lousy skater. I loved training, I practiced. I would train and train and train. No problem. Once your confidence is gone you don't believe in yourself. It isn't that you don't want to do anything, you just don't want to do that. You carry on with anything in life because you are successful at it. But you need a little confidence to stimulate you along the way. You need a little. You need something to help you get to the next step, or at least want to reach out to that challenge. If you can keep those things in perspective you are OK. So I lost. I lost that. I lost perspective, I didn't know how to get out. When you are 16, you haven't got any good miles on, no one believes in you anyway so it is hard making any kind of decision, so you quit. That is the only way I knew my way out. I didn't want to go back and lose again, or just count on good luck to get me through one. It wasn't because I hated skating, it wasn't because I didn't like the training, I just wasn't any good under the gun. I didn't feel I was. So I guess it turned out to be one of those things, I started thinking that I wasn't going to do it, so I took a direct hit. I learned from it. (MOSC1)

The following dance and pairs coach shares his experience as an athlete where he was exposed to a positive training environment:

The next summer I went down to Lake Placid, that is when I was introduced to dancing at a high level. At that time Ron Luddington was teaching there, it was his last year in Lake Placid. His top team was second in the world at the time, and he was teaching the top three in Seniors in the States, the Junior champions and the Novice champions all at the same time. So I had a big introduction to high level dancing at that point. That had a big influence on me. (MOPDC)

Coached by Master Coaches

All of these expert coaches were themselves coached by master coaches. Similar to what was found by (Bloom, 1985; Salmela, 1992; Salmela et al., 1993),

they were taught by the best technical coaches of their time in a positive training environment. These coaches served as mentors and helped shape their beliefs and attitudes towards the technical aspects of skating and training methods. Many of the master coaches who coached these experts are still regarded as masters, some of which have been inducted into the Hall of Fame as builders of the sport. Unlike Miller (1996), these experts coaches did not verbalize any bad coaching experiences, but were quite fortunate to have excellent coaching during their youth which assured them success not only as athletes, but as coaches as well. In fact many of these expert coaches had the same coaches at one time or another during their careers, for example the names Gerschwiller, Gold, Galbraith, and Highlands taught several of these expert coaches. The following quotes illustrate some of the positive coaching that our expert coaches experienced:

Nothing but class. I took from the best and I got the best. With Hans Gerschwiller, I went to the lesson, its all business, there was no fooling around. He was very strict. I certainly appreciate the discipline today. I really appreciate the discipline I got, period. No matter what kind of skater I turned out to be, I certainly had something to go back on, and to go down and kiss the floor that I had him for a coach. (MOSC1)

My coach, Margaret Highland, had a profound influence on me. My parents were divorced when I was very young, I lived with my grandparents in Richmond Hill, and so really Margaret Highland was more like a surrogate mother. I find that we play that role a lot now. We find that as coaches, my wife and I, play the mother father role a great deal, and I do that because I was very profoundly effected by the role my coach played in that regard. She was a great lady. (MOSPC1)

I think as a skater there were really two major situations that had an effect on me. One was the first summer school that I went to, I took from Sheldon Galbraith. At that time he was one of the top coaches in Canada. He had the ladies and the men's champion, in senior, junior and novice at the time. It was very similar to a few years later when I went to Lake Placid with Ron Luddington, when he had so many of the champions in the States. The opportunity to watch these people working, and the attitude that they had and to see that calibre of skating so early in

my career set up certain images in my mind as to what skating really was about. I think that had a major impact on what I was doing. I was very fortunate. Not a lot of kids are as fortunate as that, they tend to slowly work up through the ranks and if their talent is enough and if their drive is enough to carry them on, then eventually they will have the opportunity to work beside kids that are good skaters, I find this with my kids too, that if early in their career they have an image of skaters that are already quite advanced, then it is a lot easier for them to see themselves get into that position. (MOPDC)

Athletic Achievements

Unlike what was previously found in an earlier study by Salmela et al (1993), all coaches were highly successful as athletes, ranging from national competitors to World and Olympic competitors (Table 8).

Table 8
Athletic Achievements of Expert Coaches

Code	Athletic Experience		
	National	International	World/Olympics
MOSC1	√		
MOSPC1	√	√	√
MOSPC2	√	√	√
MOSC2	√		
MOPDC	√	√	√
MWDC	√		
FWDC	√	√	√
MWPC	√	√	
Total=8	5	4	3

* Legend: M=male, F=female, O=Olympic, W=World, S=singles, P=pairs, and D=dance, C=coach.

All but one coach were medalist either at the Junior level or the Senior level at the Canadian championships. Three coaches did not competed beyond the national level, one competed at the international level because it being more recent he was on the national team and obtained international assignments. Four coaches

had been on the World team of which one had also participated in the Olympic games. The highest placement was sixth at Worlds and Olympic games. Personal competitive experience within the sport seems to be a factor in the development of expertise, which is similar to what was found in previous research (Rutt Leas & Chi, 1992). Nine MUs described their athletic achievements and is summarized in Table 8.

Formal Education

The interview protocol revealed five MUs concerning formal education. The educational profile of expert coaches was completed using the Coaching Expertise Biographical Sheet. The formal education of expert figure skating coaches is summarized in Table 9.

Table 9
Formal Education of Expert Coaches

Code	Education				
	High School	Some College	Completed College	Some University	Completed University
MOSC1	√				
MOSPC1	√				
MOSPC2	√	√			
MOSC2	√				√
MOPDC	√				
MWDC	√				
FWDC	√		√		
MWPC	√		√		
Total=8	8	1	2	1	3

* Legend: M=male, F=female, O=Olympic, W=World, S=singles, P=pairs, and D=dance, C=coach.

Unlike what is found in the literature on the soviet sport system (Tabachnik, 1991), these expert coaches did not get the formal training in the sport sciences. Despite this difference they were able to develop their expertise which

validated what was found by Gould et al (1991). All eight coaches completed their high school education, half of which had attended a post secondary institution. Two coaches completed a college diploma and another completed a university degree. Those who had attended post secondary institutions had initially intended to pursue other careers, before deciding to become a figure skating coach. Those who did not continue their education beyond secondary school, had decided at an earlier age that they wanted to be figure skating coaches.

A coach from a former eastern block country explains how his formal education in physics and mechanical engineering helped shape his mind set for his future analytical coaching skills for jumping.

One of the people that had a strong influence on me was Ivan Mauer, he wasn't from our city but he was teaching at university some biomechanics or something, I don't know what, and when he had a seminar, he would be there having this lecture on the things that really make it biomechanically work, I think I really picked up on a lot of that because it is really in my direction of thinking. So it probably hit with me right and I probably always get thinking along those lines. (MOSC2)

Several of these coaches actually had a late start, and therefore their passion and enjoyment for the sport drove them to high levels of success as athletes. Although the factors that contributed to their development as athletes are consistent across the sample of coaches in this study, athletes today may show differences because of social and economical changes that have occurred. Today the community would influence to a lesser extent than it did 25 or 40 years ago. As well the television has a much broader impact on young children and young skaters than do ice shows in inspiring them to start skating and to adhere to the sport, because in part, figure skating has permeated the media, rising the profile of the sport as well as providing enticing career options for young people (Laframboise & Dunfield, 1995).

Although all expert coaches excelled in the sport of figure skating, attention must be drawn to the quality of coaching that they received. These expert coaches had several of the same master coaches as their teachers, and the wealth of their technical knowledge was passed down to them. Consideration might be given to aspiring coaches who may not necessarily have excelled at the highest levels as athletes because of athletic limitations, but may have acquired sound technical knowledge from a masterful coach.

Next we will discuss how expert coaches made the transition from an amateur athlete to professional coaching.

Transitions into the Coaching Career

As their athletic careers drew to an end, many coaches turned to the professional ranks. The transition from amateur to professional is the most important and difficult decision for an athlete because it represents the end of their competitive career at the World and Olympic levels. These coaches became professional coaches for several reasons: financial, political, or because of physical constraints.

The following coach retired from competitive skating because of financial constraints:

I decided to turn professional because at the time, they were building a subway in Toronto, my father's business was on Younge street and his door had been blocked by construction for more than three years, and the business was very much in trouble, not because it wasn't a successful business, but because of the situation. So all these things culminated to the point that I felt that I couldn't be a burden on my family financially. If I was to continue with my education I had to have the time to do it, and I had to support myself. So I turned professional. (MOSPC2)

We made the World Team the next year, and that was a turning point I think. I felt like we were not finished but my dad was finished, he was not paying for this anymore. Then I went into nursing, and I graduated from nursing in

1967. The last year I was in nursing I was asked by Elaine Gagnon to help her start the Vanier Skating Club so I went down there. (FWDC)

One coach finished his skating career because he wanted to further his education:

After we came to Canada, it was more by chance, I was looking for a part-time job. I didn't finish my degree in Czechoslovakia. I went to the University of Calgary to finish, and I had to stay alive somehow. I came across figure skating and I started to coach as a part-time job. Then I started to like it, and I started to enjoy working with the young skaters.
(MOSC2)

Some stopped skating because of a breakup of a partnership and their inability to secure an appropriate partner.

Following that I tried out with another partner but it didn't work out, and then I started coaching here in Quebec. (MOPDC)

Others passed on to the professional ranks because they were not obtaining the desired results as skaters and because of the political structure they could not envision themselves attaining a higher level:

I kind of looked at who was in front of me. There was Don Jackson who was the champion of Canada and Don MacPherson and me. We were one, two, three in Canada. I took a hard look at these two guys because they were pretty good and thought if it is done by the act of succession I am going to be about 30 by the time I am the Canadian champion so I took a really good honest look at it. I also didn't perceive that I was a very good competitor. I was a very nervous competitor and back in those days we didn't have all the pluses that we have for our competitors now, you know sport specific psychologists, off ice trainers, dance programs and so on. I thought, do I like this well enough to carry on, and my answer was resoundingly no. So I started coaching when I was 19 and as it turned out it was the following year that the American airplane crashed killing their whole World team and the World championships that year were canceled, in 1961. I was already coaching in 1961. As it turned out it would have been a wasted year competitively anyway

and at 19, I was already firmly implanted as a coach, and my wife too - she started coaching at 19. (MOSPC1)

Some people turned professional to join an ice show:

Après ça, on a fait une petite tournée de Stars on Ice, qui était une troupe, juste pour voir ce que c'était la vie de show, un peu comme Ice Capades. Puis après deux mois je me suis aperçu que c'était pas un genre de vie que je voulais. C'est bien le fun, c'est une expérience à vivre mais c'est un peu comme les compétitions, tu te ramasses et tu te couches tard ou tu te couches pas, tu manges mal, ton milieu social devient juste le petit groupe avec qui tu voyages, tu es dans des hotels à tous les jours. C'était pas le genre de vie que je voulais. (MWPC)

For others becoming a skating coach was a very natural transition and continuation from their athletic careers

So then we quit, and I have been teaching ever since because the club asked me to start to teach. (MWDC)

Well back in, 23 years ago when you started to coach, anyone could coach, as anyone can coach now if they wanted to, the club just asked me to come in and do the ice dancing and I did that. There was enough pupils around, enough people wanted more lessons so then I started to do figures and free skating also. (MWDC)

I made a choice when I was that age to start coaching which would preclude any type of college or university training. There didn't seem to be anything then that I wanted to do that would help my coaching. There might have been but I couldn't find it. I certainly wasn't receiving any guidance to find something that would help me to be a good coach. Not like now, now you have 10 choices. (MOSPC1)

Transitions from amateurism to professionalism still remain essentially the same today, although today's elite athletes are able to extend their careers because of financial assistance and more numerous opportunities in skating, therefore delaying until later, their transition into coaching.

Early Coaching Phase

Most expert coaches started coaching not long after they put an end to their athletic careers. Unlike Miller (1996), these coaches did not have any prior coaching experiences such as being a team captain or an assistant to ease them into the profession. Consequently many coaches experienced difficulties adjusting to their roles. Initial successes were evident in the early development of their coaching careers. Similar to Bloom (1985), Salmela (1992), and Salmela et al., (1993), most coaches showed a great deal of belief and commitment in what they were doing, and a strong work ethic. Their coaching styles were rather rigid during this early coaching phase and were based on what they had learned themselves as athletes and what had been taught to them by their former coaches. These findings are consistent with what has been found in previous studies (Salmela, 1992; Salmela et al, 1993). While most had acquired knowledge by trial and error through their teaching experiences, few had taken coaching courses or attended seminars. The breakdown of categories found during this phase is captured in Table 10.

Table 10

Early Coaching Phase

Early Coaching Phase	MUs
Passion for Coaching	3
Initial Successes	4
Commitment and Strong Work Ethic	20
Emulation of their Own Coaches	11
Mentoring Process	15
	54

Passion for Coaching

Initially some coaches had clearly defined goals, while others were less involved in the beginning. Even in the early beginnings, most of these expert coaches showed belief, commitment, and a passion for coaching which translated into hard work and early successes.

There was the first initial joy of teaching and thirst for that when I was in Baltimore, and there was a need to make a choice between continuing my education, and that is really why I went there. I used the skating to pay for my education, but then I decided that I really wanted to continue with the skating, and so I did not continue with the education, and that is how it wove.
(MOSPC2)

My first job was in Baltimore Maryland, and I went down there to teach, and I took some courses at John Hopkins University, and that was good because I could do it on a quarter system, and we didn't have that in Canada at any of the Universities at that time. That infiltrated up here. So I took a couple of courses and I worked in the club. I really enjoyed teaching very much. I finished that year of courses at John Hopkins University, but I didn't know what I wanted to do more than teach skating, I became infatuated with it. I didn't continue courses the next year, I opened myself to take 2 clubs on, and I worked very hard. They were both in the same rink, which was lucky.
(MOSPC2)

Early Successes

Within the first few years these coaches had successes with athletes at the provincial and national level, and one coach even had competitors at national championships within one year as stated in the following quotes:

So I spent five years driving to these places and developing them, and within four years, five years, we had kids at sectionals, taking home the medals at pre-novice, it was that fast. (MOSC1)

Alors j'ai commencé l'enseignement sauf que la première année que j'ai commencé à enseigner j'avais déjà des couples comme Guy et Isabelle qui étaient au niveau national. Or c'est certain qu'en tant qu'entraîneur quand tu commences à enseigner, le but de la plus part des entraîneurs au Québec c'est d'avoir un patineur qui va sortir des sous-sections ou des provinciaux. La

plupart des entraîneurs je dirais que leur but c'est d'avoir un patineur qui se rend au national. (MWPC)

En tant qu'entraîneur la première année j'avais trois couples finalement au national, et puis je n'ai jamais manqué un national depuis 11 ans, j'ai tout le temps eu des couples. (MWPC)

Commitment and Strong Work Ethic

Coaches showed commitment to their work by displaying a strong work ethic, as evidenced by the enthusiasm of the following Olympic coach.

I decided when I was 19 that if I was going to teach skating, that I had to decide whether I was in or out. Either you are in something or out of something, because if you dabble with it, you do nothing. When you are young, the one thing that you have got is a lot of enthusiasm, but little respect, other than someone might say you work hard. So you have to draw from your strengths. Your strengths are: did you have credible coaches in the first place? Do you actually have something that is worth saying, which someone is going to have value in a lesson, and buy a lesson to hear what you have to say, because you are still a rookie? (MOSC1)

I wrote that letter to the city. I kept working and working, my Dad always taught me to work. I am not afraid to work, I am not afraid to find out what it takes to be responsible to yourself, count on no one else to do anything. I believe in little signs from all over the place, 'it can be done'. I eat them, I wear them, there are signs all over the place, 'it can be done'. 'Winning starts here', winning starts in how you think. (MOSC1)

Emulation of their Own Coaches

In the beginning, these coaches learned a lot from trial and error and emulated what they had learned from their coaches and as athletes. They were rigid in their methods of teaching, that there is only one way of teaching it and that is the way they learned it as athletes. They had not yet developed their own style.

In the beginning, I was very dogmatic about doing things, you do it my way. You should hold your hands here. There were several people actually, especially at the beginning that influenced me. I was very dogmatic in your approach and I can remember feeling very confident that I probably was the best coach that ever lived and that there was only one way to do stuff and that

was the way that I was teaching it. I stayed like that for quite some time and again was fairly successful at it. We did have early successes at the low levels, which is a kind of a good way to start I think. Then I was influenced by a couple of people. Firstly still as a competitor I was influenced by an American coach called Gus Lussi who has just post humously been inducted into the Hall of Fame. He taught out of Lake Placid, New York, he was a fabulous coach. (MOSPC1)

From the coaches themselves, that is a thing that later on as you are looking back you realize that the coaches that you were around, some of them were actually your coaches, others were just coaches that you saw working, they all have an influence. (MOPDC)

Aussi ma façon d'enseigner, c'est certain quand tu commences à enseigner les premières années, tu as tendance à enseigner la façon dont tu as été entraîné. Etant donné que Kerri Leitch était très sévère, puis c'était des grosses sessions à tous les jours, bien les premières années, ma première génération de patineurs, je les ai enseigné de même, en les poussant bien gros. Je me suis rendu compte que finalement que c'était pas si bon que ça, parce que j'avais toujours à la fin de l'été deux ou trois blessés. (MWPC)

Mentoring Process

Similarly to what was found by (Berliner, 1986; Salmela, 1992; Salmela et al., 1993), many coaches were strongly influenced in the early part of their careers by other people through a kind of mentoring process. Some of these people were master coaches, some were other sports figures, and sometimes even family members.

Mentor or idol, they would be the same. They are only in your early development. If you develop right then you over take them right. (MOSC2)

I was influenced by him (Gus Lussi) as a skater and then as a coach because he always liked to coach with an audience, especially other coaches. He liked them to watch his lessons. So he alone has developed a whole network of good coaches. I said to him once: Mr. Lussi what will we ever do when you die and he said I will never die. He was right because so many of us use his theories, so his theories live through us and there are quite a few of us, because

we get together every now and then. Certainly in the spinning and jumping techniques all of us are exactly the same. (MOSPC1)

Since the NCCP was not yet firmly established, the mentoring process was the only way aside from what they had learned from their former coaches on how to coach. One coach got involved in coaching education from its inception and therefore was able to benefit from more theoretical and structured knowledge in the early phase of his coaching career not only from taking the courses but also giving them.

Even the process of learning, we just had to take it from gut feeling that I am the teacher and you are the learner, but if you don't learn I haven't taught anything. The bit about communication and the various levels of learning, we didn't know any of that. I learned it through taking and especially giving the courses. (MOSPC1)

These expert coaches showed their commitment and a strong work ethic for what they did. Although in the early stages of development of these expert coaches they did not have the opportunities for structured learning as coaches do today, they were able to achieve a high level of success by applying what they had learned as athletes and through the mentoring process. Today, NCCP provides structure and knowledge at the onset of a coach's career, which may facilitate the adoption of a coaching method and reduce the time required to learn by trial and error. Bringing the coach to the classroom has certainly provided a coaching standard. More recently, apprenticeship programs have been put in place so that young coaches may learn from experts in the early developmental stages in order to facilitate or accelerate their learning curve. This can take place on a more formal basis by being integrated into a coaching team.

Mature Coaching Phase

This phase of career development is characterized by the integration of a coaching schema which involved dealing with the following components: athlete-centered components, such as structure of training and competition procedures, as well as the external constraints of parents, officials and administration. These findings are similar to those in the Coaching Model (Côté, 1993; Côté et al, 1995, 1995a) (see Figure 1). There are but slight nuances found in the present study which reflect characteristics which are specific to the sport of figure skating. Sources of learning during this phase included knowledge acquired through experience, experimentation, seminars, and learning from other coaches. The categories that represent this phase are presented in Table 11.

Table 11

Mature Coaching Phase

Mature Coaching Categories	Number of Meaning Units
Consistent Success	8
Structure of the Training Environment	142
Operating in Competition	65
Contextual Factors	202
Sources of Learning	34
Total	451

Consistent Success

As in previous studies (Bloom, 1985, Salmela, 1992, Salmela et al., 1993), mature coaches' teaching skills brought them success on a consistent basis. Figure skating coaches at the mature phase of their coaching development demonstrated consistent results at the national level.

As my guys kept growing a little bit, we were now heading toward the Canadian level now, the Brian Orsers are coming through, Michelle's are coming through, Roberts are coming through. This is 1973 right because I started this thing in 1969. (MOSC1)

I think I didn't take too long and I was relatively successful at coaching and that is probably where I got caught in it. The first year I started to coach I had a skater at the pre-novice level, her name was Peggy MacLean and within three years I moved her up to seniors and she got on the international team and later on she was third in Canada. But it didn't take too long for me to get to nationals and I thought it was OK and I enjoyed it. It is very rewarding. (MOSC2)

By then I was also getting to be a busy competitive coach so I would be away for great periods of time, either at Sectionals, Divisionals, or Canadians, international, and world trips. I would have him come in here and substitute for me while I was away. (MOSPC1)

Structure of the Training Environment

These coaches' teaching methods evolved since their early coaching stage, and they adopted a more personalized approach. They regarded team coaching as an essential component of their success as coaches, because they were able to provide various sources of expertise to the athlete. During this phase, coaches took part in team coaching because of time constraints but also provided more diverse and complete coaching to the athlete. Similarly to what was found by Desjardins (1996) and Durand-Bush (1996), these coaches strove to provide the ideal or optimal environment to learn and to achieve the goals that the athlete and coach have set out for themselves. These short-term and long-term goals were monitored in training and in competition. As these coaches continued to gain more experience, they became more proficient in managing the multi-faceted aspects of coaching which they integrated into their personal model of coaching process. The

categories that represent how they structured their training environment are presented in Table 12.

Table 12

Structure of the Training Environment

Structure of the Training Environment	Number of Meaning Units
Methods of Teaching	19
Motivation	10
Goal setting	31
Positive Training Environment	38
Team Coaching	43
Total	142

Methods of teaching. Methods of teaching have evolved from procedures they had learned as athletes from their own coaches, into more personalized methods of teaching.

One coach states the importance in having different styles of coaching so that different coaches meet the needs of different skaters:

Je ne peux pas te dire que tu pourrais mettre une ligne ou un guideline pour être entraîneur, il faut que tu le fasses, parce que chacun a sa méthode qui fonctionne. Je pense que si on enseignait tous de la même façon, ça ne serait pas bon non plus, moi je suis soft, [nom de l'entraîneur] va être bien stricte et sévère, bien pour la personne qui n'aime pas se faire crier après c'est le fun que je sois là, mais l'autre qui aime ça se faire crier après et puis que ça marche de même, une chance que [nom de l'entraîneur] est là pour eux autres parce que ce n'est pas moi qui le ferait. (MWPC)

Despite which method the coach used, their lessons captivated the attention and interest of their student as demonstrated by the following quotation:

If there has to be one word that I would use I would say that that is my word now, I try to make that time period fun for whoever it is whenever it is,

wherever it is. Whether it is a little child learning a basic skill or whether it is at the Olympics, I try to make their time there fun, memorable. (MOSPC1)

Some coaches used video cameras for technical corrections:

I worked with my cameras. I have never been without a camera. My camera is out all day long, out every day, never without one for one day. If that thing is broken down for five minutes, my repair guys are here. I go through it frame by frame, I want to see it, I don't guess anything, I don't guess, I don't guess, I don't guess, and I don't assume. I assume nothing, I count on nothing except what is in my hand. (MOSC1)

Another coach used group coaching to impart his knowledge:

So I like working with more people, and I like working in groups. So in Chicago I perfected my group teaching. I think that I am basically one of the best group teachers in the world, and I am not doing it here, and I know that. But when I came here, my need was a different kind of need. But at that time I perfected that area and I haven't lost it. (MOSPC2)

Another coach used journals during training to monitor his athletes progress:

Ils ont chacun leur petit livre avec un crayon, et n'embarque pas sur la glace sans ton petit livre, parce que quand moi je regarde le programme, moi je vais faire les X, et puis encore là, les éléments réussis, je vais mettre un moins si la qualité était moins bonne, après ça eux autres ils ont leur livre puis où ils ont des moins, il faut qu'ils fassent l'élément au moins trois fois. C'est juste une façon peut être de travail mais que je trouve bonne, surtout quand c'est moi qui met les crochets ou qui met en pourcentage une note sur 5, je le mets à 2 sur 5 parce que c'était la qualité, 1 c'est très bon, alors c'est un peu le même principe que quelqu'un qui va avoir tous des A dans ses bulletins ou tout en haut de 90. Alors c'est moi qui mets les notes et si tu veux avoir des plus belles notes, bien travaille tes spins parce que les spins sont encore bien faibles. (MWPC)

A pair coach uses demonstrations and actually substitutes either the male or female skater in the couple in order to make technical corrections

Si je me demande si c'est l'un ou c'est l'autre, si c'est la fille, moi je vais le faire avec la fille le lift ou la spirale, je vais voir si c'est elle qui s'appuie comme il faut. Si je me demande si c'est le gars, bien là je vais demander à une autre des

filles, [nom de la patineuse], d'essayer avec ce petit gars là pour voir s'il est correct son pivot ou s'il n'a pas son bras trop bas ou trop haut. Puis même encore là, je suis capable de faire les spirales, je suis capable de faire tous les throws. Je fais tous les throw avec les gars et puis là je peux voir si c'est lui qui lance mal, si son bras est trop croche, s'il lève ou swing son bras. Je vais voir s'il est correct, s'il n'est pas correct, bien je vais l'arranger. Après ça je vais lancer la fille et puis là je vais voir si c'est elle qui n'appuie pas aux bons endroits. Après ça, je les mets ensemble et puis ça fly. Ça marche pas toujours de même, ça a l'air bien beau comme ça là, mais ça ce sont des exemples que je peux te donner que je vais utiliser. (MWPC)

Motivation. These coaches were a source of motivation for their athletes and instilled in them the desire to turn inward and to look for more than what the coach suggested.

Coaches' visions of motivation were two-fold: on one hand, it was intrinsic and self-directed by athletes and at the same time the coach acted as a catalyst in the background. The motivation was not directed to external rewards, i.e., marks and placings, but were intrinsic, for the simple pleasure of skating.

I said to the kids, this is the game. If you don't like it, if you don't like coming to the rink everyday, to just skate and to go out and perform, then don't skate. You know, if you are going to complain and cry and carry on about your marks, because I can't guarantee you anything, nothing, except that I will do my best to help you, and that is what I said to any of the dancers. (FWDC)

Like I said, there is this desire to get more than what is simply placed in front of you, an athlete has to do more than what they are just told by their coach in order to get more. To look to themselves for more, tends to bring more out of them. (MOPDC)

You see a good coach to me is a person, that you have to stimulate the desire of the athlete, and then after you stimulate it you probably have to guide it and then you have to promote it, so there are three stages to it. If you do those three stages and everybody works together you are going to end up with a good product at the end. (MWDC)

In some instances, some coaches acted upon some situations to redirect athletes but at the same time there are limits where they could not accomplish the goals for them:

Give them a kick in the ass and you tell them look you are not doing the work that you want to do in order to get from A to B to C to D, and if keep slacking off you are going back to Z, you are not going to be ready. (MWDC)

You have to be realistic and you have to be honest with them, then it is up to them to do it, you can suggest, you can tell them but you can't make them do it. They have to want to do that themselves, you can encourage them, but you can't make them do it. (MWDC)

Other coaches acknowledged and condemned some of the traditional approaches used with some athletes such as intimidation and yelling:

Il y en a des patineurs qui aiment ça se faire crier après, qui disent que ça les motive, puis ils ont besoin de ça, de se faire ridiculiser pour dire OK je vais te montrer que je suis capable de le faire. C'est pas dans ma personne, j'aime pas à voir un enfant pleurer et qui a de la peine. Puis je ne me mettrai pas à crier après jusqu'à ce qu'elle se mette à pleurer, pour arriver à avoir quelque chose au bout de la ligne. Moi je fonctionnais pas de même et je ne fonctionne pas plus comme ça avec mes athlètes. (MWPC)

Keeping journals also served as a motivational tool:

Pour l'entraînement, je vais me servir de leurs petits livres comme motivation et puis en même temps pour voir si les éléments sont bien placés ou si les éléments ont besoin d'être travaillés. (MWPC)

Goal setting. Similar to (Desjardins, 1996; Salmela et al., 1993; Schinke, 1995), coaches during this phase of development explicitly monitored training and personal athletic goals. Most coaches sat down with skaters in a meeting and set their long-term and short-term goals, and training plan:

It is like their yearly plans, every little component, we have everything from these little competitions, load all of this, off-ice guys, overlay this plan over that plan to make it work. I got Spring, Summer, this is my technical training, this is it. You steal from this I haven't got it. I am not doing technical training in the Fall. It is a

different stage of the year, I am in a completely different mind set, I have got everything figured out. I have my cycles. (MOSC1)

Coaches also monitor the goals and bring athletes back on track if needed. Goals can be monitored using training logs.

You have to try and instill that importance in them, because they must have some kind of goal within themselves and sometimes they don't need to get off the track but they do, and they think they are all right, so we have to bring them back. But that doesn't happen very often really. Maybe it does, but in our situation it really hasn't never happened that often. I think they have all been pretty good. (MWDC)

Mais ils ont dans leur livre ils marquent les buts à court terme et au début de l'année ils vont noter leur gros but à long terme mais à tous les mois on se dit, on planifie, par exemple le throw triple sow, quelle date tu planifies que tu vas l'avoir, et puis on va voir si tu es capable de l'atteindre. Si rendu à la date on ne l'a pas atteint, pourquoi on ne l'a pas atteint, on essaie de voir s'il y a vraiment une raison, si c'est une blessure, à cause de trop d'exams à l'école, et qu'on a coupé l'entraînement ou si est ce que tu n'as pas donné les efforts que tu étais supposé. On essaie de justifier ou de comprendre le pourquoi et puis si on ne l'a pas atteint parce que les efforts étaient pas assez grands, bien remets moi une autre date et là tu as besoin de faire les efforts. (MWPC)

One pairs coach established a yearly commitment to each other within the couple and also evaluated them at the end of the training season. He also became less restrictive in establishing realistic goals so that the athletes did narrow their vision of their capabilities.

J'essai de les mettre clair, à tous les ans je fais un meeting surtout avec les couples parce que je leur dit toujours que c'est un engagement d'un an qu'on prend, un an à la fois. Vous vous engagez jusqu'aux Canadiens, c'est un engagement verbal, mais c'est jusqu'aux Canadiens, après les Canadiens on vient se rassoir ensemble. Vous avez été satisfait, pas satisfait, vous voulez continuer ensemble ou non. Vous continuez ensemble, on se met des buts pour l'année et pour l'année d'après. On s'assoit, est ce que l'on a atteint nos buts, oui ou non, si non pourquoi, si oui good, si on les a dépassés bien tant mieux. On en replanifie d'autres pour l'année d'après, mais pour une année à la fois. (MWPC)

Alors je me suis arrêté, des fois je me disais ça c'est le maximum qu'il va aller ce patineur là, puis des fois avec la volonté ils m'ont bien surpris, ils sont allés plus loin. Alors maintenant, je ne m'affirme plus sur jusqu'où un patineur va être capable d'aller, parce que des fois tu as des patineurs comme [nom du patineur] qui patinait mais elle n'était pas terrible avant qu'elle commence à gagner le sénior puis à un moment donné les choses ont changé. Qui aurait pensé qu'elle aurait fait tout ça. Comme [nom du patineur] elle ne faisait pas grand chose, elle était novice, junior, mais elle ne faisait pas fureur, ce n'était pas comme [nom du patineur] que tout le monde pensait qu'elle aurait été championne mondiale. Elle ne démontrait pas ça et puis du jour au lendemain je ne sais pas ce qu'il est arrivé avec elle, puis tout d'un coup elle sort tous les triples. Je ne sais pas ce qu'elle a fait pour tous les avoir, mais du jour au lendemain elle est championne Canadienne puis elle est bien bonne. (MWPC)

Une fois de temps en temps je leur rappelle leur but, parce que ce n'est pas moi qui fait leurs buts. Fais les buts en début d'année et puis je vais te dire si je pense que c'est réalisable. Si je pense que vous allez un peu trop loin je vais vous le dire. Si vous allez un peu trop haut, bien je ne leur dirai pas non, ça va être difficile, mais si c'est ça que vous voulez vous allez travailler pour. Durant l'année, je leur rappelle de leur but et c'est de même que je vais essayer de les motiver pour qu'ils arrivent à atteindre ce qu'ils voulaient faire. (MWPC)

Positive training environment. These coaches had the ability to provide a positive training environment for their athletes, similarly to what had been seen in previous studies (Bloom, 1996b; Durand-Bush, 1996; Salmela et al., 1993; Schinke, 1995). With a strong commitment and business attitude, they were able to provide an ideal training environment as stated by one of the coaches:

When you are in business, you are responsible for running the business and making it tick, giving your customers the best service they can get, the biggest bang for the buck. That is one of the reasons why we are successful. So what did we do when we came here? Here is my Orillia, here is the place where I built a house, here is the place that I wanted to live. Here is a place that we developed Brian Orser right through to be a world champion. Here is a guy where I had to go out, and I had to access the people I knew, which was Carol Devin, so I did, and I built a house on a lake, and I did it. (MOSC1)

It was also important that the physical environment enhanced the learning for the athletes. One coach put up personal flags for all the successful athletes who have trained at his school:

It is all over those boards out there, those boards and out on the wall over there, it's all the names of kids that have done something. When the kids come in every morning of the week they see it. It is like wall paper, the full length of those boards. Flags are hanging. All those flags are from kids that have been here from different countries. They come in and go that's me. It is nice, it makes them feel at home. They can look up and go good, it makes them feel good. They can kind of go yes, I am a part of the place, I am not just a visitor. They make it their home, a place that is easy to learn. That is what I try to do, make it a place easy to learn, a friendly atmosphere. It gets in your blood, because then they can use it. (MOSC1)

The environment was also positive in the sense that the coach's attitude and communication skills also enhanced the athlete's learning:

I see the kids in the morning, I got a smile on my face. I bet 50% of the guys, ice before they step on the ice, come across the ice, look at me and say [name] how are you doing and I will say lets do something all right. Lets do something. So we bring a spirit to the place. You can't buy that, but we do that all the time, I always got a pat on the back for the girls, handshake for the guys. Always. (MOSC1)

Moi je suis complètement différent. Si tu as besoin de te faire crier après, de te faire gueuler après, et puis de te faire traiter de tous les noms pour aboutir à faire quelque chose, ne t'en viens pas t'entraîner avec moi, je ne suis pas la bonne personne pour ça. Si tu veux avoir du plaisir en travaillant, je dis pas que je ne suis pas ferme, des fois je vais peut être lever le ton s'il n'y a pas assez de sérieux. Mais en général non, je vais toujours être de bonne humeur sur la glace, et puis même quand je suis bien fatigué et que ça ne me tente pas, je vais me forcer pour l'être. Puis j'aime que mes patineurs aient un sourire et qu'ils aient du plaisir pendant qu'ils travaillent. C'est bien différent de ce côté là, mon attitude avec les patineurs. (MWPC)

The atmosphere is very very important. There have been times, and there have been situations that the atmosphere has had to have a real good cleaning out. But you have to be able to recognize that and you have to be able to see that the air is becoming stale. If there is nothing that you can actually do about it,

you have to make sure that that it doesn't actually effect the other people that are still going on with their own plan. You have to say, look there is going to be a problem here, there is nothing we can do about it, but we know that there is a problem, so we have to ignore it and carry on with our goal. So you have to shelf that problem because there is nothing you can do about it, leave that over there. Usually it is not in our hands anyway, but it is very difficult sometimes. You are not in control of the whole situation. (MWDC)

Also the opportunity to train with better athletes, provides a more challenging and positive environment:

It is the same as with Lloyd and Isabelle, a lot of the younger skaters that we have had, because they know Isabelle so well, they simply have the tendency to think that it must be perfectly normal to advance through the ranks and go to the Olympics because their friend that they have known for so long is doing that. Whereas the kids that don't have those opportunities, they go through a lot of stress in competitive situations because they don't see that far away. It doesn't necessarily mean that everyone is going to succeed and go that far, but at least you don't have the stumbling block of being shocked when you get into the higher competitions as to the calibre. (MOPDC)

Team coaching. One of the key components in the training environment was to provide the athletes with the necessary tools for success. One of these tools was a variety of people or coaching staff to meet different needs of the skaters. One of the advantages of team coaching was that it created a melting pot of different coaches' strengths.

In the early coaching phase, often coaches worked alone trying to do all aspects of coaching, but during the mature coaching phase, coaches worked as part of a team:

What did I need, help. How did I do that, I started hiring more of our coaches, we are going to work together. You can't do brain surgery by yourself, we will work together. So that is what we worked on is this team concept all along, not pretending we have a team concept, we are on the team, it is like being blood brothers, there is a difference. You have got to talk about being on a team and then we'll see who acts it, we'll see how they act for 365 days a year. We will see

what trust is, because like a marriage, business is business and that is the one thing. (MOSC1)

So then we started working as a team, which is much easier. I mean I would never do it any other way to be quite honest, especially with competitive teams because nowadays there are so many aspects of the competition that have to be broken down that one coach cannot do all of those aspects properly, that is my estimation. (MWDC)

Other people may think that they can do it all but I don't want to do it all, far from it, I would much rather share the work because then I can do what I do, what I have expertise in and give the work that I am not so good at to someone who is much better and I think that is why you end up with a much better product. (MWDC)

There was always someone heading the team, managing all the coaching components without compromising the cohesion of the group. Each person played their part, and their different personalities met the different needs of the skaters.

Back to coaches' stuff, that is one of my key things about my system, they don't work for me, they work with me, we are in it together. I am the captain of the team. Thank heavens the different personalities help a lot too. Some of the gang can come by and give me a kick in the butt or a pat on the back and say hey, look you are in there pretty deep, lighten up buddy. They will come up and put an orange juice down or a coffee or something. Once I get doing something I won't let go. So that makes it fun. It kind of rounds the thing off. I understand everybody's part, everybody has got so much to give then. I haven't got people standing in line going can I have that. I've got people standing beside me, not in some kind of line. No one stands in line, this way we are working together. (MOSC1)

The two of us basically are in charge of the group of kids that we now work with 4, 5, sometimes 6 people underneath us that compliment our personalities. Because of the differences in our personalities it made us realize that one of the benefits in coaching was not finding people that did things the way you did but finding people that were different than you, whose manners of doing things would compliment what you did. The people that are working with us now all have different values, different qualities and completely different personalities from the other people in

the group and it is the coming together of all of these personalities and knowledge that put everything together for the kids that we work with. (MOPDC)

Mais quand tu es rendu au niveau sénior tu n'as pas le choix, il faut que tu essaies d'aller trouver quelqu'un. Un entraîneur c'est un peu comme un manager. Un bon entraîneur pour moi c'est l'entraîneur qui va être capable d'aller trouver la personne parfaite pour travailler avec un tel ou une telle. J'ai quelques choréographes que j'emploie, parce qu'avec certains patineurs telle chorégraphe ça fittait pas parce que ce n'était pas tout à fait le style, ça cliquait pas ensemble. Alors, c'est à moi comme manager et entraîneur de ce patineur là, d'aller trouver le chorégraphe idéal pour ce patineur là. (MWPC)

Operating in Competition

Similar to what was found by Côté (1994) and Côté et al., (1995a) in gymnastics, expert figure skating coaches did not verbalize as much on how they operated in competition, while Bloom et al., (1997) found that expert team coaches verbalized considerably about competitive situations. Expert figure skating coaches had much more to say about the training environment and dealing with training constraints which will be covered later on. Similar to what was discussed by Bloom et al., (1997), Côté (1994), and Côté et al., (1995a), operating in competition is done in three phases: pre-competition preparation, at the venue, and post-competition evaluation (see Table 13). Although there are fewer meaning units concerning competition, they succinctly summarized the essence of sport psychology principles such as those proposed by Orlick (1990), Orlick and Partington (1986) and more recently Partington (1995). In fact the training environment was so well controlled that in competition, they just aimed for a performance like they had so often achieved in practice.

Table 13
Operating in Competition

Operating in Competition	Number of Meaning Units
Pre-Competition	29
Competition	29
Post-Competition	7
Total	65

Pre-competition. These coaches were able to manage their athletes in an effective way prior to the competition and to deal with set backs in their preparation.

Coaches stressed the importance of developing good mental skills and focus. As one coach explained how he shaped the mental attitudes of skaters to focus on performance and not on placings and results:

I think some competitions are lost because of over effort because you are always tending to put more effort. Competitions are the same as what we do every day. Every day you are learning from a day to day to day, on a competition level you are learning from a competition to a competition, somethings that you can't learn every day. So you tend to relate the competition that you are in to the one that you were in before. If you have always felt that you had to work physically hard, perhaps you have arrived at the point where you don't have to work physically hard in order to achieve it and yet because that is the way you have always done it, that is what you are going to do and you are going to make a mess of it, because then you are over achieving on a physical basis which can throw the timing off and everything that we do on the ice is as much as not being able to be physically strong enough as well. (MOPDC)

I will talk a little bit about the attitude I work towards with my skaters in competition. I rarely talk with my skaters about going for a placement, because I don't feel our sport is again clinical enough to do that. I am not sure the other clinical sports do, but I have tried to aim at a plan, a desire, a form of aggression for the kids when they go to a competition, that no matter what competition it is, no matter what the circumstances are, no matter how many people are in the stands, no matter who is judging, no matter how many people are competing against them, no matter the level of the people that they are competing against, that they always have one plan for the competition that will apply to any competition.

So right away that eliminates the idea of going for a placement. I don't like the idea of going for a placement because we don't control our placement. It is out of our control really. The judges, we can't control the judges. The way the other people skate, we can't control that. Sometimes the quality of the ice, many different factors are things that we can't control, I always say to my kids train every day like you are at the competition. That it is consistency in many of those things that allows the kids to go out and do a good job. That if they want a result at a competition that they have got to be practicing every day. (MOPDC)

Coaches previous experiences as athletes helped their own athletes deal with the distractions at a competition:

The distractions, not a problem at all because most high power coaches have been high power skaters, so they had to overcome it as a skater. Therefore they just transpose it to being a coach, so it is not a distraction unless they make it a distraction by thinking that it is more important than it really is. You have to do what you have to do, to make your students' result good. If you have to find privacy in the rink, its easy to find privacy in the rink. If you have to watch out for cameras, in most instances you can do that. Procedures, you have to watch where you are, certain procedures are slightly different. Nobody is going to know ahead of time, if you are on the ball you see what happens, because each venue has its interests. (MOSPC2)

Prior to leaving for the competition, coaches planned simulations and just prior to the competition they went through a tapering process.

Je me souviens dans le temps, parce qu'à l'époque, quand on avait le glace durant la deuxième fin de semaine juste avant les provinciaux, on faisait un genre de simulation. On faisait tous les courts, tous les longs et après on s'assoit avec les juges. Les juges avaient le temps de voir les programmes. Ensemble le coach, les patineurs s'assoient avec les juges qui étaient là. (MWPC)

Usually when we go, we are ready, so you are anxious. About a week before, your switches shut off, and you want to go, but you still have to stay here and work, practice and maintain. So you do run throughs, not every day, maybe every second day do the free dance, then do the compulsories and the OD on the other days. You just sort of keep the bodies working but you do not try for outstanding performances, because you do not want to get stale, but you are ready to go. (FWDC)

Competition. Coaches were able to effectively manage their athletes at the competition site by helping them deal with their competitive anxiety in order to facilitate peak performance:

Dans le sénior tu connais ton patineur et tu sais exactement de quelle façon qu'il faut que tu fonctionnes, puis lui même il sait de quelle façon. Souvent ils vont dire, je me sens pas nerveux et puis il me semble que je devrais l'être. Donc tu lui parles de n'importe quoi pour qu'il devienne nerveux si tu sais que c'est dans le mood qu'il faut qu'il soit, il y en a d'autres qui sont fatigués avant de patiner, et puis s'ils ne le sont pas, tu commences à leur parler jusqu'à ce qu'ils commencent à sentir que la compétition arrive et puis qu'ils commencent à se remettre dans le même feeling. (MWPC)

One of the aspects that I enjoy working on with my kids, is the psychological side of things. Parents have a tendency, especially with younger kids, to say: are you nervous? I always counter that by saying that nervousness is great if you use it the right way. After they get to know me a bit more I'll go a bit beyond that, and I will say nervousness is simply an energy that has been pushed in the wrong direction. The energy that can be nervousness or can be a fantastic performance is the excitement of being at the competition. If you are not excited to get to the competition then you are wasting your time, because sport would be boring. If you go down to La Ronde and you get on the roller coaster and you are not screaming and hollering, if you are not scared, if it does not excite you, this roller coaster, you are not going to bother going on it again, because it was boring. Some kids get sick they get so excited, but they get down, they buy another ticket and they go on it again because there is something within the human nature that loves living on the edge and if you can get the kids to realize that, that this strange feeling that they feel at the competition, this excitement, it is not a bad thing, and that is usually what is relayed to the parents when they start talking about nervousness. It is not a bad thing, that is why you are there. That is what the love of the sport is all about, this excitement: Living on the edge. If you can get the kids to work into that, then the competition becomes fun. The excitement becomes fun. They tend to look forward to being excited at the competition, then they tend to be able to use that excitement and to learn with it and to learn how to work within that excitement when they get to the competitions. (MOPDC)

Then when you get to the competition try to do what you did every day. Because we are not like in track and field where if you run a little bit faster it is good.

Especially for the pairs skaters or dancers, if one of the people in the team tries to do something physically, a little bit more physically than he ever did you are probably going to off balance your partner. So again, we work very hard on this idea that every day train like you are at the competition at whatever level you are at, in other words give it the best shot you have got every day that you are going out. Then when you get to the competition, have the confidence that that is the best that you can do at this competition. Then you go out and see how much of what you do every day you can succeed in doing at the competition, and the next competition, if you didn't succeed in doing everything you do every day you try to accomplish more of what you do every day at the next competition. So you have your daily basis where probably you are able to succeed in doing everything you think you should be doing at competition to your ability, then you are at the competitions where certain aspects won't have been as good as every day, and then on a competition level, competition to competition, you are trying to accomplish more and more and more compared to that base level that you started at in competition. Hopefully the final competition will be as good as what you do every day, which will have already improved because of the daily training. (MOPDC)

Once at the competition site coaches explained many of the procedures, such as the transportation and practice planning:

Alors aux pratiques tu leur expliques vous allez avoir les programmes, vous allez faire tel programme à telle pratique. Je les laisse décider par eux autres même, puis s'ils ne prennent pas la bonne décision, mais là je leur explique pourquoi, non vous devriez faire un court à celle là. Rendu sénior ils le savent à peu près quand ils arrivent à l'arena, ils ont regardé l'horaire, ils ont regardé combien de fois ils étaient à la grosse arena, pour que le matin de la compétition du court, qu'ils puissent faire un court à la grosse arena. La première fois qu'ils arrivent, tu t'assoies avec et puis tu leur expliques, après qu'ils l'ont fait une fois, ils ont compris comment que ça marche. La fédération et les teams leaders s'occupent beaucoup de ça aussi quand tu arrives aux compétitions de ce niveau là. Les petites compétitions, les préparations sont moins grosses. (MWPC)

Les réchauffements, on va les planifier. Ils embarquent sur la glace à une telle place, bon Ok ils font leur stroking tous ensemble, après ça un va faire des lifts, l'autre fait ça. Mais on va planifier les six minutes de réchauffement. Ils embarquent pas sur la glace pour les six minutes et bien qu'est ce qu'on fait là. Dans six minutes, tu n'as pas le temps de décider si tu fais le lift ou le twist en premier. Encore là, tu as toujours un genre de stratégie à suivre sur la glace

pendant le réchauffement. Pendant que tu vois un trou libre sur la glace, un moment où personne fait rien sur la glace parce que tout le monde sont entrain de se préparer, bien va faire un de tes highlights là, si tu as de la misère avec tes sauts, embarques pas sur la glace et puis faire des sauts pour montrer tout de suite aux juges dès en partant tes sauts. Va montrer un élément bien fort, si tu as une belle spirale, ouvre le réchauffement avec une belle spirale. Essaye d'attirer de l'attention sur toi dès le départ, parce que c'est certain qu'ils regardent les patineurs pendant qu'ils se réchauffent. Si tu es capable d'attirer de l'attention le plus longtemps sur toi pendant le réchauffement bien tu as des chances qu'ils aient plus un oeil sur toi. On va planifier tout dépendant les forces de certains patineurs, il y en a que c'est les lifts, il y en a que c'est les twists, il y a toujours un élément qu'ils font mieux qu'un autre. On va essayer de pousser plus sur celui là pour le réchauffement, c'est ce que l'on travaille dans les pratiques à la maison. (MWPC)

Post-competiton. Coaches were able to constructively criticize the performances and outcomes of the competition and to draw lessons from the experiences:

Then we look at what they are going to do in the competition and it lets us know how to work with them in order to get more out of the next competition, and also how and in what direction we want more done on a daily basis. So the kids gradually work into a trust in what we are saying. Most of them tend to fit into that program because they start to realize that it is a more positive approach. The kids that don't seem to be able to fit into it usually end up heading over to another coach that is more willing to work in a different direction than that. We have enough of our skaters that do follow that, that the side effects of that other attitude tend not to let the kids fit in as they advance up the ranks with the attitude of the kids that I am working with. They tend not to be very comfortable within the group. (MOPDC)

As all of that was happening many of the ideas and concepts that we use now we were testing out and both of us tended to have the ability to sit back and analyze when we had a bad competition, why we had a bad competition and we used to spend hours talking about what went wrong. The tendency as a coach, for us at least, I don't know if all coaches are like that, but for us as coaches the tendency was to first put the blame on us. There must have been something that we could have done that would have done a better job and allowed the kids to skate better. Because of that I think we experimented with different things with the kids to try

and find out what we could do more for the kids to prepare them to do more of their abilities in the competitions. It is not always an easy life when you blame yourself right away when things go wrong. But, if you sit down and analyze and draw from it in a positive way you end up getting more positive results, because you are experimenting and you are trying to look at not just the effect that you are getting but the cause that creates that effect. So it is an ongoing process. Many of the things that we have, we might have fallen on to some of them without realizing it, others were intentionally implemented in the program. It is very definitely an ongoing process. (MOPDC)

Je ne regarde même plus les résultats. C'est certain qu'au national tu n'as pas le choix, parce que celle là est importante pour être sur l'équipe nationale. Alors que c'est certain que j'essaie d'embarquer un tout petit peu de ce côté là, mais je vais quand même avoir une plus grande satisfaction de leur performance que du classement. Même souvent quand les compétitions sont finies, je n'attends même pas les résultats, je vais sortir, je ne veux même pas savoir les résultats. Ils ont fait leur job et c'est ça qui compte et le résultat c'est vraiment secondaire maintenant. (MWPC)

Contextual Factors

At this stage of development, coaches were able to deal with the contextual factors and integrate them in their mental schema of coaching, similar to the one proposed by Côté (1993) and Côté et al (1995, 1995a). These included: dealing with parents and their influence on the athlete and the training process, dealing with the constraints of the organization and their influence on the athletes and their training environment, and finally dealing with officials and their influence on the competition results as well as the athlete (Draper, 1996) (see Table 14).

Coaches at the mature stage of coaching development, found these constraints sometimes very challenging, but were able to effectively solve the problems that arose in the interest of facilitating the deliberate practice of their athletes (Durand-Bush & Salmela, 1996; Salmela, 1994a). In turn, by controlling these factors, the coach could provide a positive training environment for the athlete.

Table 14**Contextual Factors**

Environmental Constraints	Number of Meaning Units
Dealing with parents	33
Dealing with the administration	33
Dealing with the officials	94
Dealing with other coaches	15
Dealing with financial constraints	11
Dealing with difficult athletes	16
Total	202

Dealing with parents. Initially, most coaches found parents an intrusive nuisance to their role as the coach. With experience, they were better able to establish ground rules pertaining to their primary role of managing the athlete so that the parents did no longer interfere with the coaching process. They were then more able to earn the trust of the parents and to guide them in their supportive role.

One coach talked about one intrusive parent and how he would not teach a skater if the parent did not trust him and let him play his role:

If a parent comes in and asks me to take on a coaching position, and they decide that they want to be the coach, I will give it right back to them. If a parent decides he wants to be a coach, I will give it right back to them. Thank you very much, he didn't want me. He wanted me just to be the nursemaid, and they are going to be the coach. It is very much like if he didn't want me. If you want me just to be the nurse maid and you are going to be the coach. If you want me to be the coach, that is my job, and you are the parent, that is the business. We all understand our positions. Certainly I'll keep you informed and certainly I'll do whatever is necessary, but you also have to have a little bit of respect for me, that is my job. If you want me to do a good one, at least give it to me, or I'll give it back. Don't give me something and attach an elastic band to me and snap me off my feet, then

you can't get the best out of me, because I am not sure where you are coming from. (MOSC1)

One coach explained how you must work with parents, but not cross the line and make it a friendship. It was a business relationship:

We do deal with parents a lot, to see some of the traps that you can fall into in not working with parents well and also in over working with parents. (MOPDC)

I find parents more a problem. It happened to me many times through the years because you have common interest that you become really friendly with the parents, and usually turned out not to be the best thing, and quite often I find it is much better if I see the parent if I say hello, how are you and that is it. I don't go to their house on Sunday for a Bar-B-Q, and they don't come to my house for a drink. It is just business between us and they respect much more what I am telling them, that is about it. Yes, they have respect and they believe more in what I am telling them because of it. If they get too much on friendly basis. I don't know, maybe they feel that they are almost on my level so they don't have to listen to what I say. That they can boss me around. (MOSC2)

One coach explained a commonly occurring conflict which involved jealousy on the part of the parent, who thought that his child is not getting as much attention as the other skaters:

Sometimes parents are a problem in practice. In competitions yes, they could get unreasonable. If you have more skaters you just have to divide the time somehow and sometimes you have practices overlapping or even competitions here and competitions there. So what can you do, so you have to somehow make the decision, unfortunately quite often the ones who think they are getting the worst part of it, they are getting most of it. Sometimes you can end up that both of them think they are really at loss. It is a funny situation that is why I am into psychology. (MOSC2)

They have to learn their roles as well as the skaters, everybody has got their own roles. Sometimes it is important to the parent to be a bigger part of the team because sometimes it takes the parent to keep the athlete in line, much more so than the coach. Sometimes the coach has to go to the parent and say look can you help me out I am having this problem, I know how to solve this problem I'll solve it for you. It works both ways. So you have to know that, you have to be able to distinguish if it is not a parent problem, but maybe the

parent can help me with the problem. Or you have to know it is the parent that is the problem, then you usually go to the athlete and say look I realize that there is a problem with the parent, how do you want me to handle this situation as a coach. Do you want me to handle it as a coach, you try and go with all that is there. That is all I have to say about that. (MWDC)

One of the problems with parents is that they will switch coaches without a valid reason, sometimes just to be with the coach that has the champions for that year. Coaches are really at the mercy of the parents:

Mais les parents qui vont envoyer leurs enfants, vont essayer d'aller avec l'entraîneur qui a les champions de cette année là. Si dans 2 ans, tu te ramasses avec tel champion mais là les nouveaux qui arrivent vont s'en aller avec toi, et même ceux qui sont déjà là vont switcher. Ils vont suivre le coach qui est in de cette année là. Alors, c'est une compétition continuelle, et puis tu n'as pas de contrat avec les parents, ils vont d'un bord et puis de l'autre et puis il y a beaucoup de compétition. (MWPC)

One coach actually assessed the parents before agreeing to take on a new student:

C'est pas tout le temps facile, il y a vraiment des bouts où c'est vraiment pas drôle. Quoi qu'il y a longtemps où je choisissais mes athlètes, puis avant de dire oui à un athlète, je regardais le parent, quel genre de parent qu'il y avait et puis si c'était le genre de parent que je pensais avoir des problèmes avec. Si tu en as un qui est un parent problème, ça peut faire du trouble dans toute ton école au complet. Donc, je me débarassais de ces patineurs là, des fois j'aurais gardé les patineurs, mais je m'en débarassais à cause du parent parce qu'on cliquait pas, ça marchait pas, on était pas sur les mêmes longueurs d'onde. Il y en a qui sont prêts à endurer ça, ça dépend de ta façon. (MWPC)

Dealing with the administration. Initially, dealing with the administration at the national, provincial and especially at the club level imposed many constraints on the coaching process and the athletes' training environment. With more coaching experience, these coaches were able to work more effectively within these administration levels.

Coaches on one hand recognized that the association did many things well but also had their downfalls. One of these constraints were the committees that are in place that tend to regulate and dictate to the coaches:

Of course CFSA they are a terrific group but once in a while they poke their noses in the wrong place, trying to make deals, you should do this, you should do this. I always look at things in hindsight, you see I always say. If they're so smart how come they aren't doing it. If anybody is so smart how come they are not doing it. How come I am doing it and I am getting so much advice, you know if I am getting so much advice, if those guys are the experts how come they aren't producing. (MOSC1)

Some coaches did not get involved in any way with the administration and considered this a waste of time

So that is probably one of the reasons that I stay off committees, because you see the energy that goes in, there is not enough value that comes out. So I stay away from them. They just frustrate me to death. I just can't sit there without getting something done and move into a positive forward direction. I just can't keep moving things around the desk, around the desk, and around the desk, over your desk. I can't do it. Oh yes you can, just have a plan. (MOSC1)

Dealing with the national association became very political in the sense that coaches wanted to be treated fairly, and because they want to be treated fairly in the assignment of international competitions, they often had to negotiate for these assignments

They don't give me any hassles. Then there is the bit about choosing the International competitions that you want. In the past we used to have big arguments, because other coaches were getting more foot in the door than I was. So I had to speak up and say my peace a few times, but now it is a little easier because I know those people at CFSA and if I have a question I ask, and if I have any beef, I beef, and if I want a favor, I ask. If I don't get it, that is fine, thanks. (FWDC)

J'essaie encore, depuis que je suis rendu au niveau international, que j'ai à dealer avec l'association. J'essaie de comprendre, à côté de qui qu'il faudrait que je me colle le plus pour que ce soit bénéfique pour mes patineurs. Je pense

que comme [nom d'un administrateur] c'est certain que ça c'est la gomme la plus collante en haut. Mais il est dure, il dit des affaires et il en dit à d'autres. Avec lui si tu as des champions il t'aime bien gros, et puis si l'année d'après ils ne sont plus champion il ne te parle plus. Si tes enfants patinent bien il te parle et puis s'ils patinent mal il ne te connaît plus. (MWPC)

Or mon but c'est de savoir qui est sur le comité cette année là, et puis on va se mettre chum avec eux autres pour cette année, l'an prochain on verra c'est qui sur le comité on leur parlera un peu plus l'an prochain à ceux qui seront sur le comité. C'est la façon présentement, je suis encore au stage que j'essaie de comprendre comment que ça marche la clique. Je me suis aperçu qu'il y en avait une et je vois un peu qui lead les cliques en haut, mais pas assez encore pour te dire que je sais exactement qui aller voir pour avoir ça. C'est certain que comme [nom d'un administrateur], je sais que c'est la personne au top. Mais il y en a d'autres personnes qui ont de l'influence sur lui qui peut lui dire bien un tel devrait faire ça et puis si lui dit oui c'est rare que c'est pas là au bout de la ligne. Les résultats au Canadiens ne valent pas grand chose dans le fin fond parce que c'est encore le comité qui va décider et les règlements sont tellement flexibles, ils sont capables de justifier tout ce qu'ils vont dire. (MWPC)

At the club level it is even more difficult to deal with the administration because of a different slant to it. Usually these people have a more narrow vision of skating and a personal and vested interest in serving on that committee.

So most of them are public rinks and you are dealing with a different class of people, therefore you do not have the opportunity to go to these people and ask for help, because the board of directors are people who are not in the same category, in the big sense that they are small people with small needs and they say well my kid can't get it so why should they get it (MOSPC2)

There is a big difference between the club and CFSA. I just try to keep a good rapport with people at the club. I don't go to meetings and I don't run up to the lobby and get in with all the little news gossip. I just go in the back door, and come out of the back door. If they have a message for me, they phone me and that is about it. It is not a big situation. CFSA is another matter. A lot of stuff. (FWDC)

On the other hand many express difficulties dealing with club administrators as stated by one of the coaches

I don't have any board of directors here, I don't have any. I hate to say it, but board of directors are those that poison. Their claim to fame is spare time, and they do not have the knowledge and the know-how to make decisions on the people that are in the business like skating coaches. You know what they do? Every so often they do change, change, change... Boom, bang your head! Boom, bang your head! You can't grow. (MOSC1)

Dealing with officials. Initially coaches had difficulties dealing with the outcome of competitions and more specifically the officiating process. With experience, they were better able to focus on the things that they had control over and therefore cope with the results of competitions.

Coaches had to try to work with judges in the best interest of their skaters, as stated by the following coach:

I don't think that dealing with those things on a negative basis is going to help anybody, because of how the hierarchy goes and the more limited number of people that you deal with. There is a more limited number of judges who are judging your skaters at a higher level, and if you don't deal with things on a reasonable basis at that level, then you are asking for a lot of trouble. Because you are going to have to deal with these people over and over again. If it was because of a mistake and they see that you are not going to deal with it in a negative manner, it makes their life a little bit more comfortable the next time they go in to judge because they are not sitting there saying oh if I make a mistake this person is going to come down on me. I think the judges have an awfully difficult job as it is, I am glad they are there and not me. Because, I wouldn't want to be in the position that they are in. I believe in making, in the same as I do with my students, try to make things as easy for them as I can. I believe the judges need the same thing, that they need our backing. That they are in a difficult situation. (MOPDC)

Although when judging mistakes were made, but more particularly through the politics of the sport, coaches were usually annoyed as seen by the following quotes:

Yes it is annoying sometimes when one judge's opinion or error, or whatever the situation, if it arrives at the point where it means the difference between the skater getting a medal and not getting a medal, it happens, it happens often actually, it is

annoying, but it is part of the system that we simply have to accept because I don't think there is a better system. I feel that if I am going to complain about what a judge is doing then I am really complaining against the system, and if I can't suggest a better system then I really don't have the right to complain about the system. There are lots of people that can always see mistakes but there are not many people that can turn around and tell you what to do about them. (MOPDC)

The problem appears to be more accentuated in the discipline of ice dancing in which it is more difficult to detect the differences between the teams since they rarely fall, and high risk elements are not performed like in the free skating discipline:

Well, I have been in ice dancing for so long. It is so subjective because a lot of people don't fall down like in singles. I get angry, I get upset if the judges aren't knowledgeable, if they are only trying to get their numbers right to match the final outcome. Instead of saying I really like this, and I don't care if they are in 6th I am putting them in third, do you know what I mean? And a lot of judges tell you that they want to do that but they can't because they are trying to get 1, 2, 3, 4, 5, 6 the way that it comes out in the end. So sometimes I deal with it OK and sometimes I don't. I get more angry from seeing what they are doing with the marks, and because of world ranked people, and people who aren't world rated, because the skating does not match where the people should be in the final outcome. There is nothing you can do about it. (FWDC)

Well in the free skating and in the pairs, the ISU, judge wise has advanced themselves to a point where they are not always ridiculed when a competition is aired on television or if it comes out in the press or whatever the case is. Everybody has discrepancies in their judging I understand that, but you don't hear squabbling about it, it doesn't put a slur on ice skating when it comes to pairs or free skating. (MWDC)

Anytime you talk about judging and ice dancing, or I should say the other way, ice dancing, the first thing that comes out of peoples mouths is 'wasn't the judging awful'. Or did you agree with it. (MWDC)

So in reality for me it is all hypocritical, the whole thing. I still like ice dancing a lot, but I don't pay any attention to the judging at all. I don't pay any attention to the result of judging because 9 times out of 10 it is incorrect. (MWDC)

I don't know. I don't know. I mean how many judges do you and I know that sit on a dance panel that are absolutely tone deaf, they couldn't count a beat to save their life, some of them don't know the difference between a polka and a waltz, that is an exaggeration but it is true. I mean we sit here and say but, but it is true. But how can you do it, I don't know. Maybe the judging has to turn to the professional, and it has to become a profession, the same as they have in the ballet world. All the judges in ballet are all professional dancers, there are no amateurs. People who assess the examinations, all the examiners are all dancers. Exactly. And if it be in this country that we end up with 7 judges that are qualified, that will make them over worked, but you would end up with a better result. I don't know. (MWDC)

Puis éventuellement peut être que ça va partir ces têtes blanches sur les panels, qu'ils vont commencer à éliminer ça et puis on va avoir un meilleur jugement. C'est parce qu'ils ne se mettent pas plus à jour, les juges qui sont là vont aller faire des cliniques, mais ceux qui sont sur les panels tu ne les vois pas à des cliniques, tu n'y verras pas comme [nom du juge] à une clinique, ou ils vont leur demander de donner la clinique, mais en effet ils auraient besoin de la refaire la clinique juste pour un update. Avec le patin qui change, depuis 5 ans ça l'a changé, et puis ça change, et ça va changer encore dans les prochaines 5 années. Les pressures lifts, c'est plate ça là. Tu ne vois plus ça dans le sénior. (MWPC)

Dealing with other coaches. Several coaches mentioned problems dealing with other coaches' training methods, their lack of ethics and the ongoing problem of other coaches soliciting their skaters.

Several coaches talked about the lack of professional ethics of other coaches, as well as the problem of soliciting their athletes. Since there is no contract between coaches and parents, many coaches have expressed deep concerns about this problem:

I believe I have a certain ethic. I quite often see that the other coaches don't, and it upsets me. Then I shy away from those coaches, but basically there is actually a code of ethics, for coaches part of CFSA, it is printed somewhere. I have seen it actually, that sounds very good what they have printed there, and I wish everybody was going by that. Something about soliciting and you can do it in many ways. You can just take his ice at the right moment or be smart at the right moment about other skaters, and that is when all those problems start

with the parents and the skaters thinking well, may be I can do better somewhere else. They never know because it is like those trains, unless you step out and get on the train you don't know where it is going to get you. Then the skaters and the parents, which is a really important part of the skating, have those doubts and kind of help the situations. (MOSC2)

C'est peut être malsain d'un côté, il y a quand même une étique professionnelle, mais je pense pas que dans le patin la plupart des gens la suivent. Il faut que tu sois continuellement sur les gardes avec tes patineurs et puis que tu regardes quels entraîneurs qui parlent à tes parents. A un moment donné des pots de vin tu en as dans le patin aussi, comme je vais couper tes leçons si tu t'en viens avec moi. Puis à un moment donné tu perds des patineurs et quand tu perds deux ou trois couples, c'est quasiment le tiers ou le deux tiers de ton salaire de la semaine. Tu n'as aucune protection de ce côté là, et ils peuvent arrêter quand ils veulent puis on paye pas de chômage et tout ça. (MWPC)

Some coaches found other coaches' training methods unhealthy and disruptive to the progress of their own skaters.

Then there are other camps working in the same area, if another camp has a situation, it is like cancer, it spreads. You have to say, hey look guys that cancer over there is spreading to your body, do you want it or do you not. No, we do not want it, fine, you have to ignore it, you have to put up your barrier and carry on. Let them become diseased with it, that is fine, that is to your benefit, they are going backward but you are going forwards. Sometimes you can do that. (MWDC)

Dans les sessions d'entraînement, les affaires les plus difficiles, comme au centre où j'enseigne, c'est comme [nom de l'entraîneur] parce qu'il entraîne différemment, [nom de l'entraîneur] il crie beaucoup, et puis quand il passe un trip de crier une session complète, il est stressant, moi j'essaie de les tenir bien calme et smooth et puis lui il hurle à côté, ça c'est stressant. Ça serait le fun des fois d'avoir des sessions séparées, que t'entraîne ta gang la façon que tu veux, mais moi ce n'est pas pareil, veux ou veux pas tu n'as pas le choix d'endurer ça, il est sur la même glace et puis qu'il crie à côté de toi. Je pense à l'ouvrage c'est ça, le contexte externe qui est différent. S'il était sur une glace tout seul, bien peut être que ça serait différent pour lui aussi, mais je pense qu'au travail c'est ça. C'est la façon dont les autres entraîneurs qui m'entourent qui est différente, c'est leur façon d'entraîner leurs athlètes qui est différente et puis qui va rentrer des fois en conflit avec les miens. (MWPC)

Dealing with financial constraints. Because skating is a very expensive sport, many coaches had to deal with the athletes' financial constraints. They had to consider the financial constraints in the training of the athlete.

I charge the skaters, as much as I can, there are kids which I can't, so what do you do. Even if I charge them like for example to be specific here, I charge my kids the time I spend with them on the practices and I charge half an hour for each competition they go to and then I charge them the hotel and flight, that all together is probably just in expenses alone is \$1600, and I have here 3 kids so they are paying over \$500 dollars each only for my expenses, then they are to pay another \$300 to \$400 for the lessons for the months it is \$900. They spent a lot of money being here. You don't have too many who can really afford it in the long term.(MOSC2)

Always thought that way. Never felt that the sport was for everybody and economically I wanted to make it possibly for everybody. One of the reasons that I came to Canada was for that, because in the States the power rates, electricity rates on the 2 coasts was escalating at a tremendous pace, which put up ice costs, which costs about for a competitor in New York City with one lesson at that time \$50 per day, for ice, a lesson and parking. Today it is much worse because people are charging lessons \$60 per hour, and actually the average rate is between \$60-100 an hour for coaches. Most of them are around \$100 an hour now, high power coaches. Most of the coaches in Canada here are at about \$50, so it is about half, that is half in dollars, but their dollar value is even more because their dollar is worth about \$1.40 Canadian, so you can figure out where we are now. (MOSPC2)

Dealing with difficult athletes. Coaches also had to deal with the challenges of athletes with bad attitudes or difficult personalities. The attitudes of the athletes affected not only their performance, but also the atmosphere within which the other athletes trained and the coaches taught:

Les commentaires des juges c'étaient qu'ils ont pas l'air à aimer de patiner ensemble ses deux là, vois tu ça parrait même des estrades. Ils sont rendus à un stade qu'ils ne sont même plus capable de s'endurer ni l'un ni l'autre. Ça me surprendrait même pas qu'ils n'arriveraient pas à finir cette année, c'est à ce point là. [Nom du patineur] n'est même plus capable de dire quelque chose de beau à [nom de la patineuse]. Elle réussi quelque chose puis il va lui dire ça donne quoi tu l'as réussi, mais tu vas le manquer dans le programme de toute

façon. Moi j'ai bien de la misère à entendre ça. Ça me fait de la peine et puis je ne suis pas capable d'être dans un tel environnement. Je ne suis pas capable de travailler avec des athlètes comme ça. (MWPC)

Absolutely. You are dealing with a different animal, and I will say that the next 5 years will be the most challenging because when this network highway gets in gear here, we are going to have a different beast out there as a child, totally different. I came from a generation where there wasn't television, there was radio. Then we hit the television generation, 60's we hit the drugs generation. I had athletes that were at the Olympics that were bombed lots of times, even at the games, I had to get through that, terrible. (MOSPC2)

Sources of Learning

These coaches took every opportunity not only to experiment but to learn from other experts within and outside their field. These coaches learned many things by trial and error and experimented with new ideas so that they would push the sport to a higher level:

So I haven't had a lot of success that way in my learning. I had to figure it out on my own. I am technically minded and I like analyzing. I like going through all of the aspects of free skate. That is what I ended up the best at, because that is what I put all my thoughts into. Business is business, I have a business and the technical components of figure skating. I am not a choreographer. I used to be. I am not a dance coach. I used to be. I don't partner dances any more. I used to. It took all those things to get started. (MOSC1)

When I took lessons all everyone was doing was doubles. I am doing quads now, increased the thing to four revolutions, no one ever told me rotations only happen in half a second, no one ever told me about flight paths, no one told me what speed max was. I took from experts. So I tried to design, what is happening, how does the world work, what is the earth spin, there is no friction in the air, how do these bodies turn, what is the spinning axis, what is that, how can that move, what is the frame, what are the components of the body, what is that, so I worked and I tried to figure it out myself, bit by bit by bit. I worked with my cameras. (MOSC1)

I began to experiment with them. I thought my god, those things really work and for the last ten years I have been doing this, which worked also, but I have a feeling that his thing is going to work better. So I began to experiment

myself, I was still young enough to try and do the stuff myself. Then try to influence my pupils by what I was now discovering. I would say he had a tremendous effect on me, certainly in opening my focus into knowing that there are other ways of doing things. (MOSPC1)

But I never had to much of the coaching and I had to figure out a lot of the things out for myself. So I had guidelines, I had the directions then when I went to seminar again I broadened my knowledge and the direction in which I was going and that skating was going. But I had to do a lot of thinking and experimenting myself. I think that this really helped me later on, not to be a locked into any certain way or certain direction of coaching. So I always have to look how the things are, look around to see how the other people are doing it and try to come to my own conclusions. (MOSC2)

Seminars also provided opportunities to work and learn from watching other coaches:

At that time we were taking some of our skaters down to a seminar that existed in Lake Placid which involved many of the top skaters in North America, in all three categories. That is when we had the opportunity to sit back and look at many of the top coaches working side by side in this seminar. We started noticing similar characteristics, between all of the coaches, we started saying well if these are similar characteristics, they must be things to work toward as a coach because if they are similar among all the coaches that are succeeding they must be having an effect on the skaters that they are working with. (MOPDC)

They all seem to be very determined in what they are doing. Obviously very knowledgeable in what they are doing, but they also have a way of giving the information that the skaters receive it and want to do it and they tend not to give up until they get what they want as coaches. It is interesting because each time that we had a seminar at our center now, I find that one of the things that I am always doing is analyzing the manner of the coach that is giving the seminar as to what their philosophies are, what their manner of implementing their philosophies is and it continues like that. You never really stop analyzing the successful coaches that you meet and trying to figure out what it is about these people that makes them successful because many people can have the knowledge, can have a lot of experience, can be around successful people and still not have success in the athletes that they are bringing up. It seems to be limited. (MOPDC)

As I got to know him because we would be fellow course conductors or fellow master coaches at whatever we were doing, we would begin to share ideas about things and he was the one that made me more flexible in my coaching because I would notice that he would be doing something, especially in figures, he would be doing something that was just so extraordinarily different from what I did. I thought this guy is pretty good, he has had some amazing successes in his life, I had better listen to him and see what he is doing. So at night when you are finished at five o'clock and you are not back on the ice until the next day at seven o'clock, it's a pretty long evening to be in a hotel in New Brunswick. So we would spend long hours discussing the philosophies of the techniques and so on of skating. I began to try them which were in some cases absolutely opposed to what I was teaching. (MOSPC1)

They also learned every day by trial and error, and with time and experience, learned to become better coaches:

I think aside from those things that I just said, I think that they have to be very observant. Learn from experience, learn from the people around you. (MOPDC)

Coaches also gained knowledge from other sources outside of skating, such as the performing arts:

So we were always as young marrieds and even before, we were going to stuff. We would see the ballet, I think we counted at one time that we had seen Swan Lake 21 times. Anything that had any form of music or dance in it we were there, whether it was at the O'Keefe Center or just a recital hall or whatever. So we saw everything and we still do that. We just saw Barischnikov, last Monday. We will do anything that we feel will motivate us to movement. So no one person but certainly again the great people, like when Rudolf Neureyev was in his prime and he was coming in those tours, we were always there. If Neureyev was dancing five times in seven nights we were there five times. (MOSPC1)

Coaches also embarked upon more structured leaning environments such as the NCCP courses which were in their infancy when these coaches were developing:

The original courses dwelled into things that I had not taken in school. So these courses brought up things like anatomy, biomechanics, nutrition and in

the area of music and choreography big time. So that there were concepts and names, words that suddenly gave meaning to all the things I was doing in movement. Those courses were like to me a university education. They just keep getting bigger and better. (MOSPC1)

The mature coaching phase involves a crystallized model or coaching style, where the coach is able to manage all aspects of training and competition as well as dealing with the environmental constraints of the profession. The components of coaching are quite similar to those found in the CM (Côté, 1993; Côté et al., 1993a; 1993b; 1995; 1995a; 1996) (see Figure 1), with some components specific to the sport of figure skating. There is a greater concern in dealing with contextual factors such as officials, administration, and parents, because of the nature of the sport and its existing problems and the necessity of monitoring constraints to facilitate deliberate practice (Durand-Bush & Salmela, 1996; Salmela, 1994a). Team coaching was well established during this phase in order to guarantee having good results for their skaters.

In order to encourage an optimal training environment and minimizing contextual constraints parent education was promoted so that they could understand their roles and responsibilities in the training and competitive process. As well, courses would be offered to administrators at all levels and in particular at the club and regional levels to facilitate both skater and coaching development by showing consistency in the application of rules, while also allowing flexibility to promote growth. More specifically to club administrators, these individuals required some entry level training on how to administer a club, promote skating development, and work with coaches without tampering with the coaching process.

Lastly, the most prevalent component in this phase was the task of dealing with officials, and the nature of quality control when it concerned judging. There

was a lot of work done to promote coaching education but little to promote expertise in judging. In fact many judges have never skated or very little. Therefore, coaches suggested that this problem be addressed. They also suggested better communication between judges and coaches especially during post-competition period, so that they could work together to promote skating as well as the learning process.

Expert Coaching Phase

These coaches demonstrated technical and pedagogical expertise and showed automaticity in carrying out procedures. Expert coaches have a crystallized model of coaching as well as a personal philosophy which underlies their conceptualization, not only of coaching, but of their world view. In order to coach at the world and Olympic level on a consistent basis, these expert coaches resorted to other methods of learning that distinguish them as experts and kept them on the edge of knowledge. They borrowed from other experts and from other disciplines. The primary method used was experimentation. Finally, these expert coaches shared their thoughts on the role of the coaching certification program as a method of learning. The categories established in the stage of expert coaching have been identified and are illustrated in Table 15.

Table 15

Expert Coaching Phase

Expert Coaching Phase	Number of Meaning Units
Expert Training Factors	43
Success	17
Personal Character Traits	43
Personal Philosophies	53
Vision of their Roles	25
Valuing the Athlete-Coach Relationship	60
Love of the Sport	17
Methods of Learning	94
Total	352

Expert Training Factors

Three crucial factors were identified as being essential to the development of the elite athlete in figure skating which was the automaticity in which the expert coach carried out the tasks, the network established with other experts working for the athlete, and the ability to develop a concept or theme that represented the essence of the individual skater.

Automaticity. These expert coaches distinguished themselves from others in their use of metacognitive or executive skills. Like experts in other fields, they reported automaticity in their responses which was characterized by fluidity of the process without deliberating (Anderson, 1990, Berliner 1986; 1987; 1991; Bloom, 1985; Dodds, 1994; Glaser & Chi, 1988). They also had a conceptual plan of where they were going and where they wanted to be, but at the same time had a tremendous ability to read the situational needs of the athletes (Berliner 1986; 1987) and yet had enough flexibility to meet those needs (Berliner, 1986; 1987). Many coaches shared how they operated on a daily basis, where they were not deliberate in a specific lesson plan, but demonstrated automaticity in adapting and reorganizing a lesson based on the immediate needs of the skaters.

Everything that we do is spontaneous in as much as we don't walk in with a lesson schedule or a plan schedule, which is pretty much contradictory to everything that we are shown in coaching. We never know 100% what we are going to do one day to the next, as far as specific lessons. We have a vision as to where we want to get to in a year, and in a five year plan, and in a ten year plan, we have an image of what that is that we want to accomplish. When we come in on our lessons, ok, if we start a lesson for example with something and for one reason or another they are not able to participate in the lesson to their abilities, whether it is because of an illness, or an injury or a bad mood, if we see that we are not going to be able to overcome that problem then it is a very short lesson. We will go and work with someone else, and if that other person is on that day, and they are able to grasp everything that we have to offer then the lesson will be longer for that person. So we run on a totally unscheduled schedule, and yet in the overall when we have sat

down and really analyzed the time that each person gets it is perfectly balanced as to what they are wanting anyways. (MOPDC)

You talk about psychology, my God, the best psychologists in skating are the most successful skating coaches, if they didn't have it, they couldn't of have made the success that they had. The psychological education that I went through in the early years was amazing, I had to understand what makes these things click. What makes him so different than him, how can I say it to him. Eventually and at the stage where I am now, if I have a student more than a year, if they step into the rink area, I can look at them from 100 to 200 feet away, and I will know exactly what mood they are in today. They don't have to open their mouth, I can tell from their body language exactly where they are. My job becomes, how do I come in on them today, to make the best impact in the time that we have, don't fight it, work around it. My job is to get something done and I feel that, just by seeing them and just feeling the vibrations in the air, I can tell by their vibrations, even if there is only the two of us, it is saturated because there is only their vibrations and mine. I can tell exactly where they are at. (MOSPC2)

So those kind of management are really important, the time, the day to day management on what is done on the ice with the child on that day is structured to a point, but it is a linking chain and you are adding each day, and when you add that link you have to think well what can I get done today given the child that I have today and by his first jump or two, I can sense that he is really at a high level of coordination. Everybody worked within a range and today he is really at a high level, well today we will work on the really difficult stuff, we won't waste time on other stuff. Next week he comes in and he is at a very low level today, he had an exam at school, his energy level is low, then we will work on something more artistic, it doesn't depend on the physical, he can fantasize, take him out of this physical dullness. (MOSPC2)

You have to read the kid, it is very important, read them on a day to day basis. Have an overall plan, don't expect to stay to it totally, work your way around it on the basis of energy and focus, and that is why these set times cannot be done. You work within a larger structure. (MOSPC2)

Each day that we give a lesson it is basically the same thing. Looking at the need for that day, rather than the recommended manner, of walking in with a plan and perhaps giving that lesson, whether it only being of partial value, because perhaps it is not the thing that is most valuable at that moment. We find that on the ice

although many things seem to gradually progress there are some things that the day you are working with them, seem to be the right day, and the right moment to work on something. If you develop the sensitivity to see that and to feel that in the skaters, you get more results by working on the thing that they are really ready to work on, not necessarily the thing that they mentally think they are ready to work on, but the thing that they are ready to work on that you can see that it is right on the edge, it is ready to happen, take it and push it over the edge so that you are getting a bigger result than you would have if you had just taken a base product and said ok we are going to work on this today and another day we are going to work on this. I find, for myself and for the people that I am working with, that we would be too slotted working like that. Especially the artistic side of our sport would probably suffer working that way. (MOPDC)

Working with other experts. These coaches were very resourceful and tapped other fields of expertise, namely many of these coaches worked with specialized trainers in other fields such as physical trainers, sport psychologists, and some of the best choreographers in the world.

I need experts, not another level. I need experts. I need somebody past that level, working for me to run my business to get the athlete where they are going. It is nice to get those fast track seminars, and yes I go, but those fast track seminars it is not me they are after, I don't think. But if I don't get them all, it is going to be me that can't go somewhere. Because I am working so hard I don't have time to go to these damn things. But I go and get them done. I am not saying that is negative, but one person can only do so much, can't be an expert at off-ice, at nutrition, and at this, at that. It is wild. (MOSC1)

Conceptualizing the complete skater. These coaches, with their wealth of experience were able to package a complete skater, taking into account such details as music, themes, and costuming which are essential components in producing a World Champion. Their global views and outlook on a problem, as well as their ability to solve it showed similarities with the expert pedagogues in the studies of Berliner (1986; 1991).

I have to tell you about one person above all who has been influential, I can't believe that I have forgotten to mention this person. That is my wife, because she probably more than anybody has developed the concept of wholeness of

the skater. I don't want to use the word packaging because it sounds gauche, but packaging kind of does the right scenario here, in that you have the skater, you refine the skater to your particular needs, you find the right vehicles, musically, for the skater, you find the right choreographical look for the skater, and you dress the skater properly. So that is packaging. Then you offer the package to the skating community via competitions and media, the CFSA and so on. She has been extraordinarily influential and in some of the big successes she was the instrument behind because the decisions about what you use and the research that goes behind those decisions in a lot of cases is directly her. Certainly the Casablanca program is a direct result of [name of wife]. She found that. If you recall an earlier success, that was [name of skater], his 1988 Olympic win, [name of wife] did that music. She just has the persistence of looking, she gets an idea and just develops the idea and searches for music. (MOSPC1)

Success

These coaches' expertise was evidenced in their consistency and ability to coach athletes from the grass roots to the World and Olympic levels. These achievements demonstrated not only their technical expertise but also their pedagogical expertise.

I have been teaching for 25 years. I have been at 14 Worlds in a row, 24 national medals alone just in this country, got about 150 national and international medals. (MOSC1)

I would like to say that I am not an atypical elite coach in this country, most of the elite coaches in this country have just dealt with things in this country and the environment in this country, and I have dealt with the environment in 2 countries, and maybe more because I have coached for the French Skating Federation, I have coached for the Japanese Skating Federation, I have coached for the British Skating Federation, the Finnish Skating Federation, the Belgian Skating Federation, the South African Skating Federation, the New Zealand Skating Federation, I dealt over the years with those countries, with their athletes and working with them on a athlete or 2 athletes, to work within their system to a point. So I have been exposed to those organizations and so on to a smaller degree, and that is sort of factored into my overall makeup about what I think is good and bad. (MOSPC2)

He [name of skater] was not my only student, God I had all kinds of them through that period. I had remarkable successes, like at one divisional, the first divisional that we ever had, across the country, I had the novice junior and senior ladies champion in the same divisional, you could never do that these days. Those kinds of successes which were great and many Canadian competitors and so on. I came pretty low there for a while. Then after [name of pair skaters] were world champions in 1984, that seemed to be a zenith, a high point and I had quite a nice lady skater at that time, she was the ladies champion of Canada, [name of skater]. They retired at the same time. (MOSPC1)

Personal Character Traits

These expert coaches demonstrated the following personal character traits: Honesty, strength in character, personal responsibility, flexibility, and an ability to assess their strengths and their weaknesses.

Personal strength and honest in character. Coaches showed a tremendous commitment to hard work:

But I've got a mission, these little diagrams I am drawing, they are forever. The day I decide I am doing something, this thing is armed ready and dangerous to continue. I will just be standing behind it like a rock, no different than I am with every single kid. Everything I touch, won't budge. The roof is falling down, good. If somebody is coming out, it is going to be me. I am not laying down, you will have to drag me down. (MOSC1)

Yes, I am still punch and grind, punch and grind, but I can't go quite how I use to. I was going 7 days a week, and I think if I keep going, I am going to die, I am going to run out. (MOSC1)

They also demonstrated a great deal of confidence in what they are doing:

But as a coach you have to believe that what you are doing is the best. You can't look over your shoulder as a coach because the message you give to the skater is this is how it should be done, this is the way you do a triple axle. You can't say well either this way, but if that doesn't work you do it this way or you can do it that way, because they will never trust you right. So you have to believe that what you are doing is the best and that is what you tell them, so then in turn how can I get some other coach coming to me and evaluating me,

because I believe that what I am doing is the best, so who is the other god telling me that I am not doing the best. (MOSC2)

They were honest in nature:

I think also being just tough with handling whatever situation. I have no problem with confrontation, I might have had more problem with that as a young person than I have now, I have no problem confronting situations. That is an asset for a coach because sometimes you just have to either confront through intervention or through direct confrontation, you have to be able to do that. I have no problem with either, so that is an asset. (MOSPC1)

Loyalty, truthfulness, things like that. Again we are talking people, you don't want to be cut throat, you don't want to be unethical. Everybody has their own standards. To win at any cost is definitely not my motto. Winning is doing all the things that you are supposed to do and not cutting anybody's throat or being dishonest about anything, because that is not winning, you have lost, not only in skating, you have lost in life as well. (FWDC)

Personal responsibility. Expert coaches had a great sense of responsibility towards their athletes in facilitating their optimal development:

Stress, it is a big big responsibility when you are working with talent. You have to give them the right choreography, and the right material. I have to send them to people to do things that I am not capable of doing and they appreciate that. (FWDC)

Flexibility. Expert coaches also demonstrated flexibility similarly to other experts found in studies on problem-solving (Anderson, 1990).

Since you started talking about it, I might as well have an honest answer. If somebody was trying to figure out or study some list that I went through, you got to be nuts. I go through my own list, not some list. At the bottom of the list, I always have enough flexibility to make an adjustment, and enough to go forward. (MOSC1)

So in a sense you have to be with your generation, and you have to live with your decisions. You have to be proper but not backwards, always on-going, and you really have to understand where this generation is coming from. Twenty years ago both parents didn't work, most parents both of them work today. These children are Days of our Lives Inc., they go home and they are

absolutely influences by the soaps. We have to deal with that, and our generation has to deal with that, there is an impatience. (MOSPC2)

I think that if we are in a sport like we are that artistic people tend to be difficult to regulate. I think the rules that are set up need to be there but with the flexibility so that you don't cut off this ability to go beyond what has already happened, or the ability to be creative. (MOPDC)

Knowing their weaknesses. Expert coaches were very intune with themselves, knowing their strengths but also recognizing their weaknesses, so that they would tap other ressources to meet those needs:

You know I was part of designing triple axles and quadruples. My mind set is technical. As in any business, you figure out your strengths and weaknesses right away. (MOSC1)

That is when you really have got to be able to say you are right and I am wrong. That is the other good thing about being a coach you have to admit when you are wrong, because you are not always right. (MWDC)

C'est un côté, comme je te l'avais dit, on a nos points forts, nos points faibles et puis quand tu connais tes points faibles, bien tu essaies de trouver quelqu'un pour compenser. C'est peut être un de mes points faibles, que je sais que je suis nerveux avant les compétitions. (MWPC)

Personal Philosophy

Similar to Bloom (1996a), these coaches demonstrated a personal philosophy and vision not only in sport but in life in general. They included principles and values of commitment to individual integrity, balance in their personal lives, the desire to help others, and to promote personal growth.

Philosophy and values. They believed in basic principles that guided them not only in their work but also in their personal lives:

That is a bit what we are lacking in society right now, is some of those disciplines, that there is a right and a wrong, it just can't be wishy washy everything, because you are just going to get a wishy washy result, because the direction was only fair, there was nothing vivid or sharp or precise or has to be or anything, so the result is

going to be the same. It is one of my things that I talk about all day long. Any road will take you nowhere, you have to have a precise road in life to get where you are going. You have got to have some direction, you have got to be an architect in designing your own destiny or else you are not going to get anywhere. You are just going to be walking in some dark room looking for switches. To open and find some daylight, but it won't be there, and then you blame it on somebody else. (MOSC1)

There is nothing negative. I won't even listen to the word, No. The minute there is a negative, I just walk away. Nothing will be built on negative. Nothing. It's a trap. If someone is going to scoop me into one of those things, I won't go. If I do, I will catch myself fast. If I am not going to get caught in the mud, it is not a positive base, if it is not a positive thought. Everything is tough enough as it is, I don't need that crap, I won't play. I just continue to march forward. The minute somebody says oh Jeez this is too early, as simple as that, off, nothing to do with it. It is early and look at what opportunity to be here. We are going to be three steps ahead of everybody else. Isn't that great. Yes. Never thought of it that way. I won't even hear of it, I don't want to hear of it, I won't talk about it, I am not avoiding it, it is just a dead issue because it won't take you nowhere. 'No road will take you nowhere'. You are going nowhere on that stuff. No, I only want to talk about what you are going to do. What are we going to do. Now we are going to set up a sequence of information, create opportunities to get there, we will conquer it. It is only a challenge, that is all. That's all it is, a damn challenge. All it is, is one situation after another, and we can solve them all. All we need is a little bit of time to do it. All we have to do is give ourselves enough time. (MOSC1)

I have a tendency to look at everything in a positive light. One of my favorite sayings, people come in and say how are you today? And I will say oh I am doing great. Then I will turn around and say even when I am not doing great, I am doing great. Because I always believe there is something to be learned from every situation you are in. No matter how much it might appear to be negative there is always something that you can get from it that's going to make the situation better. (MOPDC)

I feel you know, my philosophy about life is similar to standing at a train station. You stand, your life is standing at the train station and every so often train goes by and you have chance to get on train and go somewhere else if you don't, well you still stand there but next train comes and again it's your choice. Sometimes you take the train and you get somewhere else and there you stand on the railway station and you are waiting again for another chance.

So these chances go by you all your life, one by one, and it depends whether where you get that urge or the guts, or whatever feeling I have to jump on this chance and go with it. If you don't take it well you don't know how you would have done if you did and vice versa. (MOSC2)

Philosophy of balance. These coaches strove for balance in their personal lives while remaining committed to their work:

When I want holidays, I want holidays, which might happen to be 4 weeks in a year and sometimes not even that, if we don't have stuff done I have to come back earlier. I am just a little too one sided with skating. I mean I need a balanced life. I have to do house things. I have to do groceries. I have to do laundry. I have to have a social life, skating is not everything as I said. (FWDC)

So now I am really fighting with myself quite hard not to over book myself like I did in Calgary. In Calgary, when I used to be coaching every day of the week really, 7 days a week. It was just too much so I am trying to keep my coaching to four days a week only. This fall I was coaching 5 days a week, it got too busy and I am looking at ways how to limit it again. (MOSC2)

Committed to helping others. Some coaches were committed to helping skaters as well as individuals in the community:

So we go into the community instead. I would rather be known in my community, I would rather walk down the street and help somebody cross the street, or do something. I was lucky though, last year they gave me the highest award a Rotarian can get in the world. There are so many thousands, I am not a Rotarian at all, they presented an award to me, called the Paul Harris award. I found it very special. It's just commitment to working with people, working on projects. (MOSC1)

Promoting growth. Some coaches were driven by their commitment to promote personal growth:

People want to grow. I teach growth, not just what you do, but what you are as a person. That obviously came from somewhere, my dad, who also really liked the coaches that I took from. That person has got character, that person is in business, that person is going to give you something, that person has got value. Those people gave me that. That is what I try to do. (MOSC1)

Vision of their Roles

These expert coaches had profound thought processes and visions of themselves, more as educators than as coaches. Several were also involved in the education of other coaches and occupied administrative roles.

Role as educator. They did not only see themselves only as coaches, but also as educators, teaching life principles or life skills.

As I was saying, if you are going to be anything, the hardest thing to be in your life is just to be yourself. That is the hardest thing, I teach my kids that. I teach everybody that. The hardest thing to be is yourself. Everybody wants to be, 'a want to be'. They want to be somebody else, they want to be that thing over there. When you really want to be is sitting right in front of you. There is so much potential in yourself it is unbelievable. So that is easy. (MOSC1)

You have to remember that you are not just creating a skater, after skating is done with many of these kids, 90% of them don't have anything to do with the sport so they go on with the rest of their life. Only 10% of them will have hang around the rink and teach, or judge or become involved with associations or the clubs, but 90% of them go out on the street and start living a normal, happy life I hope. Thanks to some of the work that I have done with them. (MWDC)

Teaching other coaches. Some coaches were involved in teaching other coaches, whether it be in a formalized manner such as the NCCP program or in more informal procedures such as seminars.

I work with a lot of coaches. I ran a seminar here just 3 weeks ago, there were 75 coaches here, top coaches from England, Gloucester, Jersey, New York, everywhere, Montreal. I had half of Quebec sitting in here. I go through a week of just technical training, hour after hour after hour with my kids and their kids. Coaches from all over, I'm giving a lesson at the end of the thing, I've got 20 skaters, and 50 coaches that are watching, cameras all over the place, bang, bang bang. I go over everything, yearly plan, through operation programs, brought in a martial arts expert, the number 3 girl in the world, this and that, show them part of our design, concept, I do it every year. When I put in my applications out for January, I am sold out for February. Sold out. Done. I spend a lot of time with other coaches, they come here because they want to, not because they have to come here. I

charge them, not much, \$125 for the week. I gave them time. I give them a million dollars worth of information. I bring in guest speakers, bring in nutritionist, I bring in all the components. All these kids and coaches get to see our yearly plan, some of the people in action. Whether it is my guy doing an off ice program, every day we have a guest speaker who's got credibility. So they get a pretty good perspective. Then we have all the hand outs, I love working with my coaches, they are the ones handing the information down. So I teach them the street. (MOSC1)

I do a lot of seminars. I am going to New Zealand for 2 weeks this Spring to work with their coaches and their association, and then a major seminar in Indianapolis in June. So all my spare time is filled with those things. (MOSPC2)

Administration roles. Some coaches did not get involved in administrative tasks while others did:

If someone phones and asks me, I won't step out, I won't go on any committee, forget it.

I also think you have to give back to the sport something. I think you have to be able to sit on a board and give your opinion if you are asked to do it, and volunteer your services for certain things. If you are generally interested in the sport, you should promote it to make it better, because there are enough things in the press and the media and all your peers, there are enough of those things that are there to tear the sport down. It is very easy to throw in negatives, but it is very, it is not so easy to put in positives, so I feel that by serving on boards and serving on committees and doing my courses that I am actually giving something back to the sport as well as to myself. (MWDC)

I serve on the Level 4 and level 5 coaching advisor committee and I have served on the ice dancing committee for the level 2 technical, and I served on the board of directors of the Minto Skating Club, as the coaching person on it. Somebody has got to do it, there is no sense in sitting back and complaining about it. You hear that all the time, if you get on it and do something about it at least you can say that at least you tried to do something. I would like to get on the ISU committee, for the judging for instance. (MWDC)

Valuing the Coach-athlete Relationship

Similar to what was found by Bloom (1985), Bloom (1996a), Salmela (1992) and Walton (1992), these coaches valued the athlete as an individual over and above just winning. They stood behind their athletes, independent of performance outcomes. They developed a special relationship with their athletes, had the ability to read the situational needs of their skater.

Valuing the athlete. These expert coaches reported long-term commitment to their athletes and their sport through their determination, hard work in helping their athletes through difficult times, and the provision of the best training environment.

I still treat each skater as a person before a skater. I think I used to want to get right into it, and not be famous but be there as one of the top coaches. But now that doesn't mean anything to me. I just like working with the kids that I work with and I want them to get somewhere, but it is not for me. I think that happened when [name of skater] did his thing at Worlds in Ottawa. I reached my peak of satisfaction because he did the best he could do. He needed that performance and that whole competition for his life as a person, I was so happy. (FWDC)

We let the kids know that irregardless of how they skate their coach is going to be at the side when they come off. A lot of kids will go out into a competition worried about what their coach is going to think, so as much as possible we try to relieve that idea so the kids can concentrate on what they are doing. We let them know that all we would like them to do, is to do what they do every day. If they can do that, and if every day they are trying as hard as they can to do the best that they can, that is good enough for us. (MOPDC)

Coach-athlete relationship. Coaches shared a special relationship with their athletes and were able to get the most out of their athletes:

I think personality is also important, if you have a personality that clics with some people but doesn't clics with other people, if you are lucky enough to work with some talent that clics with your personality, then that makes a successful coach. (FWDC)

When I taught [name of skater] for the last two years of his career, I did not teach [name of skater], I managed him. I encouraged him, I didn't have to discipline him. I was just his friend, his buffer that he could let things out that bothered him or whatever. (FWDC)

We [name of pair skaters] remain friends to this day, very close friends, so there was a bonding of souls in that particular case. Even [name of skater] writes to me often, so that was a very wonderful time (MOSPC1)

I think it fits into your question because you realize that you do as a coach have extraordinary power over your pupils and I can relate that right back to the very first question when we talked earlier about the influence that my coach had on me. She had a tremendous amount of power over me. Certainly when you reflect in the opposite you can see how much power you do have over your student. They listen to you as though you were god and you could actually get them to do some really remarkable things.(MOSPC1)

There is something about the individual as a coach that tends to bring some little extra thing out of the people that are around them. I find that the coaches that are very energetic because they have this energy toward their sport, whether it is a love for their sport or simply a driving energy toward being successful or anything like that, the top coaches seem to have this thing. It is a very difficult thing to put your finger on as to what it is. It is this personality thing that makes the people around you want to do and want to succeed. It is different with different coaches. (MOPDC)

Other coaches, they will do it through pushing the kids and the kids will do it out of a bit of fear for the coach, some coaches it is a close association with them, that the kids just have an ultimate confidence in the coach, that no matter what the coach asks they are going to try it as well as they can. It is a many faceted thing, the coaching aspect as far as being able to get things out of the skater, but it goes beyond just the information and the knowledge that you have. (MOPDC)

Love of their Sport and Work

These coaches showed an intense love for their sport and often did not even consider it as work.

I love it, that is what I like doing. I am not afraid of sharing anything. When I teach a lesson, I wear skates. I wear my skates all day long. I get 10 minutes off,

10, come in, the guys are organized, this one, this one and this one is taken care of, this one, this one and this one is taken care of, I am just quickly and efficiently working my minutes of the day so I can get the most out of them. Almost no one could ever figure out any formula, the overall formula. They will never know how tough it was going through some of the pieces, they haven't got a clue. It was tough now that I look back. The number of hours I spent, just designing programs, and buildings. I am good. People told me lots of times, you are the best, you are crazy, you are in way too deep. I've got everything paid for, I don't owe anything. Anything you see, we own it, we lease nothing. The stuff upstairs, every piece, every stick. (MOSC1)

It is a great sport. It is unbelievable. I am really glad I am in it. I am thrilled with what I do, I don't have to be here. If I wanted to leave, I could leave. But I am not ready to leave yet. But I don't think I will be the kind of guy that will go as long as some others. I think I will get to a point, and then I will say that is it. I won't try to play the game too long. I have other people positioned and ready, I will become a consultant. I won't be greedy, I am not in it for that anyway. I am here to do my part, and as long as I can push this hard I will push this hard. I have no concerns. We are going to continue to grow as we always will. We will always bring the real things to the rink, spirit. The love of what we are doing, that is why we get better at it. I don't have to do this, I could leave right now. We all like the company, we have an environment to train in that is friendly. (MOSC1)

I love to get up early and I love working on the rink when it is busy and I like working on the rink when it is quiet. (MOSPC2)

But I love teaching ice skating, I like it. I don't think of it as a job, I think of it as position, that I was given a gift to do. (MWDC)

Mais à un moment donné, à voir le train de vie d'un entraîneur, et des fois ça a l'air bien intéressant. Pour moi c'est un métier qui est bien le fun parce que c'est une chose que j'aime faire en passant. Pour moi ce n'est pas une corvée de me lever pour aller à l'aréna. Des fois c'est plus le fun que d'autre chose. Ce n'est pas comme quelqu'un qui travaille dans un bureau, ce n'est pas un travail qui est routinier, puis c'est un changement. Alors c'est certain vu de l'extérieur, ça a l'air bien intéressant. (MWPC)

Methods of Learning

These coaches learned from all situations, from experience, and from other experts within and outside their sport. They were committed to learning and personally experimented with new ideas. Some coaches even experimented with unconventional methods by first trying them out themselves before offering them to their athletes.

Experience. Coaches learned every day through their experiences as stated by the following coaches:

Je peux te parler d'une expérience que j'ai pu vivre et tu as beau de vivre la même expérience, mais tu ne la vivras peut être pas de la même façon. Tu ne réagiras peut être pas de la même façon, ou ta façon de penser vis à vis ça ne sera peut être pas la même. Alors il faut que chacun vive ses expériences et c'est comme ça que tu deviens un meilleur entraîneur, bien des bonnes et des pas bonnes, mais c'est avec ça qu'on forme notre caractère. (MWPC)

You can always learn. Everybody can always learn. I learn everyday just from the kids. (FWDC)

Experimenting. These coaches learned through experimenting with new ideas which later they were able to apply in their coaching:

I developed the triple axle, first of all because I wanted to. My mind probably works a little bit in the mechanical fashion so I am obviously drawn towards that area as opposed to being a choreographer or something. I am not an artist. I would of probably been an architect building bridges if I wasn't designing triple axles, and quadruples, figuring out how every frame worked, how every movement of the body worked, designing flight path, approach, how the earth turns, why there isn't any friction in the air, how I can put you in this aerodynamic position, how I can create all the speeds, how I can formulate your body, how I look at somebody and I can almost see them. I can look at you and I can picture that happening, its going to go through this curve and that curve. So I figured it all out. I would draw the patterns on the ice, got a pattern to every move. There is a pattern to every move, there is actually a path, you just don't skate up and do the jump, there is a path strategically designed, and then you do it. Then I put my technique beside that design and then I formulate the person to it. That takes a long time, then I start moulding you into all of this which is going to allow you to spin into a spinning axis through the air, obviously there is no friction so you can spin fast, you have got gravity pushing you down. Every cross cut, every little

move is formulated to how it fits and blends into that final spot I want you to be in. I know what I want you to be in, so I build everything back from that. That might help, put it in perspective. (MOSC1)

Not many people know about the advancements, they are so beyond most peoples' capability to understand, that more and more, that is what makes the cutting edge. The classic research into what makes an athlete better is usually behind the times, because there has to be testing, authenticized by the medical profession, and they take too long to do it. I learned that in New York, because the people that are on Broadway have to perform every night, the people that are in the Metropolitan opera they have to perform. I had a battery of people there for my athletes which was unbelievable, still go to them, to many of them. They are so far ahead, now what they are doing is becoming a little bit known. Sports people, professional sports people, and professional performers seek out these people, because they have to perform the next day no matter what, to make it. (MOSPC2)

But you can't stop finding out about these areas in these field, you have to continue. Look at my bookcase, my bookcase is filled with stuff about nutrition, all sorts of different books, you can tell a lot about people if you read continually. So what is common knowledge is obsolete, a top coach has to be on the cutting edge, always exploring, learning new things, trying new things. I don't try them out on my athletes without having tried them out myself. You look, and anything that is going to turn me on about learning something about something, is proof that basically somebody got success out of it. It might not be in my field, but people like I said, that have to explore these even more than athletes on an amateur basis, are athletes on a professional basis, like tonight's 30,000 dollars if I don't skate well, and in a performance aspect like Pavorati. The people that I have been going to treated Barischnikov, they treated major artists, those people find those people that are on the cutting edge. So if you want to find them, you find out where they are going, and then you have got a clue and then you start going yourself and you find out. (MOSPC2)

So when I have opportunity to try with my skaters certainly I will try because really it is like climbing mountain, in the beginning there might be 100s of possible ways to get to a certain level but from there on it is only few ways and the higher you get you do not have too many choices, you have to find the right away to do it, so you have to keep trying. (MOSC2)

Learning from others. Learning from other experts has been shown by several studies (Martens, 1979; 1987) to be an effective way to tap their experiential knowledge as is illustrated by the following quotes:

So even with the challenge of working in a tunnel, where we tend to keep developing from without, because I think there is just so much you can do within your field but then you have got to bring things from other fields to your field. In figure skating I tried to do that. (MOSPC2)

I think I have a strong technical background and I also draw upon whatever resource, whatever resource I can. I will not close a door if I think the person behind it can be helpful. (MOSPC1)

Structured learning experiences. These experts coaches operated within a multidisciplinary team of trainers who were experts within their respective fields. Because they worked within such a team, they did not see the necessity of having to cover in detail certain subjects as proposed by the NCCP, since they would send their skaters to an expert in this field or hire an expert to run their programs.

Most coaches found that the deadlines for completing of NCCP levels were very difficult to meet because of their busy schedule. Some coaches suggested that some of the more experienced coaches who had proven successes should be credited with some equivalencies. Some suggested correspondence courses in order to accommodate their busy schedules as well as to cut down on travel time and costs. The content of the courses also needed to be more sports specific and be taught by an instructor within the sport.

One of their preferred media to learn were seminars:

Where I learned the most was just plain seminars, seminars when we have a few lectures, sometimes even the same lectures as the kids would have, and a lot of practical work with the kids and with the other coaches. I think that is where I was learning the most. (MOSC2)

Coaches had different opinions concerning the value of the NCCP courses. While some coaches found the courses useful, other regarded them as more essential for beginning coaches and of lesser value for more seasoned coaches.

No I think they are purposeful. Especially the first three levels for young people who didn't go that far in skating but want to teach, because I have seen a lot of kids being taught so badly in the past. It is good that people that are becoming coaches that need more knowledge have to take them. But when I am at my point now, I should know all this stuff, so I don't think it is going to make that much difference to what I do. So I don't have the energy inside me to really want to do it all the time. When it is your job and you have got international kids it takes up so much of your time and your thinking of taking courses on top of it. It is not like you sit down and you have an office and you can sit there and have a couple of hours here and there to do it. I have to make it a whole project and I don't have enough time to make it a whole project.
(FWDC)

I liked my biomechanics course. I liked it, I liked her, I liked the presenter, the whole thing. The delivery was good. Some of the others, we had people giving us the course that probably coached baseball or something. It didn't make any sense, it was like OK we did it, check mark. My time is worth value, I have got valuable time too. So I don't waste my time, but you can't walk out of the room and tell somebody else that. Somebody else has got the list they are going, I have to do it, no matter who you are, the King of Sheeba, you have got to do it. So you do it.
(MOSC1)

Other coaches complied with the demands of the association, but suggested that all coaches should go beyond what is taught in these courses to further their knowledge:

The NCCP unfortunately looks like an end in itself, like once you are certified at level two or whatever you need to be by legislation. There is a lot more, knowledge about child education or disabilities of some kind or if there is a dance program to get into or watch or go and see it. Don't box yourself in by accreditation or certification, so just go and learn more. So the mentality out there is that once I am certified I know everything. Nobody knows everything. Certainly by doing the practical that we are doing at level three we find that people close themselves into their little boxes where they work, and this is where they train, don't rock the boat, this is what we want to do. (MOSPC1)

Other coaches did not appreciate that the courses were compulsory and had to be completed within a deadline set by the association:

I would like to see the courses that are for coaches to be available, but what I don't agree with is when it is pushed on the coaches, like now they say if you don't have level two, you can't go and coach at Divisional or Sectionals. I don't think it is right, because (MOSC2)

So I feel it should be available and when the coaches feel they need to advance or to broaden their whatever knowledge, it should be there available for the coaches, but it shouldn't be made compulsory. (MOSC2)

Another problem raised by coaches was that the courses were not sport specific:

Actually what I don't like to see in these coaching courses, I have taken a few courses at the level 4 already, what I don't like is the courses where when you are dealing with things that you really don't need to know for skating. Like in one, we had to do motion analysis or something for basketball, we learnt how to analyze a basketball player and what kind of energy, and what kind of motion he is using in his game. Well how does it apply to me. And it was one of the major things to pass the course, to know this. Now how does it apply to me. Like what I feel, is that there is not much consideration taken to our sport itself, and very often these things are team sports which are all different really. (MOSC2)

The impact on their time and their coaching income was also discussed:

The same again, we go to the courses, level 3 courses, that it takes about 3 weeks to do the level 3 in coaching, well where does the coach find 3 weeks to go somewhere to pay for everything and is not making any money. Sometimes it is the reason, when you really are missing the money, plus you are missing the coaching. You have to think of the kids. (MOSC2)

One of the key aspects for the development coaching expertise was the use of unconventional sources to gain knowledge and advance the sport. The NCCP should continue what it was intended to do but does not suffice in itself. There are still many flaws with the program that could be improved by offering sport specific

course material and hands on tasks which would enhance the application of knowledge. The facts that are presented must also be updated because even recent findings become obsolete rather quickly. There should be more flexibility regarding the completion of levels for expert coaches, since they have extremely busy schedules in terms of training and competitions. In fact, maybe coaches presently established as experts could possibly be grandfathered since their successes confirmed that they have integrated the knowledge necessary to coach at this level.

Expert Coaches' Reflections on their Future in Coaching and Retirement

Many coaches expressed thoughts on their future retirement and because of the cyclical nature of coaching careers, had contemplated retirement in the past as stated by the following coach:

Yes, I am actually tired of coaching and I have been so for a while. There were several times in my life when I was going to get out of coaching. One of them was sometime ago, I had done a whole series of successes and so on, then I was influenced by [name of skater], a male skater, who has received probably more prominence now as a professional skater than he did as an amateur. Had ferociously interesting figures. Was an absolute free spirit and extraordinarily intelligent. I had him here for a year. There were problems at the cricket club. He was being coached by [name of coach] who was also coaching [name of skater] at the same time and you had these two boys running kind of parallel and one of them is the absolute opposite of the other. I guess the Beacom's just needed to get out of there for a while so I was lucky enough to have him for a year. He got me back into it, I so much enjoyed teaching him I couldn't wait to come to the rink. He had a very successful year that year. That was kind of fun. (MOSPC1)

While some coaches planned to reduce their workload, others were planning to become consultants:

I am going to take this thing through so that when I move up, I will become more of a consultant in the next 10 years.

Not coaching, possibly coaching a little bit, possibly writing a lot, and possibly helping other federations and helping other coaching associations with their coaches, or helping other coaches., plus I want more time to spend with my wife away from her obligations and mine, so that we can have more time together and in 10 years I should be enjoying my grandchildren. (MOSPC2)

Expert Coaches' Reflections on the Future of Skating and Coaching

Although this last section was not part of the analysis on the development of coaching expertise, coaches made some concluding remarks on the future of the sport and coaching that were worth mentioning.

Skating has evolved tremendously in the last 10 years and these changes have been very taxing on the skating community who must adapt to these changes. As one coach expressed:

It is almost like the changes are bothering me. I don't want to deal with them. I just want to quit rather than having no figures. It is a big thing not to have the figures any more, but they don't have anything to replace them, so that bothers me. So I want to keep doing figures, and then when they give us something else that is a good basic skill solution for learning figure skating, they should then change the name, and I will then do that. Because I know basic skating, so I can probably do whatever they come up with. (FWDC)

Serious concerns were expressed about the infiltration of sport agents and how they were affecting the development and training of elite athletes. Financial endorsements have become one of the main sources of motivation for elite athletes and have taking precedence over proper training habits. Coaches have often lost control over the coaching and training process:

I can't tell you where skating is going for the next five years, I don't know. We can only identify where things are at. The International Skating Union has sold out to IMG, The USFSA has sold out to the networks, the CFSA. International management Group (IMG), who developed golf, who developed tennis, and who's next objective is to develop skating the way that they want

to, it isn't always the best way. They are so big, and the ISU is so naive, and the USFSA is so hungry for money, and the bastion, basically Canada had made some very good decisions so far, but it is very important that the next few decisions they make be correct, because they can be bought out too, and that would be dreadful for the sport. I fought very hard for figures, it is very upsetting. Everything that I predicted is happening, we are in dyers straight. You can blame it on the economy, but the number of skaters continue to develop, but you are not going to get the quality through unless you substitute the development that the figures contributed towards the skater. Naturally they had gone too far, their emphasis was too much, but they didn't need to be deleted, they needed to be watered down, and to shift the emphasis. Now that we have deleted them practically, we haven't totally same as every other country has, but now that we have deleted them almost, we have to be very careful that we substitute them with something else that will contribute towards the development of the athlete in the same way that figure did, and until we have that something else, we should keep them, because we don't have anything else yet. They are working on it, but I hope that they will have the patience to work on it, and to try it out before they inaugurate them, because sometimes what you think will work doesn't always work. So that is where we are with that. (MOSPC2)

It use to be financial distraction about how am I going to pay for this, and now the main problem is not how am I going to pay for this, it is I have got so much money I can buy anything, and why do I need this, and so we have a whole reversal of psyche that we have to cope with, and we have to do it very fast, because a lot of our generation could be wiped out very quickly here. It takes so long to make a skater, to develop a skater, and if there is an interruption in any part of that development, you are going to lose getting to the finish line on time, its like a race between getting them ready for their best showing when they are physically right before the time clock gets them there. If the time clock gets them there and they are not prepared to their best, you are not going to get the excellent showings that you should have, and if you kill one generation, you are going to kill the next and the next, and the next. So we have to face that right now, that is really the main thing as I see it, it is going to be the main thing that I will be working for right now. (MOSPC2)

It can't be, and it is affecting the very top group, but then if you are destroying your top group, or making an example of your top group in a certain way, then it affects everything down the line, and so it had to be rectified. So that is what I have been trying to do this last couple of months, trying to get this resolved.

It has to be resolved before the spring as far as I am concerned because otherwise the next year begins, and if the next year gets through this, the whole quadrennial is lost. (MOSPC2)

On the other hand, skaters would be able to extend their career and finance their skating with more ease:

I think it is going to lend towards that direction. We have in our sport people skating up until 30, 31, 32, depending on the event, are still able to skate well, and do well. I don't think that is going to change a lot. What I think is going to happen is that those people who are willing to stay in that long are simply going to have lives that are a little bit easier to live because they will be able to earn a little bit of money along the way. Some of them a lot of money along the way. I think that is going to be the biggest change. So whether you call it professionalism creeping into it, I guess in reality that is what it is. I think we are still talking about the same basic life span of an athlete, it is just that they will be able to have a little bit more comfortable life doing it. (MOPDC)

The commercialization of the sport has even caused changes in the structure of the sport, and that the sport that we know today will be forced to change:

In ten years I don't know. When I hear a comment about a ten year projection for coaching that we went through with the association, and one of the comments that was made by [name of administrator] was that he believes that this will be the last Olympics, this is the [position of administrator] of the skating association, and there will only be about 3 more World competitions, because it is changing so much. He said that this Fall, after 1994, this could be the last Olympics, everything is going to be changed. But if everything changes, it doesn't matter, there will still be a need for dedicated coaches at the lower level, there will be a need for protecting these kids from the temptations of the economics and to keep them focused on excellence for the sake of excellence, because that is the truest, it is the only way, and for the love of the sport. There has to be places provided, clubs, training centers, and schools for the kids to participate in our sport, and challenge excellence and move our sport ahead. (MOSPC2)

No I think that the whole Olympic movement is in trouble, because commercialization and economics has distracted it from its athletic value of it, and has contributed towards the economic value of it to such a point that it has lost its mandate. So skating has been a entertainment and performing arts

sport for a long time, but it has retained excellence in sport aspect of it as well, and that is what we hope to do, otherwise the coach has no place, and just call in the choreographer, and they will be dealing with less and less talented skaters, to choreography just to choreograph their dreams. (MOSPC2)

So skating I think maybe when the rules change, which I think will be happening fairly soon, and it is run as a more marketable product, much like tennis is being run now, I think we might see people not risking so much. That they don't need to do two triple axles and a triple lutz and a triple flip, and a triple everything, but they need to really entertain more. If it is done more in that world cup fashion people may relax more and try to be an overall champion over a five or six competition instead of it all goes in this one moment. You know when they are setting up for that triple axle, this is it. This is your career in one second. You either stand up or you don't. That is kind of unfair, so I think that philosophy may prove to have better overall performances and people will be choosing only to do their best of which is not a bad idea. I think that is where it is going to go, take the word eligible out too because I think that is going to come out. Maybe in the 1996 world championships in Edmonton maybe the end of an era of world championships as we know them. It is time and we are changing. I have never been that stuck on change so I am ready to do something interesting. (MOSPC1)

With all the changes happening in skating in response to media pressures, there are serious concerns on the part of the coaches that the should sport remain pure and that the people with technical expertise in skating remain in control of the rules that govern the sport:

I hope that each of the disciplines remain pure. When I think of pair skating I can't help but think of Martini and Underhill. To me they were the essence of pair skating. They weren't like tremendous single skaters, I mean if they had to compete now in that arena they wouldn't make it. Especially now they have opened it up with the triple jump in the short program. But their pair things were truly beautiful and it is called pair skating and yet the ISU in its wisdom does everything to make it more into singles skating at the same time. To me that is wrong, it is just the wrong message. (MOSPC1)

The same with ladies skating. I like ladies skating that is beautiful, that has beautiful movement, that is feminine and trying to do seven triple jumps in four minutes is really hard and because of that the programs are set to get those

seven triples in and that robs the situation of everything else and it takes a remarkable person to try to do it all. Then you get, aberrations like Oksana Baiul who will stand still for two minutes out of four minutes, getting the energy she needs to go off and do another triple, but she stands still for a long time doing it, she just happens to be a great actress. Is that what we want, is that skating as we think of it? I am just so glad that Yuka Sato who won the world championships this year can skate. She has a wonderful softness and edge quality, which to me is delightful that she won. We are lucky that she won. But that is not where the rules kind of push you. (MOSPC1)

Then in ice dancing I just think that the ISU is trying to manipulate instead of trying to let the sport go. Let it go where it is going, let the people that are in it, take it where it is going. They keep boxing and boxing it in, and making it worse and worse. Sometimes too much manipulation makes it worse. So at this point I am not very encouraged. This is not a feminist remark, I think the one discipline that is developing is the men, because they are inherently stronger, they can handle the seven triple jumps and they have a half more minute to get one more in. But their skating is turning out to be a little bit more interesting. Now whether that is through Kurt and people like the French boy Philippe Candellero, who in my opinion is just wonderful, through people like that, it is developing as entertainment as well as athletics. That is the only one of the four disciplines that is doing it at the moment. Mind you Gordeeva and Grinkov were pretty good! I like them, they were pretty good. (MOSPC1)

On coaching, some concerns were expressed the importance of: instructor and trust funds, apprenticeship programs, and volunteers among coaches. In particular, the issue of apprenticeship programs for beginning coaches and its limitations for implementation were addressed:

I think it would be practical to have a mentor program with starting coaches. Actually some centers where they have assistant coaches, a lot of that is what is happening there. I think that it is a good idea. The only problem is how do you go about it money wise? Because these apprentice coaches, or how ever you call them, they want to make a living also, and the senior coach is paid by the skater, so for example, if I had an apprentice coach with me and I am explaining to the coach what I am coaching, the skater isn't going to get the same value as if I was only with the skater. I think it is one of our problems, coaches really have to teach every lesson in most of the cases, unless you have

a school where you get some money from the ice center or something. So one, how can you teach another coach, how can you teach an apprentice, because the parents are paying and they won't like it. (MOSC2)

Some coaches expressed concerns about the lack of volunteer coaches who are willing to contribute to the development of skating by sitting on committees:

I don't see another wave of those people coming through who are dedicated volunteers as well as paid coaches. I don't see them. That is scary. That would be something I think we have to focus in on that and try to get so that there is a wave coming in after us. We are going to be dead and who is going to be doing all of that stuff. We have 3000 coaches but I don't know if there are 10 young volunteers coming through of that 3000. That is scary. (MOSPC1)

Another concern were the amateur skaters who are now teaching through trust funds. There are serious concerns for the students of these instructors that they are not getting the attention that they would normally receive from a professional coach. It was suggested that instructors should not only participate in an apprenticeship program but also work as an assistant coach under someone else, so that they would work under an individual with experience, all in the interest of protecting the skater progress through the ranks:

So the situation right now where I see amateurs allowed to work with other amateurs on a coaching basis, I find a little bit scary. I think that it would be better implemented if the amateurs had to be working as assistant coaches and not able to actually take on coaching themselves. (MOPDC)

On the other hand these people who are amateurs who are wanting to help on the coaching side of it, I think that they have an awful lot to offer. I don't think they know what they have that is of value to offer. If they were in an assistant situation that a good coach would be able to say ok I have this student over here they need work on this aspect, because that coach would recognize that this athlete would be able to give the other athlete that aspect. I am not sure anyone is looking at it that way right now or not, but I think it would be a better system than the amateur athletes teaching amateur athletes. (MOPDC)

It is not necessarily mentorship or learning under someone else as much as having still someone to guide them. Because as an athlete you are continually being guided. Now when they put themselves in the other situation, they are expected to be guiding someone else, that takes a lot of time to develop that kind of ability. Like I said with the self-centredness of an athlete who is competing it is a very difficult thing. That is one of the major transitions when you become a coach. Where if they were working under a full time coach, the full time coach would be able to guide them as to what they would be able to give that would be of most benefit for the skaters. Again I think it would be working in a positive direction because the results would be faster, which is what everyone wants. (MOPDC)

Expert Coaches' Thoughts on Coaching Expertise

Finally a few thoughts on what expert coaches reported about coaching expertise. Coaches did not assess successful coaching solely on coaching elite athletes, but they recognized the importance of the coaching process, that is, the quality of coaching at all levels and its contribution to the development of the athlete:

Well coaching is many faceted as you see, it involves a lot of things, so my peak of awareness in different aspects of it has come along at different areas. Some of the best coaches in the world that I know and that I respect have never had a world champion, who may never have had a person over a 5th test, who are specialists in their field, and who have developed year after year wonderful results from that echelon. We don't recognize that in coaching, we recognize the people who are in high profile, that is not right. I always recognize, I continuously continuously recognize these people and try to make them understand and appreciate what they do. (MOSPC2)

So it does have a high profile and so people look at the high profile aspect of coaching to get the answers, but in my mind some of the very best coaches are not high profile at all. That is just what I want to say. So to put a peak, obviously many coaches that have peaked, then just disappear. I have had a long run of success and I appreciate it. I think that it is because God sent me people. In that way I don't feel that I am that wonderful, but I have seen people that have had one skater that was really wonderful and you don't hear from them again, many, many, many. There are a few over the long haul had continuous results and that is amazing. (MOSPC2)

That I think that sways some potential good coaches, because the people who would become quite good coaches can become good at something else, the ones who can't do anything else will stay with coaching, so that is what we end up with. You end up with people who don't have any other education to do anything else, or couldn't do anything else, that is the easiest and the best money for them to do figure skating, so they can coach. (MOSC2)

Concluding Remarks

The present study demonstrated the wealth of information and unique perceptions that were elicited from expert coaches when they were provided the opportunity to express in their own words their personal coaching experiences.

Within the small sample of quotations permitted in such a limited text, it became clear that a large amount of knowledge and number of issues, borrowed from a variety of domains, were integrated and structured by these experts, which in turn they were able to verbalize.

The results of this study are two-folded: First, was to identify different stages in the development of their expertise, and secondly, to explore how they perceived and structured their knowledge about their learning process within each developmental stage.

Eight coaches took part in the study, they were chosen on the basis of having been able to coach an athlete from their early beginnings to competing at the world championship level. The number of coaches interviewed did not permit the inference of results to all coaches, but rather outlined the views and perceptions of this small group of expert coaches. The obtained results provides insightful and valuable information on how expert coaches in figure skating have developed their knowledge over their coaching careers.

These preliminary results also give more weight to the doubts expressed by Martens (1979) on the limitations of orthodox science in dealing with complex areas of human behavior, such as coaching. Within the theoretical context

introduced by the research program at the University of Ottawa on expertise in coaching (Côté, 1993; Côté & Salmela, 1996; Côté, Salmela, Baria & Russell 1993a; 1993b; Côté, Salmela & Russell, 1995a; Côté, Trudel, & Salmela, 1993; Salmela, Draper, & Laplante, 1993) on the structure of the coaching process, the present data only serves to reinforce these general conceptual findings, while in addition, providing pathways for the evolution and development of future expertise in this field.

The results of the present research, capture the evolution and the development of expert figure skating coaches and the following five superordinate categories or stages of development have emerged: early involvement in sport, transitions into coaching, early coaching career, mature coaching career, expert coaching, and future retirement. In general, the structure and the content of these stages are similar to what had been found in previous studies in pedagogy (Berliner, 1986, 1987, 1991; Dreyfus & Dreyfus, 1986), and in coaching (Bloom B., 1985; Bloom G., 1996; Salmela 1992, 1993; 1994c, 1996; Salmela, Draper & Laplante, 1993). During each phase of development, these coaches shared what methods of learning were used to acquire their knowledge. Although not part of the analysis on expert development, in the final section, valuable information was outlined on expert coaches' views and concerns on the future of skating and coaching.

More specifically the content on early involvement in sport was similar to that found in previous studies (Salmela, 1992; 1994c; 1996; Salmela, Draper & Laplante, 1993) except for the athletic achievement of coaches. In the present study, all coaches had been elite athletes within the sport, whereas in previous studies they had not been and even some had practiced other sports than the one which they were coaching. This may reflect in part their success within their

respective sport. While Canada has not been highly successful in team sports with the exception of ice hockey, they have been highly successful across several disciplines for many years in figure skating.

Secondary to the analysis, the metacognitive structure of knowledge of how coaches learn and conceptualize training and competition has been uncovered during the mature phase of coaching.

The results indicated that the proposed model of the coaching process in gymnastics could be generalized to the coaching of figure skating. The central components of the coaching process, organization, training and competition are in constant interaction (Côté & Salmela, 1993). Although the verbatim statements seem to focus mostly on training, this probably reflects their views on the importance of training and that competition is an extension of good training. This schemata of crystallized methods of coaching has been adopted by coaches during the mature phase of coaching.

Extending beyond this coaching model, the present findings uncover the personal and psychological characteristics that distinguish the proficient coach at the mature phase of development and the expert coach. While the declarative and procedural knowledge of the proficient coach has been outlined, metacognitive and executive skills distinguishes the expert coach who has the capacity to carry out procedures without deliberating similarly to experts in other fields (Anderson, 1990; Bloom, 1995; Berliner, 1986, 1987, 1991; Dodds, 1994; Dreyfus & Dreyfus, 1986; Glaser & Chi, 1988; O'Sullivan & Doutis, 1994)

During this phase of expertise, these coaches had an underlying philosophy not only regarding their coaching, but also about life in general. Almost all of them were very aware of their role as a teacher and the impact with which they marked the lives of their skaters. Some of the themes that were common to these

coaches was a very humanistic approach in their communication skills with the athlete as a person first and foremost. They seemed to be able to draw the best out of their students, to instill the desire for them to achieve. During this stage, the expert coach was no longer preoccupied with the desire to succeed or to produce elite athletes, but were able to draw pleasure in appreciating the skating itself, and to see their students performing to the best of their abilities.

These expert coaches also perceived themselves as unique, and that was the essence in itself of being an expert. They were convinced that the top coaches did not share a common approach, but that success was a measure of the ability of being different, on the edge, and one step ahead of the rest. Excellence is not being like others, but being unique and different which sets you apart from the rest.

Many of these expert coaches stated that the coaching certification courses were of little value for people of their calibre for the simple reason that the courses were designed for the majority, and that they were not part of this group, they were the exceptions. This was the basis for their success. However, they did state that some of the level 4 and 5 topics were interesting but not always applicable, lacking in specificity to the sport that they were practicing. They also expressed the concern that there was a lack of time and financial support for these courses, that the time away took from their competitive training schedule.

Their coaching philosophies allowed for much more flexibility, in the perception of being able to reach an end by various means. There was also a component of experimentation and exploration of new forms of artistry and skating technique from which they were able to learn and to extend the depth of their knowledge. They were able to discover a new approach, or new ways of doing things, which made them unique in their technical and artistic abilities.

The present study is by nature pragmatic in its application for coaching education. The information that has been gleaned will serve to identify potential elite coaches and will help many others acquire the knowledge and skill necessary to becoming experts in their field.

The unique contribution of this study was from the sport of figure skating, as well as by the caliber of the coaches. While the coaches in previous studies (Salmela 1992; 1993; 1994b; 1994c; 1996; Salmela, Draper & Laplante, 1993) were in general national team coaches, the coaches in the present study were involved in coaching several international or World championship medalists. One should consider the possibility that the level of expertise and development of the sport itself in which these experts take part may be a contributing factor in the differences between coaches. Some of these team coaches may be the best in Canada, but may not compare with other World and Olympic coaches. Therefore, we must relate the success of our Canadian coaches to World and Olympic standards. Further research is needed to take these issues into consideration as well as the evolution of the sport itself, since sports that are in their infancy have not yet developed the sophistication of knowledge and competitiveness required in other more mature sports. The design of the present research was intended to allow for the study of expert coaches that met such stringent standards in the more mature and complex sport of figure skating.

Future research should address such issues as degree of success and maturity of the sport itself. As well different sports such as individual versus team sports, amateur and professional sports should be examined to see if there are any differences in coaching development.

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Appendix A

Development of Expertise in Coaching Interview Guide

How Did You Become an Expert Coach?

The fundamental question here is how did you learn what you now know and what is the best way of acquiring this knowledge and these skills?

- Personal athletic history
- Formal / informal educational experiences
- Major influences / moments later related to coaching
- Role of mentors
- Qualities of a successful coach
- Key moments in career
- What would you change?
- What wouldn't you change?
- How do you differ from other top coaches?
- How can these learning experiences be best passed on to aspiring Canadian coaches?

What are the qualities that you believe are necessary to provide the necessary leadership to high level achievement in your sport, and how are they acquired?

Since coaching by definition is a social activity and you are central to this group, what are the important leadership qualities that you possess and how did you develop and refine them?

- What crucial factors affect performance
- Developing athletes--what needs to be done?
- Evaluation of talent
- Visions of coaching
- What are the main concerns of the players?
- Moral / ethical standards of conduct
- Fundamental, personal over-riding principles
- Building of respect
- Building of goals, commitment, belief
- Relationships with athletes, coaches, family, media,
- How do you effectively deal with sport administration?

What knowledge and learning experiences in leadership are most likely to be best passed on to aspiring Canadian coaches and how could this be accomplished?

Training Considerations

It is clear that effective training leads to successful competition. In what ways to you personally prepare yourself and your athletes for each training session from a technical perspective? From a tactical perspective? and how did you acquire this knowledge?

How is your long-term planning organized?

How is season planned?

How is training week planned?

How do you plan daily?

Teaching-mental skills/technical skills

Giving feedback

Dealing with discipline

Can you think of your best ever training session? What happened?

Motivation / attitude in training

Monitoring goal-setting

Dealing with athletes' stress

How would that preparation change for you in dealing with:

High or low skilled athletes?

Veterans / rookies?

Women / men?

How could your knowledge of preparation of technical and tactical skills in training be best communicated to aspiring Canadian coaches?

Competition Considerations

Being able to "deliver the goods" when it counts in competition is a central part of the coach's task. In what ways to you personally prepare yourself and your athletes for each competition from a technical perspective? From a tactical perspective? How did you acquire this knowledge?

What was the competition for which you were the best prepared? The worst?

Dealing with winning

Dealing with losing

Personal mental preparation for competition

Sources of stress or concerns

How could your knowledge and skills in competition settings be best communicated to aspiring Canadian coaches?

Reflections on Coaching

As an established expert in the Canadian community, you have acquired a large body of specific skills and knowledge which has allowed you to achieve your present status. Most experts do not achieve this status without having taken considerable detours after having encountered road blocks in their careers. Could you share with us the major obstacles in the development of your career and how you have gone beyond them?

What would you do differently?

Future directions of coaching?

Are there any information, strategies or experiences that aspiring Canadian coaches could benefit from in their education in order to rise further in the ranks of expert coaches?

Thank you for your time and your participation in this important project.

Développement de l'Expertise en Coaching Guide d'entrevue

Comment es-tu devenu un expert en coaching?

Comment as-tu appris ce que tu sais et quelle est la meilleure façon d'acquérir ces connaissances et ces habiletés?

Histoire personnelle comme athlète

Education formelle ou informelle

Influences ou événements marquants qui ont influencés ton coaching

Le rôle de mentor ou modèle

Les qualités de coach compétent

Les points clés ou les points saillants dans ta carrière

Quelles sont les choses que tu changerais

Quelles sont les choses que tu ne changerais pas

De quelle façon es-tu différent(e) des autres coach élite

Comment est-ce qu'on peut communiquer ces expériences à ceux qui veulent devenir coach?

Quelles sont les qualités de leadership, que tu penses sont nécessaires à la haute performance en patinage artistique? et comment on acquiert de telles habiletés

Puisque le coaching ou l'enseignement comprend une composante sociale et tu es le noyau de cette activité, quelles sont tes qualités de leadership et comment les as-tu développées et perfectionnées?

Ta vision ou philosophie du coaching

Tes standards éthiques ou moraux

Tes principes fondamentaux et personnelles

Esprit d'équipe

Gagner le respect ou crédibilité

D'établir des buts, l'engagement et des croyances chez les athlètes

Relations interpersonnelles avec les athlètes, les entraîneurs, les parents, les officielles, et les médias

Comment est-ce que tu as fait affaire avec les administrateurs dans le patinage

Quelles sont les connaissances et expériences d'apprentissage de leadership que tu crois devrait être enseigné à ceux qui veulent devenir coach et comment est-ce qu'on peut leur enseigner?

Processus d'entraînement

C'est évident qu'un bon entraînement amène de bons résultats. De quelle façon est-ce que tu te prépares personnellement comme coach et comment est ce-que tu prépares tes athlètes pour chaque session d'entraînement du point de vue technique? et tactique? En plus, comment développe-t-on ces habiletés?

Comment est-ce que tu organises tes plans à long terme

Comment est-ce que tu planifies ta saison

Comment est-ce que tu planifies ta semaine d'entraînement

Comment est-ce que tu planifies ta journée

Quelles sont les choses les plus difficiles que tu rencontres lors des sessions d'entraînement? Comment les règles-tu?

Quelles sont les facteurs les plus importants qui affectent la performance de tes athlètes?

Quelles sont les affaires à faire pour développer des athlètes?

Comment est-ce que tu identifies et évalues le talent?

Comment est-ce que tu enseignes des habiletés techniques et des habiletés mentales?

Quelle est l'importance du feedback?

Comment est-ce que tu disciplines tes patineurs?

Peux-tu me décrire ta meilleure session d'entraînement?

Comment est-ce que tu motives tes patineurs et les encourages à avoir une bonne attitude lors de l'entraînement?

Comment est-ce que tu évalues les buts de tes patineurs?

Quelles sont les interventions pratiquées face au stress?

Comment est-ce que cette préparation serait modifiée dans les situations suivantes:

1) Selon les habiletés supérieures ou inférieures

2) Vétéran ou recrue

3) Filles ou garçons

Comment peut-on communiquer à ceux qui veulent devenir coach les connaissances et la préparation technique nécessaire à l'entraînement des patineurs?

L'important c'est de la faire quand ça compte et c'est la tâche la plus importante de l'entraîneur. De quelle façon est-ce que tu te prépares comme coach et comment prépares-tu tes athlètes techniquement pour la compétition? Comment est-ce qu'on acquiert ces habiletés?

Quelle était la compétition pour laquelle tu étais le mieux préparé? La pire?

Comment te prépares-tu et tes patineurs pour gagner?
Comment te prépares-tu pour accepter la défaite?
Comment te prépares-tu et tes patineurs mentalement pour la compétition?
Quelles sont les sources de stress et tes inquiétudes?
Comment est-ce qu'on peut transmettre ces connaissances et habiletés en compétition à ceux qui veulent devenir coach?

Réflexions sur le coaching:

Comme coach élite au Canada, tu as acquis des connaissances vastes et des habiletés spécifiques qui t'ont permis d'atteindre ton niveau d'expertise. La plupart des experts en coaching ont atteint ce niveau qu'après avoir surmonté plusieurs obstacles dans leur carrière. Quelles ont été les obstacles rencontrés en cours de développement de ta carrière et comment les as-tu surmontés?

Y-a-t-il des choses que je n'ai pas couvertes qui font partie de ton occupation de coach?

Qu'est-ce que tu changerais si tu pouvais?

Quelle est la direction future du coaching?

Y a-t-il des connaissances, stratégies ou expériences auxquelles les aspirants coach pourraient bénéficier dans leur éducation en vue d'atteindre un niveau d'expertise?

Merci pour ton temps et ta participation dans cet important projet

Appendix B

Contact Form

Dear _____,

This form will serve to inform you that I will be conducting a study entitled 'Expert Coaching Knowledge in figure Skating' in order to fulfil the requirements for my M.A. in Sport Studies at the Department of Human Kinetics of the University of Ottawa.

Because of your experience as a National Team coach, the Canadian Figure Skating Association has recommended you as a potential participant in this study.

I encourage your participation. If you chose to do so, you will be interviewed with regards to the development of your coaching career and how you have acquired your knowledge about the coaching process. The information will be transcribed verbatim and sent back to you so that you can make any changes you wish. you will be asked to complete a coaching experience questionnaire.

All ethical standards will be upheld in accordance with the guidelines set forth for research at the University of Ottawa. If you have any questions pertaining to your participation in this study, you may contact Dr. John Salmela at (613) 564-3332 or myself Denise Laplante at (613) 564-9134

**PLEASE DETACH THE BOTTOM HALF AND RETURN IN SELF
ADDRESSED ENVELOPE INDICATING IF YOU WISH TO PARTICIPATE
OR NOT**

Name: _____

tel: _____

_____ I will participate in the above study entitled 'Expert Coaching Knowledge in Figure Skating'.

_____ I will not participate in the study stated above.

Signature: _____

Date: _____

Appendix C

Information and Consent for Figure Skating Coaches

When a research project is designed to understand human beings by a member of the University of Ottawa, the Ethics Committee of the University of Ottawa requires the written consent of the participants. This does not imply that the project involves risks, the intent is simply to assure the respect and confidentiality of the individuals concerned.

This project entitled "Development of Expert Coaching Knowledge in Figure Skating" is conducted by Denise Laplante, graduate student in Human Kinetics of the University of Ottawa in order to fulfill the M.A. thesis requirements in Sport Studies. This research project is under the direction and supervision of Professor John H. Salmela of the School of Human Kinetics at the University of Ottawa. The intent of the project is to better understand how expert figure skating coaches have evolved over their careers to their present levels of skill and knowledge. The interview process will attempt to trace the beginnings in the sport as performers both as athletes and novice coaches. The development of their careers will then be pursued to find out how their visions of the sport were transformed into practice and competition procedures.

Each participating coach will be involved in an interview conducted by Denise Laplante, and will last from one to three hours. Potential physical or psychological risks in this study are low. The participants are free to participate and can stop the interviews at any time they wish without fear of reprisal. All interviews will be transcribed verbatim and the complete transcript will be returned to the coaches for authentication. At this time the coaches can remove anything that they would rather have not said, transform, correct or adjust any part of the interview transcript.

I consent to participate in this research project entitled "Development of Expert Coaching Knowledge in Figure Skating". I understand that there is no direct benefit to me from participating in this study. I will be advised on my personal results when all the analyses have been completed. There will also be debriefing of the interview process immediately after the interview and a final report of the investigation will be sent to me if I wish. Also, I understand that the results will be kept strictly confidential and that my name will not appear in any publications and that the audiotapes will be erased when the analyses are completed. If transcripts are appropriate to illustrate the data analysis procedures, I give consent to have it used under conditions that confidentiality and anonymity be safeguarded by the researchers.

Signature _____ Date _____

Please feel free to contact us at any time,

Denise Laplante
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Faculty of Health Sciences
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tel: (613) 787-6705

Most notable Coaching Awards

Most notable Athletes coached

Other major accomplishments

Appendix E

Debriefing

1. **Purpose:** The purpose of this study is to uncover the nature of expert knowledge for its uniqueness and structure. The development of expert knowledge will also be investigated.
2. **Research Issues:** Previous literature in other domains have shown that experts differ in the quantity and structure of their knowledge. Experts display enhanced memory for information within their domain and are more proficient at organizing information. They differ in how they organize and represent problems. Expert athletes display superior knowledge of rules and decision making abilities. They have a more in-depth approach to solving problems. Expert coaches have superior analytical skills and are able to see beyond explicit cues to recognize meaningful information. They also have more knowledge of the coaching process.
3. **Variables:** Coaching expertise will be uncovered by examining the coaching process in competition and practice. Its development will also be examined over the coaching career span.
4. **Possible implications:** Research findings will have implications in promoting coaching excellence in Canada and for the sport of figure skating. It will provide a composite picture of knowledge structures and strategies used by expert coaches as well as the developmental and learning process of an expert coach. Findings may provide insight for future training at the NCCP level 4 and 5.
5. **Inquiries:** Participants in this study may have further questions concerning the nature of this research. Accordingly, they may contact: Denise Laplante (Principle Investigator, (613) 564-9134) or D. John Salmela (Thesis Advisor, (613) 564-3332)

We would like to thank you for your participation in this research. Your time and efforts are greatly appreciated.

Appendix F

Sample Interview

Interview with MOSC1

(How did you become an expert skating coach)

You know I was part of designing triple axles and quadruples. My mind set is technical. As in any business, you figure out your strengths and weaknesses right away. I decided when I was 19 that if I was going to teach skating, that I had to decide whether I was in or out. Either you are in something or out of something, because if you dabble with it, you do nothing. When you are young, the one thing that you have got is a lot of enthusiasm, but little respect, other than someone might say you work hard. So you have to draw off your strengths. Your strengths are: did you have credible coaches in the first place? Do you actually have something that is worth saying, which someone is going to have value in a lesson, and buy a lesson to hear what you have to say, because you are still a rookie?

So in part I was lucky. I had world class coaches, Hans Gerschwiller for four years, Carol Devin from Czechoslovakia for a couple of years, I had Sheldon Galbraith for a year. My intention was not to be a figure skater at all, I wanted to be a hockey player. I wanted to be a hockey player. I am a hockey player lover today. I am involved in building new facilities, new rinks, I am very involved in new projects, putting multi-million dollar programs together and that kind of thing. That gives me a scope.

When I was 21, after teaching a little bit, I had two years under my belt, I deciding that if I was going to teach skating, I was going to run my own business. I was not going to work for somebody else. That was a decision that I made, I made it early. I was committed to it by writing a letter to the city of Orillia, telling them that I would rent the building if they ever built a building with summer ice, which they never did. We had no spring school, no summer school, no fall school or nothing, winter program with not one single competitor ever, zero. So we started putting a plan to ground, seeing the ground they had nothing. So what did I do, I drove to Huntsville, Bracebridge, Gravenhurst, Barrie, Bradford, Midland, Stainer, Penetang., all in a week, drove 1500 miles a week, miles, not kilometres. And when I started doing that I ran into Brian in Penetang, I ran into Michelle Simpson in a little town of Elmville, I ran into this one, I dug up Robert Tebby, one of my top coaches today, in Huntsville Ontario. I would do three clubs a day. Morning, lunch time, dinner. Saturday morning I started at 6.30 in one place, I would drive to Staines in the afternoon teach two hours, drive to Bradford teach in the evening, then drive back to Huntsville the

next morning. Start at 7.30 Sunday morning. So I worked 7 days a week, committed to finding out whether I could make it or not, whether there was interest, or good people in all these little clubs. So what did I find out, there was.

I wrote that letter to the city of Orillia. I kept working and working, my Dad always taught me to work. I am not afraid to work, I am not afraid to find out what it takes to be responsible to yourself, count on no one else to do anything. I believe in little signs from all over the place, 'it can be done'. I eat them, I wear them, there are signs all over the place, 'it can be done'. Winning starts here, winning starts in how you think. So as I started putting this together and I got a little bit of experience, just by being consistent, working hard, people started believing in this guy, hey this guy he might be able to do something here. Just because I never missed, never missed, never missed. I wasn't afraid of a challenge. So I just kept going after the challenge and believed that something would come. I would be able to get something going. Because the people saw the way I drove to them, when I tried to get a Spring and a Summer school going in the town of Orillia, they weren't afraid to go up, lets try that. So what did I have all of a sudden happening, I had a little hub. All of a sudden I had this little place in Orillia like this, and around it I had Huntsville, Bracebridge, Gravenhurst, Penetang., Midland, Collingwood, Barrie, Stainer, Bradford, Barrie, and over here we have got Beaverton. I had driven to all these places. Everyone of them had 300 kids, 300 kids, 300 kids, 300 kids, 300 kids, 300 kids, 300 kids, 300 kids, 500 kids, 400 kids, so all of a sudden I had access to 2000 skaters. All of a sudden that little Spring and Fall school, people started coming. Then I started grabbing a couple of other coaches that were interested in what we had, so we had a hub. So I spent five years driving to these places and developing them, and within four years, five years, we had kids at sectionals, taking home the medals at pre-novice, it was that fast.

The City of Orillia came along when I was 21 and said we are going to build that rink. You know how much money I had in my pocket. I would be lucky if I had 10 cents. First thing I did was go to the Royal Bank and borrowed 2300 bucks to buy a video camera. The guy said you want another car, I said I am buying a video camera, tape equipment, I am in business. He said OK son, we are behind you. I borrowed the money, got the thing going, so I had access to video tape. What am I still lacking? Lacking in miles. I'm running on fire, enthusiasm, and drive, commitment, I think I can do it, but what am I? A rookie. So a video tape doesn't lie. Got reel to reel ones right, because I am kind of technically minded, my dad was good in business, he was pretty handy, the opportunity of being able to sit down and studying films, that is what I like to do. I like studying things, working things in frames. Fortunately I had the good coaches before. So now I form some good coaches, some good miles, charging a fair price, giving good value, success is going up, people are happy, including the team

concept with a Spring and a Fall school, and I am driving back to North Bay for the summer schools, taking 30-40 kids for the summer school now. So all of a sudden for that, then the rink was up, boom we were in. What have I got now? Spring school, Fall school, Summer school, great, sitting in here. What have we got? Kids going to sectionals, kids going to sectionals from Northern Ontario because we have got Huntsville, Bracebridge, so I have got a hub going from this section to Northern, a bunch from this section going to central.

So now I am divided into two sections and we are getting success in both. What did I need, help. How did I do that, I started hiring more of our coaches, we are going to work together. You can't do brain surgery by yourself, we will work together. So that is what we worked on is this team concept all along, not pretending we have a team concept, we are on the team, no we are on the team, it is like being blood brothers, there is a difference. You have got to talk about being on a team and then we will see who acts it, we will see how they act for 365 days a year. We will see what trust is, because like a marriage business is business and that is the one thing, Greg looks after me, that guy looks after me, this guy looks after me. I taught Greg Myles, I know how he acts, I know how he thinks, I know where he is. I taught Robert Tebby, I taught Lee Barkell, I taught my wife Michelle Simpson, I taught all these guys, so I know how these people work, I know how they work, I know how they think, I know what the team is made of. I taught Judy Miles, I taught Cindy, I taught this guy. You know how many coaches. Robert went to Olympics, Michelle went to Olympics, Neil skated in an Olympics, Greg Myles working for me, Donna Rayburn etc.

My Aunt, she is the one who got me in this damn thing. I wanted to be the hockey player, she took from a good coach, Sheldon Galbraith. Way back when she said: oh [name] you have got to get some skating lessons. What did she do, sent us straight to Schumacker, where that good coaching was that I talked about at the beginning. So that is where I lucked out. My aunt, she got three or four of us from hockey, moving down the road and into it when we were starting to grow up. So as I worked my way through with a business attitude, if you are going to succeed you had better figure out your own strengths and weaknesses. No joking around. It is tough to be objective about yourself, but I always try, so always make a list, make a list of everything. Write it down, if it is long it doesn't matter, you can stroke it out. I wrote down my list and when you are trying to get something going you have to be a one man band. You are trying to partner the dances, you are trying to be the choreographer, you are trying to do this, you are trying to do that, you are trying to do the administration, you are trying to get help. Just grow, grow, grow.

As my guys kept growing a little bit, we were now heading toward the Canadian level

now right, Brian Orser's are coming through, Michelle's are coming through, Robert's are coming through. This is 1973 right because I started this thing in 1969, you always get your knocks, there are always a few potholes in the road, so I kept persevering, but I believed in what I was doing, and I had numbers, so I wasn't getting rich but I was paying the bills. I was able to pay for the commitment, spending \$25,000 on ice, \$3,000 on ice, I only had this in Orillia, didn't have anything, plus I had some load, so as I went up the ladder and recognising that I need more help, I hired the Carol Devin, I hired the guy that taught me in the first place. They had more miles, but probably didn't have the fire I had. So I bring them through the summer, help the Brian Orser's with their dam figures, help them with this. There is that young guy over there. Of course CFSA they are a terrific group but once in a while they poke their noses in the wrong place, trying to make deals, you should do this, you should do this. I always look at things in hindsight, you see I always say. If they're so smart how come they aren't doing it. If anybody is so smart how come they are not doing it. How come I am doing it and I am getting so much advice, you know if I am getting so much advice, if those guys are the experts how come they aren't producing. So I always believed that I could do it, so I always listened, and tried to draw everything I could. I keep things in perspective, which is a tough word you know, try to be objective which is a tough word and persevere. Perseverance, I kept learning. I hired Carol Devin, I hired that guy and I went to Germany, I went to the skating centre in Mannheim. I sat there for a few weeks and when I was stuck on a couple of little things I traded, I traded some of my triple axles experience which I had by then, with some other coaches. So I got to know a few coaches around the world, we shared a couple of things which we trusted in each other, and we shared. Now that is 15 years ago, but we shared. We traded something for something. No money just an idea for an idea. Some miles for some miles. I just shortened up everybody's time to get there. That was, Gunter Zoller was the guys name, he was very very helpful. He helped me a lot with the figures, more than anybody to tell you the truth. I moved my knowledge up a little bit, but I gained from his experience, he was fantastic at figures himself, not to knock the Carol Devin's who won the worlds in figures and everything else, he was great at doing that but wasn't quite as great at explaining, but was super. We also gained on that, everybody thought they got better anyway because he helped, so once he had touched you, wow, you are better, right. That is the way the world works you know. We just kept going. So I took one step at a time and I kept making my list. What are my strengths. What are my weaknesses. I need more experts. It just kept unfolding. I hired a buddy of mine, Neil carpenter. I had known him for a long time, actually helped and taught me a little bit as well in my early years. He had some experience of working with Ron Shaver, Ron Shaver was very successful. So 12 years ago I phoned Neil one day and I said I am so busy I need more help. I didn't have these Robby Tebby's ready yet, certainly wasn't married, I didn't have some of these other people quite ready yet. I

knew I was going to do something. So I said Neil, sell your house and come work for me. So he put his house up for sale the next day, talked to his wife. Sold his house in a couple of weeks, up he came, hasn't turned back. We have just continued to grow by working very tight with each other. I am a very in house person, I believe the guys that work the hardest for me, the guys that trust me day in and day out, are the guys that I am always around. Somebody will come in but there is the old story when they come to help you, once the honeymoon is over they fizzle out like nothing.

So I haven't had a lot of success that way in my learning. I had to figure it out on my own. I am technically minded and I like analysing. I like going through all of the aspects of free skate. That is what I ended up the best at, because that is what I put all my thoughts into. Business is business, I have a business and the technical components of figure skating. I am not a choreographer. I used to be. I am not a dance coach. I used to be. I don't partner dances any more. I used to. It took all those things to get started. Then as I was able to grow with this team and manage my way through, then I was able to diversify components. Before I knew it, Lee Barkell that used to drive down from Kirkland Lake, and when he wanted to do pairs, I didn't have a pairs coach so I sent him to Kerri Leitch. So five years ago, I said to Lee, maybe some day I am going to get you to run a pairs program. In the last five years our pairs program has gone from nothing to 12 pairs, and the last two years we had pairs at Junior Worlds, the last two years we were in the top 10 at Junior Worlds, to novice medals, to junior medals, now we have a senior pair team, all in five years of work. What do I do, confidence. I take my coach, I give them lead roles, and don't interfere. Dance program, pair program, whatever, I take you and I give you something to do, I trust you. I don't come by and say oh I don't want that. If I give you the job I have confidence that you are going to be able to get the job done, if you get stuck come and ask me. I am not coming to you, you come and ask me. I am going to give you the help. I'll nurture it through. I believe you can do it the same as I did, except you have to work harder and harder, because they are ready to accept that challenge, freedom, responsibility, confidence.

So that is one thing that I have tried to do with every kid that I teach, every lesson that I teach all day long from 6.30 in the morning, I will nurture those guys through every little thing, never let them down, I will stand there like a rock, excuse me, until I get the job done. I won't turn back. I know if I need to do something, I find out on my own. I wrote to a few people that I trust, and we will discuss something, but as the whole thing has evolved, the harder I have worked at it, the more I have found out, the more successful I became at it, because I had developed it myself. When I took lessons all everyone was doing was doubles. I am doing quads now, increased the thing to four revolutions, no one ever told me rotations only happen in half a second, no one ever

told me about flight paths, no one told me what speed max is. I took from experts. So I tried to design, what is happening, how does the world work, what is the earth spin, there is no friction in the air, how do these bodies turn, what is the spinning axis, what is that, how can that move, what is the frame, what are the components of the body, what is that, so I worked and I tried to figure it out myself, bit by bit by bit. I worked with my cameras, I have never been without a camera. My camera is out all day long, out every day, never without one for one day. If that thing is broken down for five minutes, my repair guys are here. I go through it frame by frame, I want to see it, I don't guess anything, I don't guess, I don't guess, I don't guess, and I don't assume. I assume nothing, I count on nothing except what is in my hand. The team is in my hand, we work together like blood brothers. That is the bottom line. I am not an ice skating coach with a skate bag. I have got hundreds of thousands of dollars tied up in this business, I have got \$75,000 tied up in that room, right there, walk in this room every little nut, bolt and stick in this joint we fought for, we paid for it.

When you are in business, you are responsible for running the business and making it tick, giving your customers the best service they can get, the biggest bang for the buck. That is one of the reasons why we are successful. So what did we do when we came here? Here is my Orillia, here is the place where I built a house, here is the place that I wanted to live. Here is a place that we developed Brian Orser right through to be a world champion. Here is a guy where I had to go out, and I had to access the people I knew, which was Carol Devin, so I did, and I built a house on a lake, and I did it. Just when I thought I had everything organized I was trying to go into the next phase of building another rink, the city of Orillia decided they couldn't do it. They couldn't do it. I lived there 17 years, brought up a world champion there. The property was given to us, and I went out and found all the grants. I even had another business partner who was buying a major junior league hockey team. They said we can't do it, we have to fix the old community centre. The friends of the community centre have decided that their parents in the depression put the buildings up, we had to save them. So you know what happens to the word called growth right now, the word growth means we are going to die. We are going to die because we couldn't grow. So I came the next morning down to the city of Barrie. I already had a small business going there anyway, small Spring and Fall schools, that little thing I just started here. I went down there a couple of years before, because we were growing and couldn't serve the people that we wanted it, and the coaches that were coming in were becoming very knowledgeable, we were working together see. So we opened one here and a guy like Greg Myles was doing some of the teaching and so was his wife Judy, and Heather another girl I taught. So we had a little thing going here, so I came down to the city of Barrie the next day and they said [name] we think we can do something. I said I am going to move the whole thing somewhere, within one minute. Within one day, I got

the city of Newmarket calling me, move your business here. I had people calling me from everywhere. Eighteen months later I had this rink up, 18 months, and we didn't have half the grants. We had to do this. Within 24 hours these guys knew that we were moving. Psychologically I left town when I got in the car. I went down to Barrie and we had meetings. I invited every group, ringette, minor hockey, baseball, you name it. I invited them all to a meeting. I invited City council to the meeting in Barrie and I said we are a part of growth and feel that our programs can develop in the city of Barrie. Do you think that we could grow with you? Everybody unanimously put their hand up, great, including City council that came to our meeting. So right then we had the green light of going. We can do it. City council saw the other user groups in favour. I said well we are spending x dollars here, we are going to bring all that here, we have already got a program here and we are going to grow. They said Phase 1 was done over here. They said [name], it is going to cost us millions to put this thing up. It comes back to, business is business, you don't fool around, don't take no from the council chambers. I will find the commitment personally, a personal guarantee, the house, the works. They said we are not building this if you are going to be in Switzerland. I said I don't want to be in Switzerland, I don't want to be in California. I live in Huntsville, Ontario. One of my goals always was to have a skating program in a Simcoe county, up in a little town up north of here. That was my goal to have something like that in this county. I said you build it, I am in. Good, they said we are going to put a million dollars insurance policy on your head, we are going to do this, we are going to do that. Up goes the building and in five years, if you can guarantee all the money, it is a lot of money, the policy is off. So we did. I got the guarantee off my neck last Spring. Took a long time to get that thing off and it was worth every bit of it. The personal satisfaction of driving through that thing, so that our kids could have the opportunity to skate on an Olympic ice surface, for the high school we have a co-operative education program, we have this, this and that. It has been worth every little bit of risk I took because I knew I could do it.

I had the people in place, I was almost spending the money already it was going to take to do this one, right and we had grown through the 17 years, but the minute that the thing was flying these guys said changed our mind. We will build a new rink. I had been to council meetings, showed them everything. I said really. Well where the hell were you 4 weeks ago. So I had left. Psychologically I had left. To me they had let me down. I had spent millions of dollars in that place, bringing people, the French champion, the Joseph Sabovcic's, everybody had grown up in that place, tonnes of them, one after the other. I would be going through making this deal, still trying to live there walking to the store, people throwing lettuce at you in the food store, people calling you traitor, driving up to my house, the phone calls. It was unbelievable. So I left that. Then we got it going, now of course no one blames me, they blame the

politicians for doing it. But at the time it was me. I was the bad guy because that is all the politicians said. Yes it is him, he is the rat in the rink. That was the quote.

So we got this sucker up and we got it flying, I am a grinder. I am proud and I would not consider myself the flash and dash, I am a grinder. I just figured it out. That is my story, no secrets, no nothing, just work. I won't quit, will not. This thing here is going to go on forever. I have got guys in my program right now, because they have got one thing ahead of me, they are younger than me. The people like my wife Michelle, the people like Greg, the people like Robert Tebby, where do I take them, to the Olympics. Where does Michelle go? Olympics. Where does Neil go? Well Neil is just a little bit older than me too so we don't have the luxury. So what I have done I have lowered the average age of my staff, right, I was the young buck, now I am the experienced guy. You know what I am doing. I got all those guys with more experience than you can imagine. Robert has been to the Olympics, he has been to Great Britain, he has taken this guy, that guy and done the internationals, done the junior worlds and come back with success. I pat my guys on the back and I take them through every little thing, so that they won't miss a thing, won't miss a beat, the same with Michelle and the same with my Aunt Marilyn. We have got five World and Olympic coaches here. I am going to take this thing through so that when I move up, I will become more of a consultant in the next 10 years. Yes, I am still punch and grind, punch and grind, but I can't go quite how I was. I was going 7 days a week, and I think if I keep going, I am going to die, I am going to run out.

Of course I have got a little boy now so things change. He is three and a half years old so I try to spend some time with him and have some fun. But when I go home no skating. I don't talk the word, nothing. Go to my boat, relax with other friends, other business friends, other friends, and we are building more things.

I am not sure I am answering your questions, but I am not going to tell you a bunch of stupid things which aren't the right answer because that is not how I got where I am. That is telling you a little bit how I got where I am, and how I am every day when I teach somebody. I have to hold them all the time, just like I am talking to you. I have to look them in the eyes, I work with them, I take them through the stuff. I take the camera, understand, it is crystal clear. I let them think and they can do it before they even move. They know I won't budge no matter what. Some days, a kid will come off the ice and they have missed every God dam thing in that solo. First guy standing at the door is me, won't budge, won't flinch until they get up and learn to do it, do it, do it. They know I will be standing there. Anybody can stand and skate, great, anybody can stand at the door, it is the guy standing there when you are in the sewer.

I remember when I was 16, I had no confidence, I was one of those sewer rats. I quit this goddamned skating business because I had no confidence at all, none, zero. I couldn't have been any lower, under that garbage can over there, I took my Dad in his office and said don't you spend one more penny on me, don't spend another dollar on me it is a waste of money, its not worth it, nothing. Then three years later when he died he told my grandmother get that guy back in skating. Away I went. I wanted to be a builder. At that point hockey was done, I was in figure skating right. I could do triple flip, triple loop. I could do the stuff, mind you I looked like crap. I was skating with Jay Humphrey, good skaters like Dave McGillvray, he was first in junior Canadians, I was second. So I could rotate but we all looked like awful skaters, awful compared to guys now.

So I can remember my dad, my grandmother came to me and said, you better watch out, don't get in the building business. So growing up with my Dad who had a business mind had a lot to do with the way I have driven myself through this thing. So that is the way it has been, I like that attitude. He taught me business. I grew up in a house of it, so whatever I was going to do, I was going to give it my best shot.

There has been no secrets, there has been no one that has come out and thrown some lollipop down and said ah ha, there is the magic [name]. Magic is consistency, my perseverance, and I probably love the challenge, but I enjoy what I do. I love coming to this rink. Love coming in here, that is why when I talked to you earlier about putting myself on the line, getting buildings up to create an atmosphere that is easy to learn in.

I don't have any board of directors here, I don't have any. I hate to say it, but board of directors are those that poison. Their claim to fame is spare time, and they do not have the knowledge and the know-how to make decisions on the people that are in the business like skating coaches. You know what they do? Every so often they do change, change, change... Boom, bang your head! Boom, bang your head! You can't grow. So I decided right away, in the business you become responsible, you try to become responsible, I carry the damn thing myself. I don't own it, the city of Barrie owns these things, like the city of Orillia. So I lease in five year blocks. So we are working right now paying to the year 2003. That's where we are right now today, working on the form list. All our costs, everyone knows where they are tomorrow. That is a challenge. I have been doing it. I already got it done till 1998. Signed, sealed, and delivered. Finished. The same basis is being laid out for the year 2003. You know why, it will work, credibility, those guys know right where I stand. All of the cost, I give them cheques one month in advance for the year. We are a five star tenant. You know what we do, we make this place look good, it is rented 90% of the

time out of 100, so their costs are way down. That is why we are building another one. We are putting in 4200 seats, we are putting in 30 private boxes, we are putting in a glass dome restaurant at the end, and the tenders are going out this week, we are going to hope to hear by the first week in October for Molson Park. Molson gave us 10 acres for a dollar. Molson is putting in the parking lot for 600 cars at their expense, Molson are putting in the glass dome restaurant at their expense. The city is putting in 5.5 million dollars in reserve. We rented already 30 private boxes sold out for the next 10 years, done, sold out. We are putting in seating, we are buying a major junior A hockey team. It is already bought, 3/4 million dollars in franchise. I am personally buying that. Put in concerts, one end of the rink is going to slide right back so we can put in concerts. It is going to be very user friendly so we can host a Skate Canada, so we can have Junior Worlds, so we can have major junior A hockey. They are putting in all lounge seats on one side of the rink so you can come in the concourse, in your own private parking lot, your own private spot, into the club lounge, have your own private seats, lounge seats like this. Separate from the private boxes. We are doing that. We have just finished doing all these pieces. These are the things here now.

I am committed personally, working with the rotary club, working on this project towards raising a \$100,000 donation. We just raised in the last four years alone \$100,000 for hospitals here in the city of Barrie, our own program, \$100,000. We have committed 100,000 to this, we are very involved in the community and everything. I work with the rotary club, with Big Brothers, I work with Little Sisters, last week I spoke at Big Brothers, raised money for children's cancer, raised money for the food bank, raised money for you name it. So I do that in my spare time, work on the other projects. It can be done. It can be done, so I am going to. That is fun. We work very hard in the community.

I belong to zero skating committees. None because they do nothing, not going to waste my time on nothing. Somebody has to do it. I need value for the time that I spend on something, I would rather spend that time working on this business because this thing is going to go a long time, and when I step up into a consulting position some day I have got all the people underneath me that are going to be able to take lead roles, participate and do whatever. I have a whole system. I am probably one of the only places that has a building like this, that doesn't charge coaches fees, I call it profit sharing. That is an incentive. All my guys work so hard to make this thing work I want them to take that 5%, put it in their RRSP, take 5% and buy a house, so I convince everyone to do this and this, this and this and do that. Have a little formula worked out so they can get there, and there, and then you can buy this and that. So their kids are ready. Maybe their kids will be a part of running this school some day too. I will draw out all the formulas on how it is coming through. I am not going to

work this hard and then some day oh just retire, see you. Are you nuts.

The formula I have tried to put in place, it doesn't matter that there is a name attached to it but there will be an opportunity and I know that there will be people come along where I will create new jobs. No different than Glen Sather, who is the coach of the Edmonton Oilers, with his success he has been able to move through, and he created different positions, boom, up comes more people. You create more jobs you create more this. So from a one man band, I went to a 25 man band, that is how many people I have got working here. My off-ice guy is Sean Wilson, he is the best. He is young, he is the best, he is the smartest. He works the hardest. He gives it his all to make sure that our guys are ready. You can't be an expert in everything.

Now I have to have the level 5, before I can go to the 1998 Olympics, good. All the artsy, fast track seminars that mean nothing. I need experts, not another level. I need experts. I need somebody past that level, working for me to run my business to get the athlete where they are going. It is nice to get those fast track seminars, and yes I go, but those fast track seminars it is not me they are after, I don't think. But if I don't get them all, it is going to be me that can't go somewhere. Because I am working so hard I don't have time to go to these damn things. But I go and get them done. You can rip that up. I am not saying that is negative, but one person can only do so much, can't be an expert at off-ice, at nutrition, and at this, at that. It is wild.

Me, I am thrilled. I eat little things, courage, desire, goals, honesty, integrity. I love what you are doing, care about what you are doing. Opportunities will come. Even all day long, little pieces. I always have little things in my pocket. Reading kids little things, little things you can see. *If you don't expect too much you won't be disappointed.* I am always ripping things off, coming through, putting them in my pocket. *Success is a process, not a status.* I will pin little things up everywhere, *In the middle of difficulties I will look for opportunity.* That is me. That is what makes me go. *Those who aim low usually score a direct hit.* No question about it, that is what I think. I am giving you what I actually haven't told anybody, just keep it to myself. Keep going, because the bottom line, nobody cares anyway. Just a piece of paper, just another study, just another thing that most people don't even care about. Most people couldn't give three flying hot-dogs for what it took me to get here, oh really. Somebody said are you a lucky guy. You are right, I am a big believer in luck. I gave a speech once, and said I am a big believer in luck and the harder you work the more you have of it.

I say it every day when I go to the garage door to get the car. It is just a nice subtle statement, I come in. Look at this, my wife gave me this, she said you are going to

drive me nuts, but when I go home I don't talk about it. I will be going down to the boat tonight maybe, wash the boat. There is no skating. But I've got a mission, these little diagrams I am drawing, they are forever. The day I decide I am doing something, this thing is armed ready and dangerous to continue. I will just be standing behind it like a rock, no different than I am with every single kid. Everything I touch, won't budge. The roof is falling down, good. If somebody is coming out, it is going to be me. I am not laying down, you will have to drag me down.

So I irk a [name of administrator] kind of guy sometimes, because I stand up for myself, I am my own person. As I was saying, if you are going to be anything, the hardest thing to be in your life is just to be yourself. That is the hardest thing, I teach my kids that. I teach everybody that. It is the hardest thing to be is yourself. Everybody wants to be, a want to be. They want to be somebody else, they want to be that thing over there. When you really want to be is sitting right in front of you. There is so much potential in yourself it is unbelievable. So that is easy. .

(Can I take you back a little bit, if you can talk about your involvement when you were young, how you started out in sports, if you did a lot of different sports and how you got into skating)

The main thing I did, I grew up in a small town. I have worked that same attitude, whether I was in Orillia, or I am in Barrie now, but I grew up in a small town where it was safe to walk the streets, where there was terrific community spirit, where there were successful hockey teams, lacrosse teams, and figure skating was doing well. They had also good coaches, which a number of other figure skaters, like Robert Tebby, George O'Reily, David Pollard, John Williams. John Williams made it to Canadians, David Pollard made it to Divisional. Five of us all male got our gold figure test in the little town of Huntsville, not even heard of. So we had the opportunity of doing everything. We knew most of the kids in the town, it was small. That enthusiasm is probably very important and our parents got us involved in everything.

So I mean on a Sunday afternoon we thought nothing about taking our shovels and making rinks at the public school. Because there was always a rink at the public school. Everyone loved to skate and our geography button in Canada is every kid has a pair of skates, or just about. Whether it is figure skates or hockey skates that is just where we are. In Florida they are doing something else, we are here. So I had access and opportunity. Why did I want to be a hockey player because most of the guys did. While I figure skated I always played hockey, only one outgrew the other. I didn't give up one for the other, I got better at one than the other and if I had turned out to be 6' 2" I probably would have been a hockey player. But I wasn't. So lucky me that I had a choice.

I had anything but a pushy dad. He drove me everywhere to get lessons or something. If I was going to be having lessons and Carol Devin was in North Bay at that point of time, then he would drive me to Huntsville and North Bay for lessons, back to school, get to work. He would drive me to North Bay for an hour, three or four times a week. He would drive me to Toronto to the Tommy Shanter club, had lessons from the Highlands, you know because Hans Gerschwiler was gone, because he was in Schumacker for the summer. There is lucky me again. An interested parent. I had access.

So after saying all of that, that is probably where one of my goals went. I thought I am going to try and create one of these centres in my own county. That was always one of my goals. That is why I started the whole thing in Orillia. I could of easily been hired by someone else and probably done a good job, when they hired me I would have worked hard but I am sure that I have done better by myself. It was a huge step, but I feel that I have always grown up in a small town. Barrie is a small city, but we are carrying on that same flavour of being involved in the community with many other programs and organizations and kids, whether it is raising money or speaking on somebody's behalf. That has become an important part to me, the small town. I am fortunate.

(You were talking about how you stopped skating when you were 16)

Yes, that was sore.

(Why)

I had no confidence, skated poorly. You are only judged on performance and not your good intentions. Performance in competitions was poor at best. I made it to second at Junior Canadians, but as far as I was concerned I got there, because I was lucky, I skated well that day. It wasn't my average, so I skated, you let so many goals in the net, you lose your confidence. Its not that I was a lousy skater. I loved training, I practiced. I would train and train and train, no problem. Once your confidence is gone you don't believe in yourself. It is not that you don't want to do anything. You just don't want to do that. You carry on with anything in life because you are successful at it. But you need a little confidence to stimulate your way along. You need a little. You need something to help you get to the next step, or at least want to reach out to that challenge. If you can keep those things in perspective you are OK. So I lost. I lost that. I lost perspective, I didn't know how to get out. When you are 16, you haven't got any good miles on. No one believes in you anyway so it is hard making any kind of decision, so you quit. That is the only way I knew my way out. I didn't want to go back and lose again, or just count on good luck to get me through one. It

wasn't because I hated skating. Wasn't because I didn't like the training, I just wasn't any good under the gun. I didn't feel I was. So I guess it turned out to be one of those things. I started thinking that I wasn't going to do it, so I took a direct hit. I learned from it.

My Dad took me right away, he was a builder, I didn't even want to work by the hour. I will never forget, when I was 16 he said well, what we will do is get you working at the shop. My initial goal was to go anywhere, as long as it is forward. I started working at the shop with him because he was a builder. I will never forget, he had this job at a Jewish camp and they needed 25 tent bottoms, because they live in Muskoka lake, and they had their own camp. So he said we are going to give you the job of building these tent bottoms. You are going to be by yourself, you are going to be building them at the shop. We will give you your own stuff. I worked day and night. I didn't work by the hour, I had so much per tent bottom. I stayed there until it was dark. I was there, morning I was up work, work, work, I had them perfect. I made my Dad money. I got paid so much for doing the job so fast, so then he said well from there we are going to give you a small cottage. McKeller is in Parry Sound, so I had a couple of guys from school, they were interested in that kind of stuff. We all knew it a little bit, because I grew up in it, I grew up that way and he drew it, I would go down and watch him draw. He was kind of a bit of an architect as well, so he would work until 2 o'clock in the morning, drawing and drawing. I got my confidence back that way. Little success stories. It is obviously what you need. He saw it, but had to find some other route. So I did that for a while and got quite good at it, got really good at it. I built my own house last year. I was the general contractor, while I was doing this job and everything else, fine job. I remembered how to do it, and it went slick, really went well. I did everything. When I was all finished, after a number of years of preparing this job, I hired a young lady who is my architect. She is thirty years old. She just did a heck of a job structurally bringing it into place for the engineers reports. All the stuff that needed to be done, she did a great job. It was fun putting that up last year. Michelle and I and our little boy, we lived on our boat while we put that up, sort of on the lake. That is therapy, living on the lake is therapy. It is great.

But back to the little community thing. It was a big thing. My dad has been an important part of my life. He helped me through this tough stuff and that is what I do when I teach. Help the kids through the tough stuff. I never want anybody to feel like I felt. I felt just awful.

(Talk about your coaches and the influences they had on you, what did you learn from them, not only technically but other facets also)

Nothing but class. I took from the best and I got the best. With Hans Gerschwiller,

went to the lesson, its all business, there was no fooling around. He was very strict. I certainly appreciate the discipline today. I really appreciate the discipline I got, period, no matter what kind of skater I turned out to be. I certainly had something to go back on, and go down and kiss the floor that I had him for a coach. A guy like Hans Gerschwiller phones once in a while. He came in a couple of summers ago, how are you doing, out of nowhere. He came in the door, down the aisle, it was like I saw a ghost. Hi [name], how are you doing. It was unbelievable just that. It was the same with Sheldon Galbraith, at Worlds this year, I haven't had time to sit down and write you a letter, he hadn't seen me for a long time, great to see what you are doing and all that. So it is more than just the lessons then, it is the things that happened afterwards. But they were all business kind of guys. Guys that were into it. Maybe that helped me make that decision too when I was 19, 20 21, trying to get into the thing. I was making the decision, am I going to be in or out. As I said in the beginning you can't just dabble with it. If you are only partly way into something, nothing is coming out. I didn't want to be that. I wasn't sure what I was going to do. Those kinds of influences certainly came from the coaches. They were so credible, no matter whether they were teaching double jumps or not at the time, they were the best in their areas. They were as accurate as they could be at that point in time. Given the amount of information, they certainly were consistent and the effort. Probably the smile on their face or pat on the back was as important as the lesson was. My coaches were just the best. My Aunt Marilyn, she is one of my hardest workers now, 14 hours a day and still working, trooping. She is one of my spin specialists. She was trained by Sheldon Galbraith as well for a number of years.

So the information gets handed down and remoulded, reworked, reshaped, reformulated and pushed further. I guess that is my part in life, driving it farther. All of them, I have got nothing but positive things to say, no matter how tough they were on me, it was worth every bit of it because it is what I believe in now. No nonsense approach, that is what I got from them, no nonsense, no fooling around. That is a bit what we are lacking in society right now, is some of those disciplines, that there is a right and a wrong, it just can't be wishy washy everything, because you are just going to get a wishy washy result, because the direction was only fair, there was nothing vivid or sharp or precise or has to be or anything, so the result is going to be the same. It is one of my things that I talk about all day long. Any road will take you nowhere, you have to have a precise road in life to get where you are going. You have got to have some direction, you have got to be an architect in designing your own destiny or else you are not going to get anywhere. You are just going to be walking in some dark room looking for switches, hoping to find some daylight, but it won't be there, and you will blame it on somebody else. Those guys were amazing.

I guess the people I have taught, a number of the ones that have come through they are all over the place, Lea Paige, Robert Pollard, Marsha, Tracy, Michelle, Tina, Janice, had them all. That is right in front of me. But it is a team, I know who is playing left wing, right wing, centre, forward, goalie. We sit down and have a wish list session with them, where they want to be. Some want to be at the top, some don't, some want less. They just want to be good at the part they do, so that creates a very easy piece of the puzzle. You just understand what everybody's position is. Then it is easy for them to play that position and it is easy for them to understand their growth because you know what makes them tick, how it just fits into the puzzle, and then it fits back into my puzzle.

People want to grow. I teach growth, not just what you do, but what you are as a person. That obviously came from somewhere, my dad, who also really liked the coaches that I took from. That person has got character, that person is in business, that person is going to give you something, that person has got value. Those people gave me that. That is what I try to do. If a parent comes in and asks me to take on a coaching position, and they decide that they want to be the coach, I will give it right back to them. If a parent decides he wants to be a coach, I will give it right back to them. Thank you very much, he didn't want me. He wanted me just to be the nursemaid, and they are going to be the coach. It is very much like if he didn't want me. If you want me just to be the nurse maid and you are going to be the coach. If you want me to be the coach, that is my job, and you are the parent, that is the business. We all understand our positions. Certainly I'll keep you informed and certainly I'll do whatever is necessary, but you also have to have a little bit of respect for me, that is my job. If you want me to do a good one, at least give it to me, or I'll give it back. Don't give me something and attach an elastic band to me and snap me off my feet, then you can't get the best out of me, because I am not sure where you are coming from.

We have those kinds of understandings before we start. We sit down with someone and ask what do you think I can do for you. I haven't got any magic wand, some people think I have a magic wand. This guy teaches triples all the time. I will. But how do you think you can get them. He certainly has some ability but we are going to start going down this little list, perseverance, drive, desire, belief, commitment, this, that. We are going to go down my little list and I am going to look him in the eye, then I am going to see what he says. Then I will make a decision. I will take the guy with less ability all the time, but achieves on my other list. I will drag them to the top, because they want to go. I am not really dragging them to the top. I want to go with them. I start working for them, I end up working with them. We form a bond as a team, heading in the same direction, we are working together.

That is one of the hardest things when you are teaching all day long, especially when you are trying to work through new barriers, especially when you are working with young people. There is probably one thing you don't understand, when confidence starts to go down, when you are trying to learn. I think back now, when I was skating that you take things always personally. When I am on the ice I always try to talk to them, don't take anything I say to you personally, because I am chasing down positions and I am trying to push you and steer you in a direction that is going to allow these things to happen. If I get irked at something I don't like, it has nothing to do with me personally not liking you. It is chasing down these positions, it is those that I don't like, it has nothing to do with you. Sometimes they think, oh he hates me, oh no no no. So we always have to reinforce that, because you are working with people that are growing up and they are not any different from how I was when I was 16. I must have been very sensitive, whether I thought I was a tough nut or not. I was anything but that, it was the opposite. I was probably afraid. That is not the fault of the coach, that is just a stage and no matter what you do in your life it is going to happen. It is not a problem, it is just a test, it is only a test. That is all it is, do not take it personally, it is a test. You have to learn those for yourself. You don't learn this in any of the levels. No one is going to teach you the street, school does not teach you the street, it will give you some knowledge but it won't teach you the street. So I try to help in my lessons to teach you the street, how to work the street. That is where you are going to gain experience in a hurry, take what we taught and put it into a working situation.

(What do you think about the coaching courses, any value for you?)

For me not much, not much. See I am a business guy, if I need a nutritionist I have one. She is an expert. I am not an expert, some seminar thing to make me write down the right answer because if you don't use it you lose it. It is not my language, I can take somebody out there and take my technical language and blow them out of the water. I can take frame by frame and take my stuff, every little angle and how frames work and this works, flight paths and zing you. I can teach that to somebody but if they don't use it they lose it. It is not my language. It is nice maybe to have a little flash but if I wasn't aware that I needed all those things, I wouldn't be sitting here today if I wasn't aware of all those needs. I was aware of them a long time ago when I made up my list. I knew I needed those guys, that is why I started hiring in the first place.

I had office programs 20 years ago, we ran them in the dressing room because we didn't have a room like upstairs. Now we have a 25 square foot aerobics studio in glass with an expert. About 20 years ago we didn't have one. So I took one of the girls that I had that went through university doing phys ed, she needed a summer job

and we hired her to do this and that. We ran them in the dressing room, but at least we had them. So we learned. We learned through experience. I learned by having an expert on hand, I didn't pretend to do it by myself because it is not going to turn out. I am not an expert in that area, not an expert in nutrition. I am not an expert in office stuff, I am an expert in technical. I am not going to say I am an expert in business either, but I have stick handled this one this far. I am going to stick handle a lot further, and it carries itself, no grants no nothing. I don't count on anything. Don't count on somebody reaching out to hand me something and oh that didn't come in, oh jeez we can't do it. Well, we have to find another way, what do you mean we can't do it. We had better find another way.

There was one course I really liked, biomechanics, a course I took a few weeks ago and I enjoyed it. It was a biomechanics course, it fit right into what I like. So what I heard, I heard what I like to hear. She obviously has her PhD, obviously good at doing this, she was a good speaker, had value. Certainly didn't hear some whiz bang thinking into it, I was hearing somebody who had great information. I didn't even like all the words she used, I told her that too, in a very nice way when the class was over. I said you know you want to talk about momentum, that word stinks, it is a negative word. I am sure in theory that is what it is, but there is negative and positive terms. I like flight path and the things that I design, momentum stinks. She would agree with me, but it would be a word that she would use. So we work our way through all the different stuff, I went through the book that she sent back. So if at least I had a chance to choose the one to go and take it. What I am disappointed in, is that I am going to have to pick up a manual one of these days and say [name], you don't have enough of these done by 1998 you are not going to the Olympics, because right now in this country none of us, not one of us has enough to go. So I feel like I have pulled my weight and done an incredible job, but I shouldn't get stuck in that position. But I have to take weeks off coaching to chase down a course to satisfy somebody that isn't so smart, and why aren't they teaching them. You know what I mean, like I feel it should be a breath of fresh air. Its a lot of changes for me, enough is enough. If that is the rules, that is the rules. But I have never challenged that one, I have gone, I have taken a bunch of them, but I have got a few more to go to get 14 of them or whatever the heck it is by 1998. This year we did one. Now we just took the test. Ten at level 5, now that one won't count, I have to keep it for later. You can use that one for your level 5, that's good. That was one of the only ones I liked.

For new guys coming up I think some of it will help, a few of them will save a little bit of time. Most people haven't got the balls to step up and run a business like this. Most people stay in a very safe spot, do your own thing, moving things along, doing this much. I got my neck stuck out, and it paid off. Maybe it wouldn't have. But I have

done it one step at a time, I have been teaching for 25 years. I have been at 14 Worlds in a row, 24 national medals alone just in this country, got about 150 national and international medals. It is all over those boards out there, those boards out on the wall over there, it's all the names of kids that have done something. When the kids come in every morning of the week they see it. It is like wall paper, the full length of those boards. Flags are hanging. All those flags are from kids that have been here from different countries. They come in and go that's me. It is nice, it makes them feel at home. They can look up and go good, it makes them feel good. They can kind of go yes, I am a part of the place, I am not just a visitor. They make it their home, a place that is easy to learn. That is what I try to do, make it a place easy to learn, a friendly atmosphere. It gets in your blood, because then they can use it.

The courses they are good, I have got nothing bad to say. I wish I didn't have to take them all, I wish there wasn't a gun to my head, you have got to do this many by this time. I wish they would put the guns down. If we weren't trying I would say fine, but just to catch up with somebody who drew a line and said they have to be done by there, come on. Fair is fair, and that is not fair, God damn it.

It is like their yearly plans, every little component, we have everything from these little competitions, load all of this, off ice guys, overlay this plan over that plan to make it work. Now the association will have a seminar in the middle of the summer, so 2 weeks from now they will take half these guys out, borrow them, take them some place and have their own little seminar. Well it makes about as much sense as a bucket of bulls. It doesn't make any sense, doesn't fit into anybody's yearly plan. We have somebody who comes in and tells us about yearly plans, you tell me, they are nuts. So they don't always have things that work, then again our association is terrific at a zillion other things, so what the hell. Don't fight it, it is all small stuff. Don't sweat it, keep going, keep going, it can be done. If it irks you enough it can really throw you off. They are going to come back, probably unfocussed of where you left them, then you have to get them to another group, because this is my technical training. I got Spring, Summer, this is my technical training, this is it. You steal from this I haven't got it. I am not doing technical training in the Fall. It is a different stage of the year, I am in a completely different mind set, I have got everything figured out. I have my cycles, if somebody comes in and throws a dart, says you do that there. Oh good, any other game you want to play? It doesn't fit, doesn't fit. That is another pot hole in the road, big deal. I have worked my way around that too. I don't like it but I do it. So that is probably one of the reasons that I stay off committees, because you see the energy that goes in, there is not enough value that comes out. So I stay away from them. They just frustrate me to death. I just can't sit there without getting something done and move into a positive forward direction. I just can't keep moving things

around the desk, around the desk, and around the desk, over your desk. I can't do it. Oh yes you can, just have a plan. So we go into the community instead. I would rather be known in my community, I would rather walk down the street and help somebody cross the street, or do something. I was lucky though, last year they gave me the highest award a Rotarian can get in the world. There are so many thousands, I am not a Rotarian at all, they presented an award to me, called the Paul Harris award. I found it very special. It's just commitment to working with people, working on projects.

Talking about coaches coming up, the big beneficiary from the whole think will probably be, I don't want to call them average clubs, for lack of a better word, they will have a standard of coaching that is consistent across the board, so that is a major benefactor right there. At least everybody is up to some kind of level, whether they can deliver any of the material is another thing altogether. A lot of people are good at writing down an answer but can't tell you anything. I don't pretend to be one of those persons that is best at writing down answers at all, I am much better to talk, I don't consider myself even a good speller to tell you the truth. Somebody else checks it for me. I go to work and I am used to speaking, that is the street, I don't have to write down the answer. I can verbalise. For the average guy, the average club it would be a big bonus. For the average coach coming up it will probably give them a little bit of a jump start, grab a little knowledge on little bits and pieces.

My doubt is that there is one of the zillion that will step out, take a lead role because the risk is too high. The risk is too high. How I ever pulled this thing off, sometimes I don't know. I started 25 years ago, one step at a time. Other than I had my mind set on it, knew I could do it from the beginning. Had my mind set on it, once I started I had my mind set that I could coach at the Worlds and Olympics. I believe it no different that right now I know that I am going to live to be 93. I just know it, it is absolutely cast in stone. Even if somebody comes in and shoots me, got my mind set on it. When I get to 93 I might change my mind, I meant 193, just kidding. I have my mind set on something.

Of courses for me, I like my biomechanics course. I liked it, I liked her, I liked the presenter, the whole thing. The delivery was good. Some of the others, we had people giving us the course that probably coached baseball or something. It didn't make any sense, it was like OK we did it, check mark. My time is worth value, I have got valuable time too. So I don't waste my time, but you can't walk out of the room and tell somebody else that. Somebody else has got the list they are going, I have to do it, no matter who you are, the King of Sheeba, you have got to do it. So you do it.

(What about your whole approach to developing the triple axle, like you said you did triples yourself, it wasn't the same back then, now its more developed, how did you figure it out, how did you do that)

First of all I wanted to. My mind probably works a little bit in the mechanical fashion so I am obviously drawn towards that area as opposed to being a choreographer or something. I am not an artist. I would of probably been an architect building bridges if I wasn't designing triple axles, and quadruples, figuring out how every frame worked, how every movement of the body worked, designing flight path, approach, how the earth turns, why there isn't any friction in the air, how I can put you in this aerodynamic position, how I can create all the speeds, how I can formulate your body, how I look at somebody like I can almost see them. I can look at you and I can picture that happening, its going to go through this curve and that curve. So I figured it all out. I would draw the patterns on the ice, got a pattern to every move. There is a pattern to every move, there is actually a path, you just don't skate up and do the jump, there is a path strategically designed, and then you do it. Then I put my technique beside that design and then I formulate the person to it. That takes a long time, then I start moulding you into all of this which is going to allow you to spin into a spinning axis through the air, obviously there is no friction so you can spin fast, you have got gravity pushing you down. Every cross cut, every little move is formulated to how it fits and blends into that final spot I want you to be in. I know what I want you to be in, so I build everything back from that. That might help, put it in perspective.

(Do you know anyone else that operates that way?)

Coaches you mean. I don't know. I work with a lot of coaches. I ran a seminar here just 3 weeks ago, there were 75 coaches here, top coaches from England, Gloucester, Jersey, New York, every where, Montreal. I had half of Quebec sitting in here. I go through a week of just technical training, hour after hour after hour with my kids and their kids. Coaches from all over, I'm giving a lesson at the end of the thing, I've got 20 skaters, and 50 coaches that are watching, cameras all over the place, bang, bang bang. I go over everything, yearly plan, through operation programs, brought in a martial arts expert, the number 3 girl in the world, this and that, show them part of our design, concept, I do it every year. When I put in my applications out for January, I am sold out for February. Sold out. Done. I spend a lot of time with other coaches, they come here because they want to, not because they have to come here. I charge them, not much, \$125 for the week. I gave them time. I give them a million dollars worth of information. I bring in guest speakers, bring in nutritionist, I bring in all the components. All these kids and coaches get to see our yearly plan, some of the people in action. Whether it is my guy doing an office program, every day we have a guest speaker who's got credibility. So they get a pretty good perspective. Then we have all the hand outs, I love working with my coaches, they are the ones handing the

information down. So I teach them the street.

(Do you like doing that)

I love it, that is what I like doing. I am not afraid of sharing anything. If someone phones and asks me, I won't step out, I won't go on any committee, forget it. When I teach a lesson, I wear skates. I wear my skates all day long. I get 10 minutes off, 10, come in, the guys are organized, this one, this one and this one is taken care of, this one, this one and this one is taken care of, I am just quickly and efficiently working my minutes of the day so I can get the most out of them. Almost no one could ever figure out any formula, the overall formula. They will never know how tough it was going through some of the pieces, they haven't got a clue. It was tough now that I look back. The number of hours I spent, just designing programs, and buildings. I am good. People told me lots of times, you are the best, you are crazy, you are in way too deep. I've got everything paid for, I don't owe anything. Anything you see, we own it, we lease nothing. The stuff upstairs, every piece, every stick.

The Olympic torch that went across Canada in 1988, I've got it upstairs. That wasn't easy. Lots of people wanted it. I had my mind set on it, I wanted it this building. So I got them to present it to us. That is where it should be. You want it in a gallery, I've got one right here. Lots of people wanted it.

(How did you manage that?)

It's long story. I know a couple of guys that knew people that were involved in looking after it, just worked away at it until they gave in. Showed them the why, I don't want to hear the why nots, show them why, show them why. You are right, make them think its their idea, it was a good idea. It really worked for me, it was someone else's idea. That is what you have to do with most things, make them think it was their idea.

Back to coaches stuff, that is one of my key things about my system, they don't work for me, they work with me, we are in it together. I am the captain of the team, I never have a bad day. If you ask anybody ever in this place, ask them if I have a bad day, I never have a bad day. Make the best of everything I got. Thankful for what I have, never cry about what I haven't got. If I work hard enough the rest will keep coming. If you don't mind the work and you can have fun, no matter how hard you work, thank heavens the different personalities help a lot too. Some of the gang can come by and give me a kick in the butt or a pat on the back and say hey, look you are in there pretty deep, lighten up buddy. They will come up and put an orange juice down or a coffee or something. Once I get doing something I won't let go. So that makes it fun. It kind of rounds the thing off. I understand everybody's part, everybody has got so

much to give then. I haven't got people standing in line going can I have that. I've got people standing beside me, not in some kind of line. No one stands in line, this way we are working together.

I learned that a long time ago, when I was trying to get from here to here, when I saw this being choked, no growth, its going to die, any person that was in Orillia, anything that I could do for any person that was around. I wasn't going to do it, so I stepped forward, went for it, committed to it. I wasn't afraid. The timing was right. I was ready to make that step. I don't jump into everything, I know where every piece is and then I make my move. I now where every pieces and make my move. Next piece, then I make my move. If I am not sure, then I get the experts, not some dumb seminar, I get an expert. So I have never been afraid to do that, I have never been afraid to call somebody about something I don't know. I wasn't afraid to call Carol Devin and say I could do with your help. He just helped to round off the whole perspective, that is all. Everybody has been aware of that. That room in there, people are in there early in the morning, do you think I have got to tell them to be in there. I don't have to tell them to be in there. They leave at 5 o'clock or 5.30, they leave when they are done. I haven't got anybody here on contracts. You don't want to be here? You can be replaced like that, no sweat. They are here because they want to be.

They are in there talking positively. That lifts me up, that is great and that lifts me up. I will tell them, I will tell everybody at the end of the day, gosh you did a good job today. I do it all the time. I see the kids in the morning, I got a smile on my face, I bet 50% of the guys come across the ice before they step on the ice, come across, look at me and say [name] how are you doing and I will say lets do something all right. Lets do something. So we bring a spirit to the place. You can't buy that, but we do that all the time, I always got a pat on the back for the girls, handshake for the guys. Always. When you are done your day you take your pride home. You fell down 100 times trying to do something, you are going to take your pride home. You are not getting out of there like that. Some people drag their rear end up that ramp at the end of the day saying I did nothing. It might seem like that today, but you did a lot to get where you are going. So when you stop, it is the only part of the test, forget it, don't take it personally, don't take it personally. It is only a goal, I know we wrote it down, it was on a list, but we stroke it out, and re-evaluate. Maybe we were a bit too tough, but at least we wrote it down, we learned something and we will just make a little correction and make it better. It's no big deal. There is so much to it, not giving up hope in anybody, making sure they don't get trapped in this thing and they don't know how to get out. They have all these different avenues that they can be successful somewhere, physiotherapy, this, that, or whatever. We talk about it all the time. We talk about it endlessly.

(Any concerns about coaching or the sport in general?)

It is a great sport. It is unbelievable. I am really glad I am in it. I am thrilled with what I do, I don't have to be here. If I wanted to leave, I could leave. But I am not ready to leave yet. But I don't think I will be the kind of guy that will go as long as some others. I think I will get to a point, and then I will say that is it. I won't try to play the game too long. I have other people positioned and ready, I will become a consultant. I won't be greedy, I am not in it for that anyway. I am here to do my part, and as long as I can push this hard I will push this hard. I have no concerns. We are going to continue to grow as we always will. We will always bring the real things to the rink, spirit. The love of what we are doing, that is why we get better at it. I don't have to do this, I could leave right now. We all like the company, we have an environment to train in that is friendly. We are not messed up by a bunch of executives that continue to say you can't do that.

I have about three rules, that is all I have got. Show up in time, have respect, and don't kick the ice. It is really easy. Anybody can lose it. If you need a time out, have one. Don't take it out on the building and start swearing and kicking at it. If you bring that attitude to the rink and have some respect, be on time, you have got it. Major components that are going to get you there. You are going to be on time which means you are going to be consistent, you have got a decent attitude and you have got respect for others, that is it. I am not going to start writing up a gazillion rules, open it up somewhere and say here are the rules. What, these are the rules? You have got to be crazy, oh hold it, an amendment here are 10 more rules. Well that book is thick enough, that is why you won't get there. The paper is getting too deep. The paper is getting deep, that is a concern. Everybody has to justify everything. Well they are trying to justify their jobs. The paper is too deep. We need more action. We need more people getting out of the corner. That is what we need. We need action, we need people working.

(You have had a lot of ups in your career, how about things like negative aspects. You are very positive all the time but are there any negative aspects of the sport?)

There is nothing negative. I won't even listen to the word, *No*. The minute there is a negative, I just walk away. Nothing will be built on negative. Nothing. It is a trap. If someone is going to scoop me into one of those things, I won't go. If I do, I will catch myself fast. If I am not going to get caught in the mud, it is not a positive base, if it is not a positive thought. Everything is tough enough as it is, I don't need that crap, I won't play. I just continue to march forward. The minute somebody says oh Jesus this is too early, as simple as that, off, nothing to do with it. It is early and look at what opportunity to be here. We are going to be three steps ahead of everybody else. Isn't

that great. Yes. Never thought of it that way. I won't even hear of it, I don't want to hear of it, I won't talk about it, I am not avoiding it, it is just a dead issue because it won't take you nowhere. No road will take you nowhere. You are going nowhere on that stuff. No, I only want to talk about what you are going to do. What are we going to do. Now we are going to set up a sequence of information, create opportunities to get there, we will conquer it. It is only a challenge, that is all. That's all it is, a dam challenge. All it is, is one situation after another, and we can solve them all. All we need is a little bit of time to do it. All we have to do is give ourselves enough time.

Most people won't give themselves enough time to solve all the situations they got themselves into. So then they panic because they didn't give themselves enough time. But if you do that and give yourself a little more time, you would be surprised that you got way more done, because you just had a breath of fresh air. People don't do that, they push themselves into this little bit of space, so it is a little amount of time to get something done. Then they can't think, the decisions are not any good, or ugly word I hate, emotion gets in the way. Of course you can make nothing but poor decisions, when emotions gets involved, no matter what.

There is no negatives. I could say gee, Geneva, Orser falls down on the first jump, oh what a tragedy. Tragedy? You are in the game. Yes you weren't the world champion, but you end up second. So what? Most people thought it was a tragedy at the 1988 Olympics, most people thought that was a tragedy. He was a hero in 1984, so we were the hero. In 1988 they cancelled the party. There was only his mom and dad, there was no one left. Boom, cancelled it, because he didn't live up to someone's expectations. We got the same god dam medal. You learn a lot, who are your friends. You see who was left standing when it was all said and done, it was lonely that night. No tragedy. There was 20 of us left, of 250, what do you say. Some one could have come up and patted him on the back and said good try or something. It's pretty ugly. It wasn't a tragedy. You just learn to continue to take your steps one step at a time. Something falls out of the sky its great, falls out of the sky are a long way, you are going to get something of everything, it is all part of the test. All there.

Sometimes I get treated to a surprise, but not disappointed. I am probably disappointed at the system sometimes. The system sucks. That part does. I am probably disappointed sometimes at how people treat people. But that is too bad. I think if I treat people positively they will treat me the same way. That is what I try to do. If I can give something I will give something back. I give nothing, I get nothing. I don't ask for anything but I can keep giving them something, then something will come back. It's fair. I don't expect someone to come through here and hand me something. I started working at the YMCA, \$37 a month. That was it. I didn't have any money,

that was it. I went to the bank where I borrowed for that goddamned video camera. I saved enough money to get a car and build houses. I built small cottages, I was on my own, I had to do something. So I did. I did something. I'm still doing something.

Since you started talking about it, I might as well have an honest answer. If somebody was trying to figure out or study, that I went through some list, you got to be nuts. I go through my own list, not some list. At the bottom of the list, I always have enough flexibility to make an adjustment, and enough to go forward. I wasn't ever selfish enough to say that I knew everything, and not even today. When I start teaching somebody, I don't pretend that I am the expert, that I know everything. But I have it well rehearsed, I have to say right now, today, 1994, somebody is probably going to outwit me down the road, hopefully it will be one of the young guys. It won't be from lack of me telling them stuff, I haven't left out a thing. When teaching somebody something, coaches in a room, a group, I don't leave anything out, I am not afraid to tell. If they can beat me with it, great, god bless those kids that got the information because they earned it, they deserved it. If I didn't, I'm selfish. It will only come back, I have confidence in coaches working together, work with them, I will help them, so it is me, my own business it is nothing but a bonus. People are here because they want to be here. That is me and I will just keep trucking along, picking pieces out, pushing, grinding, be a Doug Gilmore I guess. That is who I think of, I guess everybody has a style. There is always a few people that are helping me, because I give it back.

(Thank you for granting me this interview. Thank you for your time, I know that you are a busy man. I appreciate it.)

Appendix G

Thesis Proposal : April 28th, 1993

Development of Expert Coaching Knowledge in Figure Skating

**Expert Coaching
Knowledge in Figure Skating**

by
Denise M. Laplante

April 28th, 1993

Presented to the Faculty of Health Sciences Ethics Committee,
University of Ottawa

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Expert Coaching Knowledge in Figure Skating

According to cognitive psychologists, behaviors become automated with practice and relative expertise is developed in general domains familiar to the population at large (Anderson, 1990). However, certain specialized areas such as chess, science and sport, are the domain of a limited number of experts. There appear to be similarities in the nature and development of expertise in these specialized areas (Anderson, 1990).

Expertise and expert systems have generated interest over the last few years. The purpose of conducting research in such domains as mathematics, chess, computer programming and physics is to better understand how individuals perform complex operations consistently at a high level of excellence. Comparing people at various levels of development of their expertise can uncover how problem solving becomes more effective with experience (Anderson, 1990).

Expertise is domain specific and knowledge based. It involves declarative, procedural and implicit knowledge. Expert knowledge differs not only quantitatively but also qualitatively and involves chunking complex information, knowledge structure and constructs, as well as heuristic strategies and novel solutions to problems. Development of expertise does not follow exactly the same course in all domains, there is an adaptation on the part of the expert to the characteristics of the particular domain. Development of optimal strategies for problem solving within a domain is a key concept in expertise. This can be evidenced in how experts in computer programming, physics, and chess differ from each other. Programming experts learn a breath first approach physics experts learn to reason forward and chess players chunk the board. These concepts will be developed more extensively in the next chapter.

Similar structures can be found in the domain of sport by studying the skilled performances of athletes as well as coaching expertise. Coaching involves domain specific knowledge, procedures and teaching behaviors at the highest levels of excellence. Sport specific knowledge needs to be generated for instructional purposes to develop high standards of coaching. Expert knowledge needs to be investigated and incorporated into the National Coaching Certification Programme (NCCP) levels 4 and 5.

So far, expert knowledge has been found to be discrepant with knowledge found in coaching textbooks, seminars and NCCP courses. Coaches usually learn more from master coaches and personal experience. The discrepancy between theory and practice suggest that our best source of information for effective coaching are the elite coaches. Their expert knowledge can be tapped and communicated to others.

Statement of Problems

The nature of expert coaching knowledge will be uncovered for its uniqueness and structure. The development of expert knowledge will be investigated to determine the important factors involved in the development of figure skating coaches' careers as well as to uncover their concerns.

Research Hypothesis

Expert coaches' knowledge distinguishes itself quantitatively and qualitatively by its richness and elaborateness. Learning from expert coaches will generate domain specific knowledge. Expert knowledge can be obtained by extracting the convergent information obtained from the very best coaches. Similarly, divergence can provide some insight about individual differences and how experts generate novel solutions to particular problems.

Experts should have similar stages of development to those uncovered in previous studies with experts in other domains. Experts in this study may also have specific concerns with regard to their sport.

Significance of the study

The Canadian sport system can benefit from the expertise of elite coaches. This study will provide a composite picture or model of the expert coach which will provide a standard for further development of figure skating coaches. It will also serve to define a set of sport specific concepts and principles for these coaches.

The effectiveness of the current NCCP can also be assessed since the current experts are the models of this programme. The development of expertise can be enhanced through NCCP initiatives. Learning what experts do can also help to generate a questionnaire to assist in diagnosis and intervention of coaches' development.

Literature Review

Introduction

A rich literature can be found in cognitive psychology on the subject of expertise. Pioneer work about the structure of expert knowledge has served as ground work for artificial intelligence and expert systems. It involves the understanding about how experts think, in order to develop computer programming. This simulation of decision making serves in the application of problem solving tasks.

Investigation involving experts, also uncovers their strategies and domain related knowledge. The development of knowledge across an expert's career can also be examined and can be further applied in the development of other experts in the field.

Two elements will be covered in the following review of literature, nature and development of expertise. Literature on the nature of expertise will first be examined in the field of cognitive psychology and then in the domain of sport and coaching. Secondly, the development expertise will be examined in science and the performing arts. The literature will then uncover expertise development in sport, as athletes and coaches.

Nature of Expertise

In order to understand the nature of expertise, knowledge as well as expertise need to be defined. Furthermore the nature of expertise will be examined in the cognitive science literature followed by literature on experts in the field of sport.

According to Anderson (1990), knowledge is the underlying feature that distinguishes experts. The domain-specific knowledge base is represented by three types of knowledge: declarative, procedural, and conceptual knowledge. Collectively they are referred to as antecedent knowledge and are interdependent.

Declarative Knowledge. Declarative knowledge is static and represents the factual information. It is "knowing that" as opposed to the "knowing how" of procedural knowledge. The information is encoded in the form of schemes. This representational construct was developed in the field of artificial intelligence and is useful for organizing as well as reasoning about large and complex knowledge bases. Concepts can be defined by a configuration of features. Memory recall and inferences about the concepts can also be facilitated.

Procedural knowledge. Procedural knowledge is referred to as the "knowing how" as opposed to the "knowing that" of declarative knowledge. It is dynamic in nature and underlies skilful action. Unlike declarative knowledge, proceduralization is implicit and is not verbally described. Rules called

productions underlie the response action. They have if-then conditions specific to the domain of knowledge. Procedural knowledge is organized around conditions and actions and is dependant upon current goals and the context of the environment.

Conceptual knowledge. Conceptions are schematically represented prototypes that are referred to as a measure of correctness. This type of knowledge structure changes over time as a result of incremental learning (Rutt Leas & Chi, 1992).

Expertise in Cognitive Sciences

Cognitive psychologists have used the novice-expert paradigm to investigate how problem solving becomes more effective with experience (Anderson, 1990). Proceduralization, tactical learning, strategic learning, problem memory, and problem representation are some of the elements that distinguish experts from novices.

Expert knowledge is more sophisticated in terms of its structure. Experts display a greater quantity of knowledge that is more elaborate and complete. They are more proficient at organizing information in hierarchical structures that reflect the goal structure of a problem to be solved (Means & Voss, 1985). They are also more competent at reorganizing the content to reflect the same goal structure but with a shift in important facts to be considered as well as skilled memory. Some of the research that reflect these finding will be examined next.

The cognitive skills and knowledge that experts bring to bear in their domain specific task has been identified in cognitive psychology research. The study of expertise in non-sport domains has focused on areas such as mathematics, physics, thermodynamics, chess, bridge, Go-game, medical diagnosis, politics, and computer programming.

Larkin (1981), discusses strategic learning involved in the development of physics experts. Novice versus expert learning shows that experts differ in how they organize the problem solving task. Novices use productions for working backward and experts use productions that make forward inferences. Forward reasoning is more efficient since there are less demands on working memory, and reduced chances of error since there is no need to keep track of sub-goals. Forward reasoning involves many possible forward inferences which, with experience, are learned to be associated with features of the problem.

Experts also differ in problem representation enabling more effective problem solving procedures to be applied. Novices classify physics problems intuitively, based on similarities of the surface features. Experts have the ability to map surface features of a physics problem onto deeper principles. They perceive problems in terms of abstract principles which are more predictive of the method of solution and are able to generate a new set of constructs for representing the key aspects of a problem (Chi, Feltovich & Glaser, 1981).

Experts in computer programming tend to expand the decision tree by breadth into a full layer before proceeding to expanding down to the next layer. This is more effective since the elements of the layer are typically non-independent. Novices expand by depth, the whole problem is solved down to its lowest levels first before moving across a layer (Anderson, 1983; Jeffries, Turner, Poison & Atwood, 1981).

Chess experts display enhanced memory for information about problems in their domain of expertise. Experts differ from novices in their ability to chunk the board configurations as a result of their experience with the task. Their skilled memory involves storing patterns and not individual pieces of the board (de Groot, 1965, 1966). Superior long term memory of experts differs quantitatively as well

as qualitatively. According to Chase and Simon (1973), experts chunk meaningful units of information, they remember more and larger patterns. Newell and Simon (1972) show that experts encode solutions to problems. They are able to develop retrieval structures that allow them superior recall of the correct solution that is associated with different configurations and moves. Their skilled memory enables them to focus on more sophisticated strategies of chess.

Expertise in Sport

Expertise has been studied in several sport domains such as tennis, basketball, badminton, and figure skating. Skilled performance in sport is two-fold it involves a physical skill component and domain specific knowledge.

Investigation of expertise in the sport of basketball revealed that experts have more skill and more knowledge (French & Thomas, 1987). Procedural knowledge is necessary to good decision making skills in a sport situation and is dependant upon the development of declarative knowledge. For example, it is necessary to have sound understanding of rules of the game in order to make decisions relative to the other players. The basketball players in this study also displayed superior recall of specific plays that had occurred.

Experts versus novice tennis players have been shown to differentiate in the development of knowledge and sport performance (McPherson & Thomas, 1989). Experts outperformed novices on tennis skills and knowledge as well as better decision making and actions during the actual tennis game. Expert knowledge structure included higher level concepts. More connections between concepts are found with more condition and alternative action concepts relevant to the game's goal structure. Experts showed superior decision-making ability during the actual game as a result of their related knowledge structure. They have a more in-depth

approach to solving problems in comparison to novices who use a more generalized approach. The skilled tennis players were also able to access information more rapidly in order to solve sport-specific problems

The same skilled memory was found in expert figure skaters as described in skilled domains such as digit memorization (Deakin & Allard, 1991). The more proficient athletes had superior recall and performance of skating skill sequences that were randomly constructed. The experts demonstrated faster access to semantic memory in the similarity judgement of two skating elements. They also showed strategic learning which is typical of expertise: expert figure skaters used music as a mnemonic device to enhance recall

Nature of Expertise in Coaching

More recent findings by Putt Leas & Chi (1992) provides better insight into the knowledge base and structures of expert swimming coaches. Expert coaches are defined in this study as having extensive coaching experience. Over 20,000 hours or about 15 years of experience is required to achieve the status of expert coach. Personal competitive experience within the sport also seems to be a factor in the development of expertise. A clinical diagnostic paradigm is used in order to investigate expert knowledge, since the diagnosis is based on rich domain specific knowledge.

Experts distinguish themselves from the novices in their ability not only to identify a problematic skill but also in providing a "how to fix it". A great degree of skill is required in interpreting and correcting what is wrong. Finding the cause of an error involves deeper level analysis. Experts are able to see beyond the explicit cues or surface features and recognize the meaningfulness of certain patterns and configurations. Expert knowledge is required for elaborate discussion of these second order features.

Expert coaching knowledge is superior in quantity, in its connectedness and in its level of representation. This is evidenced in the quantity and cohesiveness of causal and relational statements produced in the expert's diagnosis protocol. Experts know more facts and are able to extract more features in their analysis of a motor skill. These facts are embedded in more and larger reasoning chains, as well as more and larger clusters. Experts also represent their knowledge at a deeper level using a more holistic approach elicited by second order features instead of surface features. These quantitative and qualitative qualities are prerequisites to their discrimination abilities. Therefore by studying the coach's skill analysis we are able to infer their level of expertise.

Several coaching models exist which represent the coaching process. A model can represent the structure of expert coaching knowledge by its content and its connectedness (Cote, 1993).

Development of Expertise

Bloom (1985), investigated the development of talent of concert pianists, sculptors, mathematicians, neurologists, Olympic swimmers, and world-class tennis players.

Development of Expertise in Sport. Salmela (1992) used structured interviews in order to investigate the career development of identified experts in the field of sport. The purpose was to uncover the factors which help nurture their expertise throughout their careers much as in the study conducted by Bloom (1985). Salmela concludes that each domain has its own timetable, but that the process involved in achieving excellence is analogous.

Three developmental stages or levels of expertise are identified as initiation, development, and mastery. The initiation stage is centred around fun and skill proficiency. The development stage involves belief and commitment. They are

goal-directed, and practice carefully under a mentor with superior technical knowledge. Technical knowledge of the sport is declarative knowledge, and skill involves procedural knowledge. The coach is respected and provides guidance and discipline to the athlete.

The expert or mastery phase implies an obsession or preoccupation with the activity in question which seems to dominate one's life. Everything else is secondary to this primary occupation. There is total devotion to the domain. The athletes are aware that they are more than special, and are conscious of their greatness. There is also the awareness of their own knowledge base or what is referred to as metacognitive knowledge, that is knowing about knowing. These individuals put whatever time and effort is required in order to achieve the highest level of excellence. Skill is automated and more time is spent towards strategy for high level competition. They have a profound and intuitive understanding of the underlying structures or dynamics of the sport which results in automaticity. These athletes share stronger emotional ties with their coaches. The expert athletes eventually become completely autonomous in their learning process and no longer required the close scrutiny of the master coach. Motivation to excel became completely internalized, and the coach was only consulted for fine tuning. This stage involves an awareness of some extraordinary talent which is often triggered by a great performance. The athlete sees himself as a unique achiever that sets him apart from others. The master coach usually has a global view and has a reputation of producing champions. The master coach conveys a broader perspective to training and performing. The relationship with the coach involves fear and respect at first but at the master level it is more collaborative allowing the athlete more autonomy.

Development of Expertise in Coaching. Similar investigation of expert coaches' transitions can reveal the factors involved in the development of their expertise. In other words, what constitutes excellence in the field of coaching.

Such a study was conducted by Salmela, Russell, Cote & Baria (1991) on the structure of knowledge of expert gymnastic coaches. The authors recognize the shortcomings with regard to the effectiveness of the coach-centred programs taught to coaches in professional development courses. Furthermore, these programs are met with resistance from the elite coaches. A lot of the information delivered to coaches comes from academics and may in fact not be applicable by the individuals that carry out the daily task of coaching. Salmela, Russell, Cote & Baria (1991) suggest to sample the coaches themselves in order to examine the acquisition of knowledge in coaching.

In order to develop an expert system applied to the field of coaching, expertise must first be defined. Salmela, Russell, Core, & Baria (1991) recognize their shortcomings in trying to do so. It is difficult to define expertise in a systematic way. Should it be based on past performances, or on the relative degree of success at producing champion athletes? Would this be an objective measure of one's ability since there are multiple confounding factors like training conditions and the talent of the athletes themselves?

Defining a set of concepts and principles for coaches to use is also discussed. According to coaches, the two most important sources of knowledge used in helping them develop their coaching are experience and learning from other coaches. Coaching books and coaching classes were ranked as being the least useful in their view. This offers some insight into the application of sport science knowledge upon the practice of coaching in general.

Conclusion

Elite athletes requires a knowledgeable coach with specific constructs that are tailored to suit the their needs. Therefor, we need to observe and interview these coaches in order to uncover and interpret their expert knowledge. An inductive process allows a bottoms up approach in acquisition of knowledge that is reality grounded and allows for the investigation of expert coaching behaviors. The knowledge can be quantified and represented providing insight into the structure of expert coaching knowledge. This knowledge is declarative, and procedural but exposes mainly concerns that expert coaches have. It can be represented in a hierarchical structure. This inductive research may provide further information about coaches needs , as well as shed some light on the coaching strategies being used.

Method

Subjects

The sample for this study will be 20 expert figure skating coaches.

Expertise is determined on the basis of 3 criteria:

- 1) The extent of the coach's experience, measured in terms of the number of years of experience or hours practicing the profession of coaching. A minimum standard of 12 years or 20,000 hours was set (Chi et al., 1992).
- 2) The success of producing national and international athletes, measured by the number of national team athletes that they had coached.
- 3) Recognition as experts by the Canadian Figure Skating Association. All coaches will be selected from the World and Olympic coaches list.

Twenty coaches will be contacted and asked to participate in the study (see Appendix A). An informed consent form will provide information in regard to their participation, explaining the nature of the study and the task demanded of them (see Appendix B). A questionnaire will be attached requesting information with regards to coaching experience (see Appendix C).

Materials

Materials include an audio tape recorder on which the interview will be recorded. A semi-structured interview will be conducted (Patton, 1980). A interview guide will be used to direct specific questions (see Appendix D). The interview protocol is comprised of open-ended questions concerning the development of a coaching career, the training process, the competition process as well as their concerns about the sport.

Procedure

The 20 coaches will be personally contacted to set-up an interview time that is suitable to their schedules and will take place at a figure skating championship.

The interview will take place in a quiet room and duration will be approximately 1 1/2 hours. The interview will be audio taped with the subject's permission. The subjects will be debriefed following the interview and all questions raised concerning the study will be answered (see Appendix E). The audio tape will be transcribed verbatim on paper following the interview. The interview transcripts will be returned to the subject by mail at a later date for authentication. The subject will be asked to semantically verify the content of the transcript for its accuracy. Subjects will be encouraged to rectify any inaccuracies and to add anything that might have been omitted.

Data Analysis

The interview transcripts will be content analyzed using the computer program called 4.1. This analysis is an inductive process, from which categories reflect the content of the interviews. Interrater reliability will be calculated and consensus validation will be obtained for a sample of meaning units and categories (Cote, Salmela, Baria & Russell, 1990).

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Appendix A

Contact Form

Dear _____,

This form will serve to inform you that I will be conducting a study entitled 'Expert Coaching Knowledge in figure Skating' in order to fulfil the requirements for my M.A. in Sport Studies at the Department of Human Kinetics of the University of Ottawa.

Because of your experience as a National Team coach, the Canadian Figure Skating Association has recommended you as a potential participant in this study.

I encourage your participation. If you chose to do so, you will be interviewed with regards to the development of your coaching career and how you have acquired your knowledge about the coaching process. The information will be transcribed verbatim and sent back to you so that you can make any changes you wish. you will be asked to complete a coaching experience questionnaire.

All ethical standards will be upheld in accordance with the guidelines set forth for research at the University of Ottawa. If you have any questions pertaining to your participation in this study, you may contact Dr. John Salmela at (613) 564-3332 or myself Denise Laplante at (613) 564-9134

**PLEASE DETACH THE BOTTOM HALF AND RETURN IN SELF
ADDRESSED ENVELOPE INDICATING IF YOU WISH TO PARTICIPATE
OR NOT**

Name: _____
tel: _____

_____ I will participate in the above study entitled 'Expert Coaching Knowledge in Figure Skating'.

_____ I will not participate in the study stated above.

Signature: _____
Date: _____

Appendix B

Informed Consent

Guideline: The purpose of the informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study

Present Study: 'Expert Coaching Knowledge in figure Skating'

Research Personnel: The following people are involved in the above-noted research project and may be contacted at any time.

Denise Laplante (Principle Investigator, (613) 564-9134)

Dr. John Salmela (Thesis Advisor, (613) 564-3332)

Purpose: The purpose of this study is to uncover expert coaching knowledge in the sport of figure skating, how it is acquired throughout a career span and how we can encourage further development of coaches at this level.

Task Requirements: You will be required to fill out an Coaching Experience Questionnaire. Then an interview will be conducted in regard to the development of your coaching career and how you acquired your knowledge. With your permission, the interview will be recorded on audiotape. The interview will be transcribed verbatim and sent back to you if you wish to make any changes to the content.

Duration and Locale: The interview requires approximately 1 to 1 1/2 hours of your time and will be conducted in private. The Coaching Experience Questionnaire will require approximately 15 minutes of your time.

Potential Risks/Discomfort: There are no potential physical or psychological risks in this study.

Anonymity/Confidentiality: The data collected in this study is confidential. Your name is not associated with the information collected. Your name and content of the interview document will not be quoted without your written permission

Right to Withdraw: You have the right to withdraw from the study at any time.

Signatures: I have read the above description of the study entitled ‘Expert Coaching Knowledge of Figure Skating’ and I understand the conditions of my participation. My signature indicates that I agree to participate in the study.

Participant’s Name: _____

Participant’s Signature: _____

Researcher’s Name: _____

Researcher’s Signature: _____

Date: _____

Most notable Coaching Awards

Most notable Athletes coached

Other major accomplishments

Thank you for your time and co-operation

Appendix D

Expertise in Coaching
Proposed Interview Guide
Dr. John Salmela
University of Ottawa

How Did You Become an Expert Coach?

The fundamental question here is how did you learn what you now know and what is the best way of acquiring this knowledge and these skills?

Personal athletic history
Formal / informal educational experiences
Major influences / moments later related to coaching
Role of mentors
Qualities of a successful coach
Key moments in career
What would you change?
What wouldn't you change?
How do you differ from other top coaches?
How can these learning experiences be best passed on to aspiring Canadian coaches?

What are the qualities that you believe are necessary to provide the necessary leadership to high level achievement in your sport?

Since coaching by definition is a social activity and you are central to this group, what are the important leadership qualities that you possess and how did you develop and refine them?

What crucial factors affect performance
Developing athletes--what needs to be done?
Evaluation of talent
Visions of coaching
What are the main concerns of the players?
Moral / ethical standards of conduct
Fundamental, personal over-riding principles
Building of respect
Building of goals, commitment, belief

Relationships with athletes, coaches, family, media,
How do you effectively deal with sport administration?
What knowledge and learning experiences in leadership are most likely to be best passed on to aspiring Canadian coaches and how could this be accomplished?

Training Considerations

It is clear that effective training leads to successful competition. In what ways to you personally prepare yourself and your athletes for each training session from a technical perspective? From a tactical perspective?

How is your long-term planning organized?
How is season planned?
How is training week planned?
How do you plan daily?
Teaching-mental skills/technical skills
Giving feedback
Dealing with discipline
Can you think of your best ever training session? What happened?
Motivation / attitude in training
Monitoring goal-setting
Dealing with athletes' stress
How would that preparation change for you in dealing with:
High or low skilled athletes?
Veterans / rookies?
Women / men?

How could your knowledge of preparation of technical and tactical skills in training be best communicated to aspiring Canadian coaches?

Competition Considerations

Being able to "deliver the goods" when it counts in competition is a central part of the coach's task. In what ways to you personally prepare yourself and your athletes for each competition from a technical perspective? From a tactical perspective?

What was the competition for which you were the best prepared? The worst?
Dealing with winning

Dealing with losing

Personal mental preparation for competition

Sources of stress or concerns

How could your knowledge and skills in competition settings be best communicated to aspiring Canadian coaches?

Reflections on Coaching

As an established expert in the Canadian community, you have acquired a large body of specific skills and knowledge which has allowed you to achieve your present status. Most experts do not achieve this status without having taken considerable detours after having encountered road blocks in their careers. Could you share with us the major obstacles in your careers and how you have gone beyond them?

What would you do differently?

Future directions of coaching?

Are there any information, strategies or experiences that aspiring Canadian coaches could benefit from in their education in order to rise further in the ranks of expert coaches?

Thank you for your time and your participation in this important project.

Expertise en Coaching
Guide d'entrevue proposé par
Dr. John Salmela
Université d'Ottawa

Comment es-tu devenu un expert en coaching?

Comment as-tu appris ce que tu sais et quelle est la meilleure façon d'acquérir ces connaissances et ces habileté?

Histoire personnelle comme athlète

Education formelle ou informelle

Influences ou événements marquants qui ont influencés ton coaching

Le rôle de mentor ou modèle

Les qualités de coach compétent

Les points clés ou les points saillants dans ta carrière

Quelles sont les choses que tu changerais

Quelles sont les choses que tu ne changerais pas

De quelle façon es-tu différent(e) des autres coach élite

Comment est ce qu'on peut communiquer ces expériences à ceux qui veulent devenir coach?

Quelles sont les qualités de leadership, que tu penses sont nécessaires à la haute performance en patinage artistique?

Puisque le coaching ou l'enseignement comprend une composante sociale et tu es le noyau de cette activité, quelles sont tes qualités de leasership et comment les as-tu développées et perfectionnées?

Ta vision ou philosophie du coaching

Tes standards étiques ou moraux

Tes principes fondamentaux et personnelles

Esprit d'équipe

Gagner le respect ou crédibilité

D'établir des buts, l'engagement et des croyances chez les athlètes

Relations interpersonnelles avec les athlètes, les entraîneurs, les parents, les officielles, et les médias

Comment est-ce que tu as fait affaire avec les adminstrateurs dans le patinage

Quelles sont les connaissances et expériences d'apprentissage de leadership que tu crois devrait être enseigné à ceux qui veulent devenir coach et comment est-ce qu'on peut leur enseigner?

Processus d'entraînement

C'est évident qu'un bon entraînement amène de bons résultats. De quelle façon est-ce que tu te prépares personnellement comme coach et comment est-ce que tu prépares tes athlètes pour chaque session d'entraînement du point de vue technique? et tactique?

Comment est-ce que tu organises tes plans à long terme

Comment est-ce que tu planifies ta saison

Comment est-ce que tu planifies ta semaine d'entraînement

Comment est-ce que tu planifies ta journée

Quelles sont les choses les plus difficiles que tu rencontres lors des sessions d'entraînement? Comment les règles-tu?

Quelles sont les facteurs les plus importants qui affectent la performance de tes athlètes?

Quelles sont les affaires à faire pour développer des athlètes?

Comment est-ce que tu identifies et évalues le talent?

Comment est-ce que tu enseignes des habiletés techniques et des habiletés mentales?

Quelle est l'importance du feedback?

Comment est-ce que tu disciplines tes patineurs?

Peux-tu me décrire ta meilleure session d'entraînement?

Comment est-ce que tu motives tes patineurs et les encourages à avoir une bonne attitude lors de l'entraînement?

Comment est-ce que tu évalues les buts de tes patineurs?

Quelles sont les interventions pratiquées face au stress?

Comment est-ce que cette préparation serait modifiée dans les situations suivantes:

- 1) Selon les habiletés supérieures ou inférieures
- 2) Vétéran ou recrue
- 3) Filles ou garçons

Comment peut-on communiquer à ceux qui veulent devenir coach les connaissances et la préparation technique nécessaire à l'entraînement des patineurs?

L'important c'est de la faire quand ça compte et c'est la tâche la plus importante de l'entraîneur. De quelle façon est-ce que tu te prépares comme coach et comment prépares-tu tes athlètes techniquement pour la compétition?

Quelle était la compétition pour laquelle tu étais le mieux préparé? La pire?

Comment te prépares-tu et tes patineurs pour gagner?

Comment te prépares-tu pour accepter la défaite?

Comment te prépares-tu et tes patineurs mentalement pour la compétition?

Quelles sont les sources de stress et tes inquiétudes?

Comment est-ce qu'on peut transmettre ces connaissances et habiletés en compétition à ceux qui veulent devenir coach?

Réflexions sur le coaching:

Comme coach élite au Canada, tu as acquis des connaissances vastes et des habiletés spécifiques qui t'ont permis d'atteindre ton niveau d'expertise. La plupart des experts en coaching ont atteint ce niveau qu'après avoir surmonté plusieurs obstacles dans leur carrière. Quelles ont été les obstacles rencontrés en cours de route et comment les as-tu surmontés?

Y-a-t-il des choses que je n'ai pas couvertes qui font partie de ton occupation de coach?

Qu'est-ce que tu changerais si tu pouvais?

Quelle est la direction future du coaching?

Y a-t-il des connaissances, stratégies ou expériences auxquelles les aspirants coach pourraient bénéficier dans leur éducation en vue d'atteindre un niveau d'expertise?

Merci pour ton temps et ta participation dans cet important projet

Appendix E

Debriefing

1. Purpose: The purpose of this study is to uncover the nature of expert knowledge for its uniqueness and structure. The development of expert knowledge will also be investigated.
2. Research Issues: Previous literature in other domains have shown that experts differ in the quantity and structure of their knowledge. Experts display enhanced memory for information within their domain and are more proficient at organizing information. They differ in how they organize and represent problems. Expert athletes display superior knowledge of rules and decision making abilities. They have a more in-depth approach to solving problems. Expert coaches have superior analytical skills and are able to see beyond explicit cues to recognize meaningful information. They also have more knowledge of the coaching process.
3. Variables: Coaching expertise will be uncovered by examining the coaching process in competition and practice. Its development will also be examined over the coaching career span.
4. Possible implications: Research findings will have implications in promoting coaching excellence in Canada and for the sport of figure skating. It will provide a composite picture of knowledge structures and strategies used by expert coaches as well as the developmental and learning process of an expert coach. Findings may provide insight for future training at the NCCP level 4 and 5.
5. Inquiries: Participants in this study may have further questions concerning the nature of this research. Accordingly, they may contact: Denise Laplante (Principle Investigator, (613) 564-9134) or D. John Salmela (Thesis Advisor, (613) 564-3332)

We would like to thank you for your participation in this research. Your time and efforts are greatly appreciated.

Appendix H

Ethics Approval

Development of Expert Coaching Knowledge in Figure Skating

May 30th, 1994

Marie-des-Anges Loyer
Chair, Faculty of Health Sciences
Human Research Ethics Committee
Faculty of Health Sciences
451 Smyth, Ottawa, ON, K1H 8M5

Dear Madam,

You will find enclosed the Faculty of Health Sciences Human Research Ethics Committee Questionnaire on the research procedures concerning the proposed M.A. thesis research entitled Development of Expert Coaching Knowledge in Figure Skating.

As per instructions in the information bulletin number 3, nine copies of the application have been forwarded to your committee.

Thank you for your attention to this matter.

Sincerely,

Denise Laplante
Graduate Student
Department of Human Kinetics

UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE
 QUESTIONNAIRE ON RESEARCH PROCEDURES
 CONCERNING RESEARCH CONDUCTED USING HUMAN SUBJECTS

A typewritten response would be appreciated. Please answer all the questions. Use additional sheets where insufficient space is provided on this questionnaire.

Name(s) of Principal Investigator(s) Denise Laplante		Department Human Kinetics	Office Address 229 Montpat ⁷	Telephone 51614 5191210
Title of Research Project 1 Development of Expert Coaching Knowledge in Figure Skating				
Who are the subjects (please be as specific as possible) 2 Professional Figure Skating coaches.				
Number of subjects to be involved in the study 3 10 Expert Figure Skating Coaches.				
How will the subjects be recruited for this study? 4 Subjects will be recruited as volunteers through personal contacts in sport				
How will you obtain the informed consent of the subject(s) (and where applicable, of parents/guardians)? N.B. attach a copy of the informed consent form or information sheet to be used in this research. 5 The consent form will be explained and signed prior to the interview.				
Specify the level (none, low, moderate or high) and describe the nature of risk (legal, physical, psychological or social) associated with each major procedure with human subjects in this research. Justify the choice of this procedure(s) and state how you propose to minimize the risk. 6 No risk.				
Specify the level (none, low, moderate or high) and describe the nature of discomfort (legal, physical, psychological or social) associated with each major procedure with human subjects in this research. Justify the choice of this procedure(s) and state how you propose to minimize this discomfort. 7 There is no risk or discomfort, since the subjects are talking about the activity that they love and which preoccupies their lives				
Specify the method(s) by which you plan to ensure the anonymity of subjects and the confidentiality of the data. If you are not using coded data, indicate clearly how anonymity of subjects will be protected. Where subjects are interviewed, state whether the interview(s) will be taped and if so, how anonymity will be ensured. If interview(s) are not to remain anonymous, how will permission to quote be obtained? 8 The interviews will be coded to ensure anonymity but will also be returned to the participants for authentication. At that time they are able to strike any portion of the interview which they wish would not appear in the transcript				
Briefly outline what the procedure(s) you are required to do. Indicate the number of days and the time per day and the time of day. Do not submit research proposals where scientific instruments are to be used which involve covert or overt physical contact (e.g. prostheses, sensory devices), provide a clear indication of the subjects and its function. 9 The interviews will be conducted by myself, Denise Laplante, and will last 1-5 hours.				

I agree to abide by the procedures, guidelines, ethical principles and code of ethics accepted by the UHREC and its successors, and where applicable, by those of the granting agency to which this proposal is being submitted, and by those of my profession or discipline, as well as by those of the faculty or institution in which the research is undertaken. I am aware of my personal responsibility to be familiar with these standards. I further agree to notify the UHREC of any substantive changes in the use of human subjects in this research and to comply with requests by UHREC or its successors for information or other documentation during the life of this research.

SIGNATURE OF PRINCIPAL INVESTIGATOR(S):

51614 5191210

Application for the University of Ottawa, Faculty of Health Sciences
Human Research Ethics Committee Approval

Development of Expert Coaching Knowledge in Figure Skating

by
Denise Laplante

Objective

Expertise is not a static phenomena, but dynamic in nature, for knowledge structures are reshaped with new incoming information. Existing training systems of formalized instruction such as the National Coaching Certification Programme, provide a medium for coaches to further their knowledge. Prior to the implementation of the programme more than 20 years ago, coaches acquired their knowledge by means of other methods of unformalized instructional processes.

Bloom (1985) accounts the development of talent of expert performers in the fields of the performing arts, sciences, and in sports. Researchers have studied expert pedagogues, and expert teachers in the formalized educational systems and the unformalized field of sport (Berliner, 1992; Berliner, 1991; Berliner, 1988; Berliner, 1986; Lampert & Clark, 1990). These studies have investigated the nature of their expertise. To date the development of expertise of people in professional teaching roles has been virtually ignored.

The development of expertise in coaching and the ability to maintain a position of eminence or excellence can only be done through constant seeking of new ways, methods, directions and sources of ideas. It is being on the edge or threshold of discovery. Understanding the process underlying the development of the expert coaches in this non scholastic setting will provide insight in the development process of future experts. Understanding expertise and its development is culturally important in order to promote excellence in different domains.

The objective of this project is to develop a knowledge base underlying the development of expert teachers in a nonformalized setting of figure skating. The career path will be investigated in order to uncover the development of the experts' knowledge base, the dynamics and performance strategies.

The hypothesis of this study is that acquisition of knowledge base can be accounted for by a multitude of sources and experiences, aside from formalized training which can be incorporated in programmes such as the NCCP.

The significance of this study is not only to develop a knowledge base but also to improving the process of developing experts.

Context

There is a rich literature on expertise and expert knowledge in cognitive science. Research has been conducted in order to better understand how experts perform complex operations consistently at a high level of excellence. The Expert-novice paradigm has been used in research in the following domains: mathematics, physics, thermodynamics, chess, bridge, Go-game, medical diagnosis, politics and computer programming (Charness, 1979; Chase & Simon, 1973; Chi, Feltovich & Glaser, 1981; Koedinger & Anderson, 1990; Larkin, McDermott, Simon & Simon, 1980; McKeithen, Reitman, Rueter & Hirtle, 1981; Reitman, 1976; Wilkins, 1980)

Nature of Expertise

The cognitive skills and knowledge that experts bring to bear in their domain specific task has been identified in cognitive psychology. The literature reveals that expertise is domain specific and knowledge based. Their knowledge differs quantitatively and qualitatively. Their knowledge is more elaborate and they are more proficient at organizing information in hierarchical structure. Domain specific knowledge base is represented by three types of knowledge: declarative, procedural and conceptual knowledge. Collectively they are referred to as antecedent knowledge and are interdependent. Declarative knowledge is the "knowing that", or factual information that is stored in the form of a schema. Procedural knowledge is the "knowing how". It is implicit and underlies skillful action. Conceptual knowledge are schematically represented prototypes that are referred to as a measure of correctness. This knowledge structure changes over time as a result of incremental learning (Chi, 1985; Rissland, 1985; Sternberg, 1982; Chi, Hutchinson, & Robin, 1989; Spilich, Vesonder, Chiesi, & Voss, 1979; Chiesi, Spilich, & Voss, 1979)

Similar expert-novice studies in sports such as tennis, baseball, basketball, badminton, and figure skating have revealed that skilled performance involves physical skill and domain specific knowledge components. Procedural knowledge is necessary to decision making in a sport situation and is dependent upon declarative knowledge. For example, it is necessary to have sound knowledge of the rules in order to make decisions relative to other players. Skilled performers have been shown to have higher level concepts within their knowledge structure. More connections between concepts are found with more conditions and alternative action concepts relevant to the game goal structure. Experts show superior decision making ability during the actual games as a result of their related knowledge structure. They have a more in-depth approach to problem solving than do novices. Skilled players are also able to access information more rapidly in

order to solve sport specific problems (Allard & Burnett, 1985; Deakin & Allard, 1991; French & Thomas, 1987; McPhearson & Thomas, 1989; Russell, 1990; Russell & Salmela, 1992)

Expertise in coaching has been defined in terms of years of experience. Experts distinguish themselves from novices in their ability to identify problematic skills and also in providing a solution. A deeper level of analysis is evidenced in their ability to see beyond explicit cues or surface features and recognize the meaningfulness of certain patterns. Expert knowledge distinguishes itself by the cohesiveness of causal and relational statements produced in a diagnosis protocol. They know more facts about motor skills and these facts are embedded in more and larger reasoning chains as well as more and larger clusters. Knowledge is represented at a deeper level using a more holistic approach elicited by second order features instead of surface features. These quantitative and qualitative features are prerequisites to their discrimination abilities. Therefore by studying the coach's skill analysis we are able to infer their level of expertise (Rutt Leas & Chi, 1992).

Learning from Experts

Learning from experts stems from the field of artificial intelligence, which will be referred to as AI. Artificial intelligence started as the study and design of intelligent machines and has progressed into an effective methodology for studying human intelligence (Sternberg, 1982). AI research has lead to progress in understanding human intelligence and its operation. AI was considered an alternative form of intelligence, which would enable us to understand intelligence. Algorithmic computer techniques are superior to human heuristic methods in solving simple problems, and hence artificial intelligence attempts to simulate human methods. A model of human intelligence can serve as a base from which it is hoped, machine intelligence can eventually transcend human intelligence. But there is a shift to human methods as computer methods cannot simulate the complexity of human intelligence. Attempts at human simulation reveal how human cognitive mechanisms operate. Artificial intelligence is now beginning to converge with research in cognitive psychology and cognitive science.

A major part of AI is experts systems or knowledge engineering (Bernstein 1977, Feigenbaum, 1977). Experts systems is little more than a spinoff of artificial intelligence. This field has led to the construction of several programs:

MYCIN (Shortliffe, 1976), which helps physicians diagnose and treat infections.

INTERNIST (Pople, 1977), which solves diagnostic problems in internal medicine.

MOLGEN (Marin et al., 1977), which plans experiments in molecular genetics.

DENDRAL (Buchanan, Sutherland, & Feigenbaum, 1969), which helps organic chemists analyze mass spectograms.

CRYSTALIS (Englemore & Nii, 1977), which infers protein structures from electron density maps.

POLITICS (Carbonell, 1979a), which helps make decisions based on their political beliefs

These programs among many have performed impressively compared to human experts. They borrow techniques of traditional AI in their symbolic representation of knowledge and in their heuristic processing. AI began as a distinct field from computer science with a shift from algorithms to heuristics. Heuristics are basic to any intelligent process. Expert systems rely heavily on domain knowledge extracted from the rules which human experts have introspectively discovered.

Experts have rich and varied knowledge bases before they acquire their domain of expertise, but also make use of domain-specific techniques. Still they have general purpose in their cognitive capabilities, using more basic cognitive mechanisms in drawing upon and applying their expertise (Dehn & Schank, 1982).

Experts systems are built by codifying knowledge about a task. The basic method of constructing an expert system is to sit down with a human expert and extract the knowledge that the expert has of a particular field, to codify that knowledge by building production rules to represent various pieces of knowledge these experts possess in their domain of expertise, and put it into a computer system capable of applying that knowledge. These expert systems are built to match human expertise in some domain (Anderson, 1990).

Similar methods of structured interviewing and simulated recall have been used in sport psychology. The experts themselves generate the domain specific constructs and reactions, responses and solutions of a variety of situations which are central to expert performance in their field. Orlick and Partington (1986), conducted in-depth interviews with successful Canadian Olympians. These

athletes used introspective recall to tap into their inner performance scripts, what goes through their minds at critical moments, how they motivate themselves, how they focus and how they become good.

Similar techniques of introspection have been used with coaches to uncover the psychological strategies used in their work (Mechikoff and Kozar, 1983; Kimiecick & Gould, 1987; Wrisberg, 1990; Walton, 1992; Wooden, 1988). Although these interviews provide an interesting source of experiential knowledge about the psychology of coaching, about how successful coaches think and apply their knowledge in different situations, the methodology used does not permit generalization of these findings. Furthermore little effort has been made to identify a common knowledge base of coaching expertise.

Development of expertise

Research has been conducted with pianists, sculptors and surgeons to uncover the important factors influencing the development of their careers (Bloom, 1985). Three stages have been identified: initiation, development and mastery. The purpose is to uncover the factors which help nurture their expertise throughout their careers. Furthermore there is a need for research of this kind investigating the development of coaching expertise (Salmela, 1991; Salmela, Russell, Cote & Baria, 1991). This type of research would enhance the development and standards of training programs for coaches. It would promote the development of future expert coaches as well as benefit athletes in their training.

Methodology

The selection of 10 expert figure skating coaches will be based on the criteria set forth by Lesgold (1984) and Rutt Leas & Chi (1992). Expert coaches must have at least 20,000 hours of coaching experience or, 40 hours per week, over 10 years. A performance outcome measure will also be used for selection: having coached an Olympic or world champion skater. Finally, the coach must be recognized as an expert by their national sports governing body (NSGB), in this case The Canadian Figure Skating Association (CFSA).

A semi-structured interview approach was selected in this study as the method of eliciting knowledge about the domain (Patton, 1980). The interview guide captures the topics to be covered in the interview, but does not impose any order in which they are to be addressed during the interview (see appendix A). The interview will consist of asking questions to elicit knowledge relative to the development of skills necessary to become an expert coach in the sport of figure skating.

The project will proceed along the following timetable:

1) June 1994: The 10 expert figure skating coaches will be identified. A pilot study of the interview guide will occur.

2) July 1994: Interviews with the 10 coaches will be scheduled and carried out. All interviews will be recorded on an audiotape. The interviews will then be transcribed and sent back to the coaches for authentication.

3) August-December 1994: The interviews will be analyzed by inductive qualitative analysis for unstructured data (Cote, Salmela, Baria & Russell, 1993). This process involves breaking down the interview text into manageable text segments called meaning units which contain a single thought or purpose. The meaning units are then assembled into categories with the use of the text analysis computer software HyperQual. Meaning units will be added to an existing category or put into their own new category until all the meaning units are accounted for. Higher order categories will be created through the same process, until only one "omnibus" category prevails.

Information and Consent for Figure Skating Coaches

When a research project is designed to understand human beings by a member of the University of Ottawa, the Ethics Committee of the University of Ottawa requires the written consent of the participants. This does not imply that the project involves risks, the intent is simply to assure the respect and confidentiality of the individuals concerned.

This project entitled "Development of Expert Coaching Knowledge in Figure Skating" is conducted by Denise Laplante, graduate student in Human Kinetics of the University of Ottawa in order to fulfill the M.A. thesis requirements in Sport Studies. This research project is under the direction and supervision of Professor John H. Salmela of the School of Human Kinetics at the University of Ottawa. The intent of the project is to better understand how expert figure skating coaches have evolved over their careers to their present levels of skill and knowledge. The interview process will attempt to trace the beginnings in the sport as performers both as athletes and novice coaches. The development of their careers will then be pursued to find out how their visions of the sport were transformed into practice and competition procedures.

Each participating coach will be involved in an interview conducted by Denise Laplante, and will last from one to three hours. There are no potential physical or psychological risks in this study. The participants are free to participate and can stop the interviews at any time they wish without fear of reprisal. All interviews will be transcribed verbatim and the complete transcript will be returned to the coaches for authentication. At this time the coaches can remove anything that they would rather have not said, transform, correct or adjust any part of the interview transcript.

I consent to participate in this research project entitled "**Development of Expert Coaching Knowledge in Figure Skating**". I understand that there is no direct benefit to me from participating in this study. I will be advised on my personal results when all the analyses have been completed. There will also be debriefing of the interview process immediately after the interview and a final report of the investigation will be sent to me if I wish. Also, I understand that the results will be kept strictly confidential and that my name will not appear in any publications and that the audiotapes will be erased when the analyses are completed. If transcripts are appropriate to illustrate the data analysis procedures, I give consent to have it used under conditions that confidentiality and anonymity be safeguarded by the researchers.

Signature _____ Date _____

Please feel free to contact us at any time.

Denise Laplante
Graduate Student, University of Ottawa
School of Human Kinetics, Room 206
Ottawa, Ontario, K1N 6N5
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John H. Salmela, PhD.
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Marie-des-Anges Loyer
Chair of the Faculty of Health Sciences Human Research Ethics Committee
Faculty of Health Sciences
451 Smyth Avenue, Ottawa, Ontario
K1H 8M5
tel: (613) 787-6705

Appendix

Expertise in Coaching Proposed Interview Guide Dr. John Salmela University of Ottawa

How Did You Become an Expert Coach?

The fundamental question here is how did you learn what you now know and what is the best way of acquiring this knowledge and these skills?

- Personal athletic history
- Formal / informal educational experiences
- Major influences / moments later related to coaching
- Role of mentors
- Qualities of a successful coach
- Key moments in career
- What would you change?
- What wouldn't you change?
- How do you differ from other top coaches?
- How can these learning experiences be best passed on to aspiring Canadian coaches?

What are the qualities that you believe are necessary to provide the necessary leadership to high level achievement in your sport?

Since coaching by definition is a social activity and you are central to this group, what are the important leadership qualities that you possess and how did you develop and refine them?

- What crucial factors affect performance
- Developing athletes--what needs to be done?
- Evaluation of talent
- Visions of coaching
- What are the main concerns of the players?
- Moral / ethical standards of conduct
- Fundamental, personal over-riding principles
- Building of respect
- Building of goals, commitment, belief

Relationships with athletes, coaches, family, media,
How do you effectively deal with sport administration?
What knowledge and learning experiences in leadership are most likely to be best passed on to aspiring Canadian coaches and how could this be accomplished?

Training Considerations

It is clear that effective training leads to successful competition. In what ways to you personally prepare yourself and your athletes for each training session from a technical perspective? From a tactical perspective?

How is your long-term planning organized?
How is season planned?
How is training week planned?
How do you plan daily?
Teaching-mental skills/technical skills
Giving feedback
Dealing with discipline
Can you think of your best ever training session? What happened?
Motivation / attitude in training
Monitoring goal-setting
Dealing with athletes' stress
How would that preparation change for you in dealing with:
High or low skilled athletes?
Veterans / rookies?
Women / men?

How could your knowledge of preparation of technical and tactical skills in training be best communicated to aspiring Canadian coaches?

Competition Considerations

Being able to "deliver the goods" when it counts in competition is a central part of the coach's task. In what ways to you personally prepare yourself and your athletes for each competition from a technical perspective? From a tactical perspective?

What was the competition for which you were the best prepared? The worst?
Dealing with winning

Dealing with losing
Personal mental preparation for competition
Sources of stress or concerns
How could your knowledge and skills in competition settings be best communicated to aspiring Canadian coaches?

Reflections on Coaching

As an established expert in the Canadian community, you have acquired a large body of specific skills and knowledge which has allowed you to achieve your present status. Most experts do not achieve this status without having taken considerable detours after having encountered road blocks in their careers. Could you share with us the major obstacles in your careers and how you have gone beyond them?

What would you do differently?
Future directions of coaching?

Are there any information, strategies or experiences that aspiring Canadian coaches could benefit from in their education in order to rise further in the ranks of expert coaches?

Thank you for your time and your participation in this important project.

June 23rd, 1994

Marie-des-Anges Loyer
Chair, Faculty of Health Sciences
Human Research Ethics Committee
Faculty of Health Sciences
451 Smyth, Ottawa, ON, K1H 8M5

Dear Madam,

Thank you for your letter dated June 14th, 1994. You will find enclosed a the necessary corrections to the proposed M.A. thesis research entitled Development of Expert Coaching Knowledge in Figure Skating.

Thank you for your attention to this matter.

Sincerely,

Denise Laplante
Graduate Student
Department of Human Kinetics

Information and Consent for Figure Skating Coaches

When a research project is designed to understand human beings by a member of the University of Ottawa, the Ethics Committee of the University of Ottawa requires the written consent of the participants. This does not imply that the project involves risks, the intent is simply to assure the respect and confidentiality of the individuals concerned.

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Each participating coach will be involved in an interview conducted by Denise Laplante, and will last from one to three hours. Potential physical or psychological risks in this study are low. The participants are free to participate and can stop the interviews at any time they wish without fear of reprisal. All interviews will be transcribed verbatim and the complete transcript will be returned to the coaches for authentication. At this time the coaches can remove anything that they would rather have not said, transform, correct or adjust any part of the interview transcript.

I consent to participate in this research project entitled "**Development of Expert Coaching Knowledge in Figure Skating**". I understand that there is no direct benefit to me from participating in this study. I will be advised on my personal results when all the analyses have been completed. There will also be debriefing of the interview process immediately after the interview and a final report of the investigation will be sent to me if I wish. Also, I understand that the results will be kept strictly confidential and that my name will not appear in any publications and that the audiotapes will be erased when the analyses are completed. If transcripts are appropriate to illustrate the data analysis procedures, I give consent to have it used under conditions that confidentiality and anonymity be safeguarded by the researchers.

Signature _____ Date _____

Please feel free to contact us at any time.

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FACULTÉ DES SCIENCES DE LA SANTÉ
FACULTY OF HEALTH SCIENCES

June 27, 1994

Denise Laplante
Graduate Student
School of Human Kinetics
Faculty of Health Sciences
125 University, MNT-INTRA

Subject: "Development of Expert Coaching Knowledge in Figure Skating"

Dear colleague:

It is my pleasure to inform you that the Faculty of Health Sciences' Human Research Ethics Committee, after study of the documentation provided, concluded that your project met the appropriate standards of ethical acceptability and falls within Category 1A.

I hereby attach a copy of the certificate of clearance granted by the University Human Research Ethics Committee and the original has been sent to them as well.

This certificate is valid for a period of one year from the time of issuance. I would also like to remind you that, in accordance with the policies of the UHREC, it is your responsibility to notify the Committee of any major changes in this project.

On behalf of the Committee, I wish you success in your project.

Sincerely,

Marie des Anges Loyer, Ph.D
Chair
Human Research Ethics Committee



FACULTÉ DES SCIENCES DE LA SANTÉ
FACULTY OF HEALTH SCIENCES

**CERTIFICATION OF INSTITUTIONAL
HUMAN RESEARCH ETHICS COMMITTEE
FACULTY OF HEALTH SCIENCES**

This is to certify that the Institutional Human Research Ethics Review Committee of the Faculty of Health Sciences has examined the research proposal by **Denise Laplante**, professor at the School of Human Kinetics for the project entitled : "**Development of Expert Coaching Knowledge in Figure Skating**" and concludes that, in all respects, in the proposed research protocol meets the appropriate standards of ethical acceptability, at a Category 1A level.

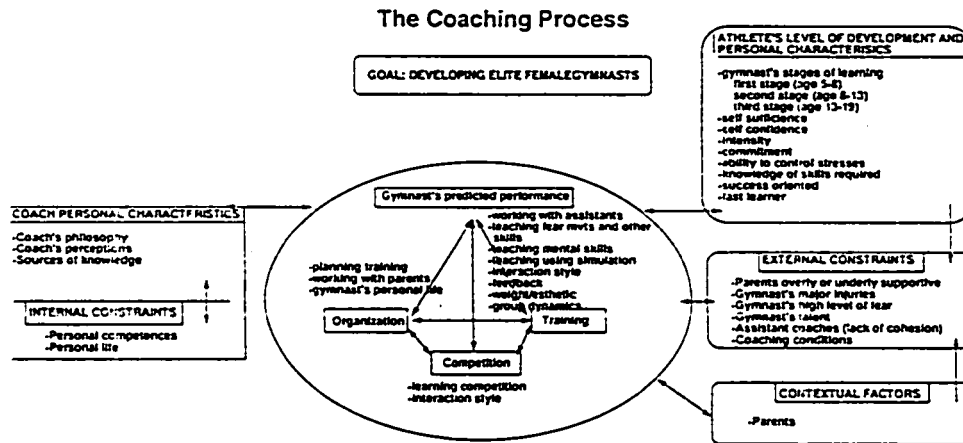
MEMBERS OF THE COMMITTEE

<u>Name</u>	<u>Position held</u>	<u>Department of discipline</u>
Claire-Jehanne Dubouloz	Professor	Programme of Occupational Therapy
Nadia Lebreux	Student	Human Kinetics
Marie Loyer	Chair	Human Research Ethics Committee & School of Nursing
Ian MacKay	Professor	Audiology/Speech Language Pathology
Joan McComas	Professor	Programme of Physiotherapy
Jacqueline Neatby	Member-at-Large	
Daniel Proulx	Professor	Faculty of Law
Frank Reardon	Professor	Human Kinetics

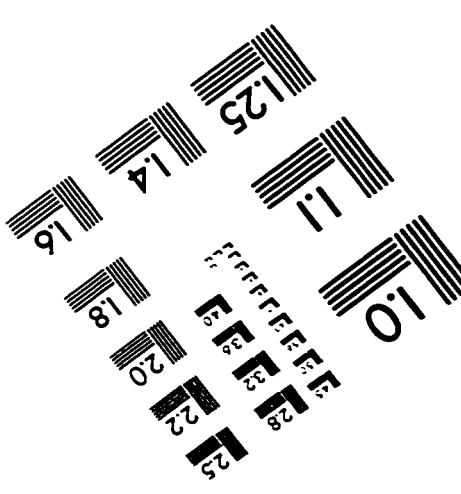
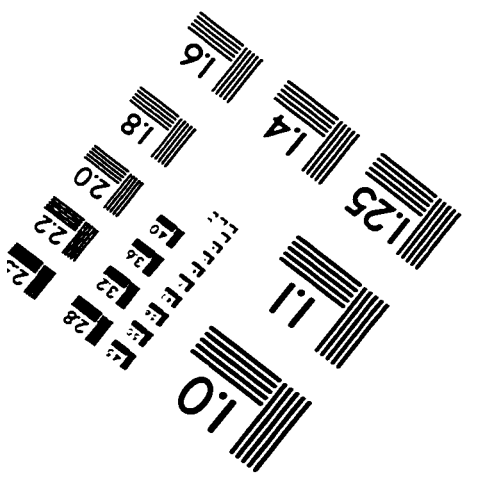
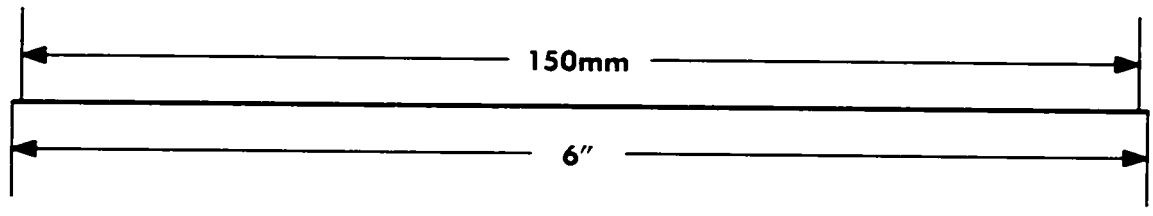
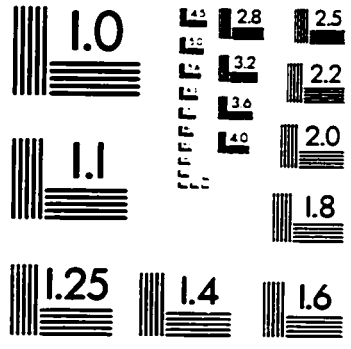
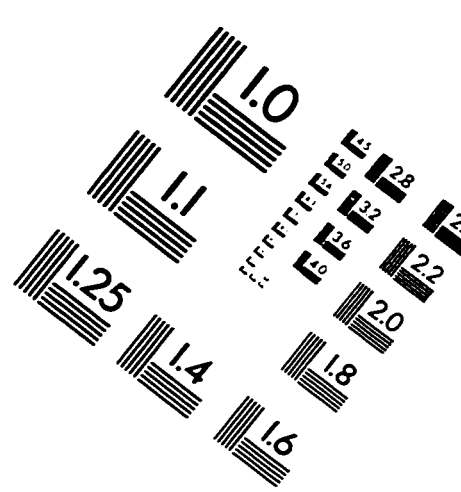
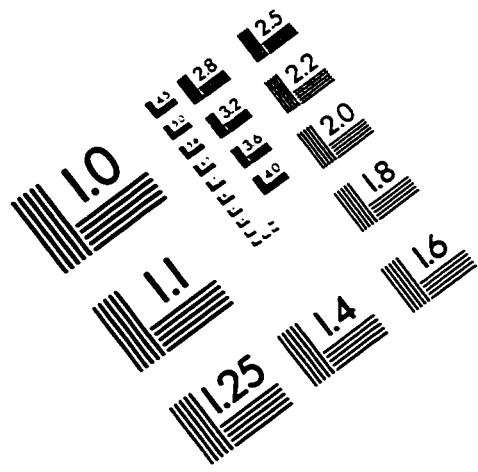
27/6/94
Date

Marie Loyer
Committee Chairperson - Marie des Anges Loyer., Ph.D

Figure 1
Coaching Model (CM)



APPLIED IMAGE EVALUATION
TEST TARGET (QA-3)



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