University of Alberta

Long Term Athlete Development in Ski Racing: Perceptions of Coaches, Parents, and Racers

by

Danielle Elizabeth Black

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Abstract

Alpine ski racing was one of the first Canadian sports to implement a Long Term Athlete Development (LTAD) plan. The purpose of this study was to evaluate multiple stakeholders' perceptions of the LTAD plan in ski racing. Using a case study approach (Stake, 2003), four Alberta ski racing clubs were purposefully sampled. Data were collected via interviews with eight coaches/program directors, 12 athletes (aged 10 years old), and 18 of their parents. Data were transcribed verbatim and subjected to categorical aggregation analysis. Analysis revealed three key themes. These themes related to (a) perceptions of the LTAD and the available resources; (b) assessment and, (c) transitions. These findings provide a preliminary assessment of one LTAD program and offer information to help refine program delivery in the future.

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List of Abbreviations

ACA	Alpine Canada Alpin
AIM	Alpine Integration Model
CSCF	Canadian Ski Coaches Federation
DMSP	Developmental Model of Sport Participation
HSS	Husky Snow Stars
LTAD	Long Term Athlete Development
NSO	National Sport Organization
NCCP	National Coaching Certification Program

CHAPTER 1:

INTRODUCTION

The quest to find out how a talented child develops into a top adult performer has been of interest to researchers for many years. In order to investigate talented individuals it is important to first define talent development. Csikszentmihalyi, Rathunde, and Whalen (1993) defined talent development as the interaction between an individual's traits, cultural acceptance of a talent field, and the programs in which the individual is training. Similarly, Van Lieshout and Heymans (2000) defined talent as an individual's ability to interact successfully with contextual opportunities and constraints. Thus, for the purposes of this study, talent was viewed as an interaction between an individual and his/her talent development environment. This study focused on the talent development environment (or talent development system) rather than on other dimensions of talent such as an athlete's physiological or psychological characteristics or cultural factors.

Generally there is agreement that athletes progress through at least three stages of talent development. These stages are characterized by changing relationships with parents, increasing involvement with coaches, and increasing athlete independence and responsibility (see Bloom, 1985; Côté, 1999; Côté & Fraser-Thomas, 2007; Durand-Bush & Salmela, 2002; Gould, Dieffenbach, & Moffett, 2002). There have been studies with elite adult athletes (Bloom, 1985; Durand-Bush & Salmela, 2002; Gould et al., 2002) and elite adolescent athletes (Côté, 1999; Côté & Fraser-Thomas, 2007; Holt & Dunn, 2004; Wolfenden & Holt, 2005). However, few studies have examined talent development systems for children. In fact, talent development systems such as the Long Term Athlete Development (LTAD) model do not appear to have been previously investigated. Finally,

little is known about the implementation of talent development systems in Canada (Holt, 2002). More research is needed in the area of talent development systems during the early stages of athlete development.

There is some emerging research examining talent development systems (although these are not specific studies of LTAD programs). Martindale, Collins, and Daubney (2005) proposed a guide for developing effective talent development environments based on a review of the literature. They provided four suggestions for effective talent development systems. First, the sport system should have long term aims and visions that are implemented systematically across all levels of the sport. Second, coherent messages should be provided throughout a sport system in regards to the athletes' development. Third, the long-term development of athletes should be emphasized rather than early successes. Finally, there should be a stage approach that teaches fundamental mental skills, physical skills, and sport specific skills. In a follow up study with elite youth coaches from the UK, Martindale, Collins, and Abraham (2007) found that the UK sport systems were missing much of what their model proposed. Their findings suggest that there is a gap between sport psychology talent development research and the talent development systems in place in the UK.

The LTAD is a model proposed by the Canadian Sport Centres to promote sport system alignment and athlete development. It is a seven stage model that attempts to address the developmental aspects of talent development (Canadian Sport Centres, 2005). Alpine ski racing in Alberta has adopted a sport specific implementation of the LTAD called the Husky Snow Stars (HSS) program. The program is designed for athletes aged six to 12 years (Alpine Canada Alpin, [ACA] 2005).

The average age of children in this study in the HSS program is approximately 10 years old. Hence, it is important to understand some developmental characteristics of children this age. Physically, children in late childhood are growing at a slow and consistent rate, improving their strength, and increasing mass (Santrock, Mackenzie-Rivers, Leung, & Malcomson, 2005). Children's coordination and fine motor skills are improving. Cognitively, children are able to understand taking turns, following rules and strategies of sport, and are able to differentiate between effort and performance outcomes (Tofler & Butterbaugh, 2005). Children are starting to use social comparison and have started to understand competition (Eppright, Sanfacon, Beck, & Bradley, 1997). Ideally, sport talent development systems should take into account such developmental factors (Martindale et al., 2005; 2007).

Purpose and Research Question

To summarize, talent development has become an important area of research in sport psychology. Researchers have identified key stages of talent development based on athletes' changing relationships with parents and coaches as well as the psychological characteristics elite athletes possess (e.g., Bloom, 1985; Côté, 1999; Gould et al., 2002). The importance of establishing effective talent development systems has also been highlighted (e.g., Martindale et al., 2005; 2007), and LTAD programs have been deployed by Canadian sport governing bodies (ACA, 2005; Canadian Sport Centres, 2005). However, talent development systems and LTAD programs in particular have received little research attention. Therefore, the purpose of this study was to evaluate the learning to train phase of the LTAD model for the sport of Alpine ski racing in Alberta. In order to address this purpose the research question was "what are the key stakeholders'

perceptions of the implementation of the learning to train phase of the LTAD program for Alpine ski racing in Alberta?"

CHAPTER 2:

LITERATURE REVIEW

Defining Talent Development

Csikszentmihalyi et al. (1993) conducted a five year study looking at how young people became committed to the development of their talent. Talent was defined by three elements that had to work together in order for the talented person to have a successful outcome (i.e., become an elite adult performer). The first element of this definition concerned an individual's traits, viewed as being partly inherited and partly developed as she or he grew up. The second element was that of a cultural domain. A cultural domain sets up the rules and methods that define certain ranges of performance as meaningful and valuable. That is, certain talents (e.g., sporting ability) are valued in certain societies (e.g., North America). Finally, the last domain was that of social fields. A social field was described as people and institutions who implement programs that are designed to promote the development of skills and levels of performance (e.g., sport talent development systems). It is important to remember that the development of talent is a process that unfolds over years.

Similarly, developmental psychologists Van Lieshout and Heymans (2000) suggested that talent is a result of individuals successfully interacting with changing contextual opportunities and constraints. They viewed talent as a dynamic process rather than as stable individual differences in potential or performance. Consistent with these definitions, for the purpose of this study, talent development was viewed as an interaction between the individual and his/her talent development system. Thus, the focus of this

study was on the talent development system rather than on psychological characteristics of the individual.

Talent Development Research

In 1985, Bloom and colleagues published *Developing Talent in Young People.* This book was regarded as a seminal piece of work on the developmental activities of high achievers (Wolfenden & Holt, 2005). Through retrospective interviews with 120 adults at the top of their given profession (including artists, musicians, and athletes), Bloom described the development of talent through three stages that participants moved through on their way to elite performance. These stages were termed the early, middle, and late years. The stages described the experiences of the performers and changes in the role of parents and coaches.

Bloom (1985) described the early years as consisting of playful instruction where the children progressed fairly rapidly in their performance area of choice. Parents facilitated the children's initial involvement in a performance area, and instructors/coaches provided support and guidance, emphasizing fun and enjoyment. By the end of the early years, the children identified themselves more as the particular performer (i.e., athlete, musician, artist) and less with other talents or aspects of life.

During the middle years, the emphasis of instruction and performance/training was on precision and accuracy in all aspects of the talent domain. The talent domain was expected to be the primary focus above all other activities and the performers became personally responsible for their efforts. Parents helped by limiting the performers' involvement in other activities (e.g., paid work) as well as providing moral and financial support. Coaches became more personally involved and expected results from hard work.

Finally, in the late years the performers became experts in their domain and the activity dominated their lives. The performer was completely committed to the talent field, and took on the responsibility for training and competition. The parents' role shifted to the background as the coach's role became more prominent.

Other studies have also emphasized social/environmental aspects of talent development. For example, Csikszentmihalyi et al. (1993) suggested that although people cannot change their genetic make up, they can develop their abilities through extensive training. The effort to improve skills through structured activities aimed at improving an athlete's performance has been termed *deliberate practice* (Ericsson, Krampe & Tesch-Römer, 1993). In a study with musicians, Ericsson et al. were able to show that the duration of time that musicians engaged in deliberate practice was related to the level of musical performance attained. They concluded that it takes a performer about 10 years of dedication to perform at the international level, equivalent to about 10 000 hours of deliberate practice.

Côté (1999) adapted elements of Bloom's (1985) and Ericsson et al.'s (1993) work to the sport domain and created the Developmental Model of Sport Participation (DMSP). The DMSP was initially created through retrospective interviews with four 18 year old athletes, four of their siblings, and three of their parents. The athletes were members of Canada's national teams (three rowers and one tennis player). Data were inductively analyzed and then compared to existing theory.

The resultant DMSP was comprised of three stages. The first stage was termed the sampling years and represented ages from approximately 6 to 12 years. During the sampling years children were involved in several different sporting activities with little

pressure related to achievements. A prominent feature of this stage was deliberate play. In contrast to the structured activities associated with deliberate practice (Ericsson et al., 1993), Côté (1999) coined the term deliberate play to describe the process through which children participate in sport and experiment with skills in a motivating and enjoyable atmosphere. At this stage, parents provided opportunities for their children to have fun in sport while learning the basic physical skills.

The next stage, that covered ages 13 to 15 years, was labeled the specializing years. The specializing years represented a period when the children started to focus their attention on only one or two sports. Parents became more involved and interested in their children's sport than during the sampling years. They provided important tangible assistance to their children, such as driving them to training and giving financial support. During the specializing years the athlete engages in equal amounts of deliberate play and deliberate practice.

Finally, at about the time the athletes reached 16 years of age, they entered the investment years. During this time the athletes became committed to a single sport and their focus was on achieving the elite level. This was also the stage where the coaches became most important to the athletes and strong athlete-coach relationships emerged. Parents took a step back and played less of a direct role in the athletes' careers, but were still there to provide various forms of social support. During the investment years the athletes participate in high amounts of deliberate practice and low amounts of deliberate play.

Côté's DMSP was originally presented as a stage model that elite athletes progress through in their sport career. Recently, the model was expanded to depict three

possible pathways through stages of sport participation (Côté & Fraser-Thomas, 2007; Côté, Strachan, & Fraser-Thomas, 2008). The first pathway was recreational participation through sampling, the second elite performance through sampling, and the third elite performance through early specialization. In the recreational participation through sampling pathway the sampling years (age 6-12) were comprised of more deliberate play activities than deliberate practice activities. In this pathway the athletes went from the sampling years directly into the recreational years (age 13+). In other words, they did not enter the specializing or investment years. The recreational years focused on health and fitness activities, low amounts of deliberate practice and high amounts of deliberate play.

In the elite performance through sampling pathway the focus was more on performance than recreational enjoyment. This stage is consistent with the original DMSP (Côté, 1999). The athletes entered the specializing years after they left the sampling years at age 13. In the specializing years, the athletes experienced a balanced amount of deliberate play and practice while decreasing the number of sports in which they were involved. From the specializing years the athletes tended to continue on into the investment years to focus on their sport and performing at the elite level (Côté & Fraser-Thomas, 2007; Côté et al., 2008).

The elite performance through early specialization pathway usually occurs in sports where elite levels of performance can be achieved before puberty (e.g. gymnastics). In this pathway athletes usually skipped the sampling years and started out in the specializing years. These athletes participated in high amounts of deliberate practice and little amounts of deliberate practice while focusing on one sport. From early specialization these athletes would progress to elite performance in their sport, drop out

of their sport, engage in recreational participation, and/or experience overuse injuries (Côté & Fraser-Thomas, 2007; Côté et al., 2008).

Following Côté (1999) other studies of talent development have been reported in the sport psychology literature. Generally these studies have used retrospective interviews to obtain information about what elite adult athletes' experienced when they were young. For instance, Gould et al. (2002) studied the talent development experiences of 10 U.S. Olympic Champions, and corroborated this information through interviews with 10 of their coaches and 10 significant others (parents, spouses, and siblings). The researchers were interested in the development of psychological characteristics and social experiences that were common among elite athletes. In general, their findings supported the models set out by Bloom (1985) and Côté (1999) in the fact that psychological characteristics were developed over a long period of time with the help of a strong support network.

More specifically, Gould et al. (2002) found that in order to develop the psychological skills that were associated with gold medal achievements at the Olympic level, the family, sport personnel, the environment, and the sport process were all important. Family and parents played an important role in creating a 'can do' attitude through emphasizing the child's abilities, modeling hard work and discipline, and by building the child's confidence. Coaches influenced athletes' psychological development by emphasizing hard work, discipline, fun, teaching mental skills, and being supportive. The sport process was comprised of the competitions, training, nature of the sport, and sport adversity that the athletes experienced as well as the sport program/organizations.

Using a similar approach to Gould et al. (2002), Durand-Bush and Salmela (2002) studied the factors that led to the development and maintenance of expert athletic performance among 10 World and Olympic champion athletes. Again, findings were presented as a stage model of development, similar to the models proposed by Côté (1999) and Bloom (1985). But, Durand-Bush and Salmela found that the athletes progressed through four stages in their athletic development. The fourth stage added by Durand-Bush and Salmela and was called the maintenance stage. This stage was entered after the athlete reached their first win on the Olympic or World level. In the maintenance stage the family, coaches, and team staff were important sources of support. In personal terms, the athletes reported that they possessed characteristics that helped them to be independent, innovative, and mentally tough. Training was another important element of this stage, as the athletes had reached the top of their sport focus in training was on technique and consistency. Finally competition was an important motivator for many athletes as they faced highs and lows in their performances. As such, this study provided unique information about the maintenance of elite performance during adulthood, but added little about the early stages of talent development.

Generally the studies reviewed above have involved adult athletes reflecting on the earlier stages of their career development. Comparatively few studies have examined children's experiences within specific talent development systems in the earlier stages of the talent development process. One exception was a study conducted in England by Wolfenden and Holt (2005). They interviewed three English elite junior tennis players, plus the players' parents and coaches. These athletes were aged 13 to 15 years old, and ranked in the top 5 in their region. It was found that the athletes, coaches, and parents all

had particular roles at this period of talent development. Parents provided emotional support, tangible support, general advice, and had to make sacrifices for their child. Parents also had a fairly positive relationship with their child's coach. The coaches mainly provided informational support and had positive relationships with the athletes and the parents. The coaches and the parents were seen to put subtle pressure on the athlete through their own personal expectations. Wolfenden and Holt found that the athletes had already entered Côté's (1999) investment years (which Côté suggested begins at the age of 16). This finding may have been obtained because there are subtle differences in the talent development processes across different sports or countries/cultures, particularly among younger age groups. Thus, it is important to examine talent development within specific sport systems.

In summary, from the theoretical perspectives and empirical research reviewed above, there is general agreement that athletes go through at least three broad stages of development represented by (a) evolving relationships with parents, (b) generally increasing involvement with coaches, and (c) increasing independence and responsibility. Most studies have sampled elite adult athletes (i.e., Bloom, 1985; Durand-Bush & Salmela, 2002; Gould et al., 2002; Van Rossum, 2001) and some have sampled younger athletes (i.e., Côté, 1999; Wolfenden & Holt, 2005). Few investigations have examined talent development in a specific sport at the time that the child is actually involved in the talent development process. The current study was intended to address this gap in the literature.

Talent Development Systems

Definitions of talent development emphasize the importance of appropriate interactions between performers and their social environments (Csikszentmihalyi et al., 1993; Van Lieshout & Heymans, 2000). Similarly, in addition to athletes' psychological characteristics and perceptions of social support, Gould et al. (2002) found that the talent development system (which they called the 'sport process') played an important role in the emergence of U.S. Olympic champions.

In 2004, Abbott and Collins proposed a model of talent identification and development. Consistent with previous research (Bloom, 1985; Côté, 1999; Durand-Bush & Salmela, 2002), Abbott and Collins proposed that an athlete progressed through the four stages of talent development: the sampling stage, specialization stage, investment stage, and maintenance stage. The model also included a further four main features. First, the authors emphasized an individual's capacity to develop rather than just performance at testing time. Second, psycho-behaviors were suggested to be the main determinants of an individual's capacity to develop and progress. Third, they proposed that fundamental motor and movement skills are necessary at an early age for an individual to develop in sport. Finally, talent identification and talent development should be combined such that children are provided with the opportunity to develop the necessary psycho-behaviors and motor skills required to progress through the sport system. Consistent with the approach adopted in the current study, this model highlighted the interaction of the developing athlete with the sport system.

Other studies have also highlighted that interactions between athletes and their environments are important for talent development. For example, Holt and Dunn (2004)

conducted a study with elite adolescent male soccer players from Canada and England. They found that there were four psychosocial competencies central to success in elite youth soccer. The competencies were discipline (i.e., dedication to the sport and willingness to sacrifice), commitment (i.e., career goals and strong motives), resilience (i.e., ability to overcome obstacles by using coping strategies), and social support (i.e., ability to use emotional, informational and tangible support). They also described the 'environmental conditions' for talent development in soccer, reflecting three stages associated with being selected for the youth section of a professional club, progressing through the youth section, and being selected as a full-time adult professional player. They concluded that the likelihood of an athlete progressing through the three stages of development successfully depended on their ability to grasp the four competencies and navigate through the environmental conditions of the talent development system. Thus, this study emphasized the interaction between the individual and the talent development environment.

In a related study with youth soccer coaches, Holt (2002) compared the soccer talent development systems in Canada and England. Data were collected via documentary analysis, as well as formal and informal interviews with 12 youth soccer coaches. Holt showed that the Canadian soccer system historically 'followed' the English system. But there were numerous differences in how the systems were implemented and who was responsible for them. For example, professional soccer clubs were primarily responsible for talent development in England, whereas there was a complicated mix of amateur and professional organizations vying for talent development in Canada. Holt suggested that the piecemeal structure of the Canadian soccer talent development system may in fact

constrain talent development. This is in contrast to the findings of Gould et al. (2002) who found that sport talent development systems in the U.S. positively influenced the development of Olympic champions. Holt also identified the need for more evaluations of talent development programs due to the fact that they vary depending on the sport and country.

In 2005, Martindale et al. reviewed the literature relevant to the development of talent and proposed a model to guide the creation of effective talent development environments. This model was comprised of four main components: long term aims and methods, wide ranging coherent messages and support, emphasis on appropriate development rather than early success and finally, individualized and ongoing development. Long term aims and methods were characterized by the idea that national sport organizations need to create a long term vision and purpose for the development of their athletes, implement this vision systematically, and reinforce the system at all levels within an organization. Wide ranging coherent messages and support meant that information received by stakeholders should be consistent and point in the 'same direction' for long-term athlete development. There should be open communication between parties involved and a variety of support networks for the athletes. Emphasis on appropriate development rather than early success meant that the performance of an athlete should be separated from an athlete's potential, which may be accomplished by using a general stage specific talent development approach to organize programs. This stage approach should include fundamental mental skills, fundamental physical skills, sport specific skills, and should help teach an athlete how to balance sport with life responsibilities. The final component of the model was that of individualized and ongoing

development. To accomplish this fundamentals and training opportunities should be provided to as many youth as possible, the sport system should allow for performance and physical development variations, support individuals through the key transitions, and provide help with individual goal setting.

In a follow up study, Martindale et al. (2007) interviewed 16 elite development coaches from the UK in search of support for their talent development model. They found that an integrated stage system was deemed as important and necessary from all participants. However, there was a lack of coherence between levels of sport. For instance, there was not a consistent use of philosophies and methods at the club, school, academy, and national program levels. Also missing was a stage where fun and fundamental skills were taught to the athletes. Another finding was that there needed to be a system in place to help aid athletes who were late developers. These were some of the main findings that pointed to missing links between their model and current practices in the UK. These findings suggest there is a gap between sport psychology talent development research and talent development systems currently in place (in the UK at least). However, a limitation of the Martindale study was that coaches from multiple sports were recruited, which restricted the in-depth analysis of specific sport talent development systems. Hence, further evaluation of talent development systems for specific sports is required.

The Long-Term Athlete Development (LTAD) Model

The concept of the LTAD was first introduced by Istvan Balyi (1990) through a paper published by the Canadian Coaches Association. Balyi stressed the importance of long-term planning and used his work with the Canadian Men's Alpine Ski team through

the 1988, 1992 and 1994 Olympics as the basis for this model. Hence, the LTAD is largely based on anecdotal evidence and personal experience. Balyi proposed a system of double quadrennial periodization, whereby a training plan is set out for two Olympic cycles. In 1999, Balyi, with the ACA (the national sport organization for alpine ski racing), published the *Alpine Integration Model* (AIM), which introduced a four stage talent development program for ski racing. The model spanned the entry levels of ski racing up to the most competitive. These stages were labeled the fundamentals, train to train, train to compete, and train to win. Balyi later introduced a fifth stage called the retirement or retainment stage (Balyi, 2001). Balyi and Hamilton (2004) introduced another new stage (learn to train) to precede the train to train stage. Most recently, the Canadian Sport Centres (2005) introduced the active start stage to precede the fundamentals stage.

The current LTAD model has seven stages in which all ages of life are covered: (1) active start (up to age six), (2) fundamentals (males aged 6 to 9; females aged 6 to 8), (3) learning to train (males aged 9 to 12; females aged 8 to 11), (4) training to train (males aged 12 to 16; females aged 11 to 15), (5) training to compete (males aged 16 to ~ 23; females aged 15 to ~ 21), (6) training to win (males aged 19 and older; females aged 18 and older), and (7) active for life (for anyone at any time). The ultimate goal of the LTAD is to ensure that children learn the fundamental physical skills during their optimal physical development stages (Canadian Sport Centres, 2005). It is a general guide to what sport should be offering.

It appears that LTAD model was originally based on Balyi's professional experiences and background in physiology and physical training. Little attention was paid

to the sport psychology literature. However, there are some similarities between the LTAD plan and models presented in the sport psychology literature, as summarized in Table 1. However, despite the apparent similarities between aspects of the LTAD plan and sport psychology research, I was unable to find any published studies specifically examining any LTAD programs. Hence, there is a need to understand more about how LTAD programs are implemented and received by key stakeholders. Furthermore, given that little talent development research has been conducted with children (cf. Wolfenden & Holt, 2004), research is also needed to examine early stages of talent development. Therefore, the current study focused on the learning to train phase of the LTAD plan in Alpine ski racing.

One implementation of the LTAD model was the Husky Snow Stars (HSS) program. It was implemented in 2005 by ACA for Entry level and K1 level athletes (the K1 level is for racers aged 11 to 12 and represents the last stage of the HSS program). HSS is a national program that entry level clubs were expected to have incorporated into their annual plan beginning with the 2005/06 season. The program was designed to foster the implementation of the LTAD at the FUNdamentals and Learning to Train stages. The HSS had seven levels which were designed to help the coaches progress the skiers through the important skills necessary to be a successful ski racer. Young athletes may take more than one season to complete a level but 10 year old racers should have been working at level 4 or level 5. The focus of this study was on 10 year old ski racers who were in the last year of the entry level and were to transition into the K1 level the following season.

Table 1: Comparison of the LTAD to Current Theoretical Models

Long Term Athlete Development plan	Current Theoretical Models[1]
Active Start (ages 0-6): • Learn fundamental movements and link them together into play • Focus on learning proper movement skills • Introduce physical activity as a way of life	
FUNdamentals (ages males 6-9; females 6-8): • Learn all fundamental movement skills and build overall motor skills • Well-structured, positive and fun environment • Encourage participation in wide range of sports	**Sampling Stage (ages 6-12)** • Parents introduce children to different sports • Main emphasis is on fun and excitement through sport • Majority of time in deliberate play activities rather than deliberate practice • Involved in a variety of sports
Learning to Train (ages males 9-12; females 8-11): • Learn overall sport skills • One of the most important periods of motor development • Identify sports the child enjoys and is predisposed towards success. Narrow focus to 3 sports.	
Training to Train (ages males 12-16; females 11-15 ages depend on development) • Build an aerobic base, develop speed and strength, further develop and consolidate sport specific skills. • Trainability is dependent on maturation levels of the athletes. • Help athletes focus on 2 sports based on talent.	**Specializing Stage (ages 13-15)** • Decrease in extra-curricular activities focus on one or two sports. • Transition focusing on sport specific skill development • Balancing of deliberate play and deliberate practice activities
Training to Compete (males 16-23 +/-; females 15-21+/-) • Focus on National competitions • Year-round, high intensity, specific training • Select 1 sport	**Investment Stage (ages 16+)** • Athlete commits to achieving an elite level of performance in one sport • Training focus is deliberate practice to improve ability
Training to Win (males 19+/-; females 18+/-) • Podium performances. • Focus of training is on maximization of performance • Train to peak for major competitions	**Maintenance Stage (ages vary)** • Entered after 1st world cup or Olympic Gold medal success • Focus on maintaining and improving their performance ability
Active for Life (occurs at any age) • Smooth transition from an athletes' competitive career to lifelong physical activity and participations in sport. • Attempt to re-direct athletes to other sports rather than cutting them from a sport.	**Recreational Stage (age 13+)** • Extension of the sampling years • Focus on being healthy and enjoying sport participation • More deliberate play activities than deliberate practice.

[1] Based on Bloom (1985), Côté (1999), Côté & Fraser-Thomas (2007), and Durand-Bush & Salmela (2002).

Developmental Perspective

The current study focused on a talent development system designed for children aged approximately 10 years old. Hence, it is useful to consider some of the psychological features of children at this age as described in the developmental literature. According to Santrock et al. (2005), children around the age of 10 are in the late phases of childhood development or pre-adolescence. This phase of development is characterized by many changes in their body and cognitive development. The 10 year old child is in a period of slow and consistent physical growth just before their growth spurt in adolescence. This is also the time of improved muscular strength and increased mass, and the body is looking more proportional then early childhood. In terms of motor development, the child is now demonstrating increased and smoother coordination. Fine motor skills have made great improvements and most children have started to demonstrate manipulative skills that are similar to adults. In late childhood, males and females are quite similar in strength, body composition and endurance (Eppright et al., 1997).

Cognitively, the long term memory of the child is increasing and children with an expertise in a subject demonstrate a larger memory for that topic. Children are also much more analytical with their approach to words than in early childhood, tend to categorize vocabulary by parts of speech, and they are able to use many appropriate rules of grammar (Santrock et al., 2005). Around the age of ten, children are able to take turns and attend to activities at hand. This allows children to understand and follow the rules and strategies of sport (Tofler & Butterbaugh, 2005). They are starting to be able to

differentiate between the amount of effort they put into sport and the performance outcome (Tofler & Butterbaugh, 2005).

In terms of self-esteem and self-understanding, those in late childhood have started to develop perceptions of themselves. For instance, they are now able to use internal subjective characteristics to define themselves, not just external concrete characteristics. They also start using social comparisons and social characteristics to describe themselves. Children are now able to understand competition where they are able to compare themselves with others (Eppright et al., 1997; Tofler & Butterbaugh, 2005). This is also a time where children are developing a sense of independence. Children in late childhood have started to understand emotions such as pride and shame and have realized that more than one emotion can be experienced in a situation. They can now attempt to suppress negative emotional reactions and have a better ability to take into account all events that lead to an emotional reaction. By the age of 10, children are able to cope with stress through using cognitive strategies. When it comes to peers children are on the look out for intimacy (ability to share private thoughts) and similarity (having the same kinds of interests) (Santrock et al., 2005).

Descriptive Process Evaluation

As the preceding literature review revealed, there have been very few studies of talent development environments and, apparently, no studies of the LTAD. Given that this area is in its infancy, descriptive research can be used to identify potentially important issues (Patton, 2002). Hence, a descriptive approach was adopted. More specifically, a program process evaluation was conducted. A program process evaluation involves the assessment of how a program is delivered and if it reaches the intended

recipients; it does not assess the effects of the program on the participants (Rossi, Lipsey & Freeman, 2004). Process evaluations are appropriate for new programs to answer questions as to how well the intended operation of the program has been established and how it has been received (Rossi, et al., 2004).

Purpose and Research Question

To reiterate, the purpose of this study was to evaluate the learning to train phase of the Long Term Athlete Development model for the sport of Alpine ski racing in Alberta. This was accomplished by addressing the main research question: "what are the key stakeholders' perceptions of the implementation of the learning to train phase of the LTAD for ski racing in Alberta?"

CHAPTER 3:

METHOD

Case Study Methodology

When using a case study methodology, the major responsibilities of the researcher are to identify the boundaries of the case, conceptualize the study, select the research questions to emphasize, seek patterns of data to develop the issues, triangulate key observations for interpretation, consider alternative explanations, and develop assertions about the case (see Creswell, 2007; Holt & Hogg, 2002; Stake, 2005). These guidelines were applied throughout the current study. More specifically, a multiple case study methodology was used for this study.

A multiple case study (also known as a collective case study) is used when the interest is in investigating a population, general phenomenon or as in this study, understanding a program (Stake, 2005). Typically there is one main issue at the source of the study but multiple cases are selected to illustrate the issue (Creswell, 2007). Each case provides valuable knowledge and together multiple cases can provide insight into the issue of interest (Stake, 2005). In the current study the issue was evaluating an aspect of the LTAD plan and the cases were four ski clubs in Alberta. Although the case is singular (i.e., a ski club), it is comprised of subsections (which can include groups, occasions, people). In the current study the subsections of the case were people; coaches, parents, and athletes.

Stake (2005) explained that the ability to understand a case depends on how well a case is chosen. He emphasized that it is important to select cases that represent the overall topic of interest. That is, that the topic of interest is represented within the case

selected and the case represents a population within the area of interest. As the main topic of interest was the implementation of the LTAD through ski racing in Alberta, it was necessary to select ski racing clubs that represented typical clubs in the province.

Procedure and Recruitment

Approval was obtained from the Research Ethics Board in the Faculty of Physical Education and Recreation at the University of Alberta. Next, members of four different ski clubs were recruited to participate in this study. Each club was purposefully sampled (Patton, 2002; Stake 2005) as typical examples of skiing in Alberta. Alberta has two zones in ski racing with clubs either based in cities or in the mountains. The two zones are the North (representing all programs in Red Deer and north) and the South (all programs south of Red Deer). The four selected clubs represented each of these different types of clubs. That is, one club from each of the North Zone Mountain, North Zone City, South Zone Mountain and South Zone City were sampled.

Having identified four clubs the researcher then contacted the Program Director of the Entry level program to explain the study and gain access to potential participants. Having obtained the Program Director's permission, the PI then approached the specific age group coaches, explained the study, presented them with the coach information letter (Appendix 1), and answered any questions. After the coaches agreed to participate they completed the informed consent forms (Appendix 2) prior to the interview commencing. A visual summary of the recruitment procedure is provided in Figure 1.

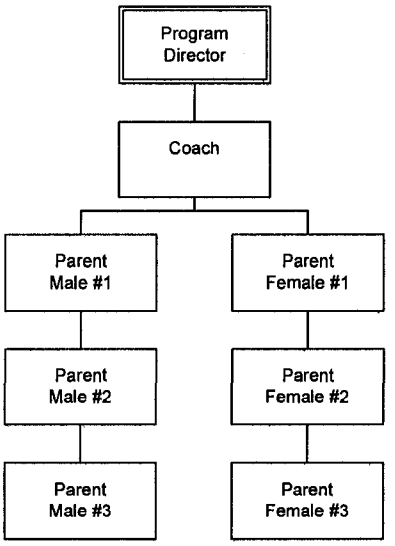

Figure 1. Method of contacting club participants.

As reflected by Figure 1, the next step was that parents of the top three ranked male and female athletes (a total of six contacted) in each club were then contacted via email by the Program Director. The Program Director had previously told all parents that the study had been approved by the club and that the PI would be contacting them with more information. The PI then emailed a description of the study to the parents, explained that participation was voluntary, how the interviews could be scheduled, and provided the parent with an information letter (Appendix 3). For the first three parents who agreed that they and their child would participate in the study, an interview time was set up. Parents completed informed consent forms (Appendix 4) prior to the interview commencing. It was re-emphasized to all participants prior to the interviews that involvement in this study was voluntary. If any of the top three male/female age group athletes (or their parents, or their coaches) declined to participate the next ranked male/female athlete/parents/coach in the particular club was approached.

Estimating Sample Size

Estimating sample size is a difficult issue for qualitative studies, and sample sizes for qualitative studies are often questioned because they are much smaller than samples recruited for quantitative studies (Patton, 2002). The size of the sample in this study was estimated based on three principles: (a) data saturation, (b) representation of all types of ski clubs, and (c) similar studies in the published literature. Data saturation is the point at which collecting more data no longer adds new information (Morse, 1995). In order to represent the clubs in Alberta, it was necessary to select one club from each of the four types of possible club situations. Finally, the sport psychology literature provided a guide to estimating sample size. In their respective studies of talent development, Côté (1999) had 15 participants, Gould et al. (2002) 30 participants, Durand-Bush and Salmela (2002) 10 participants, and Holt and Dunn (2004) 34 participants.

Participants

There were a total of 38 participants. There were five coaches and three Program Directors (5 male, 3 female) interviewed. The coaches in the study ranged in age from 19 to 34 years old and the Program Directors were aged 32 to 39 years old. Certification in ski coaching is through the Canadian Ski Coaches Federation (CSCF) and the National Coaching Certification Program (NCCP). Two of the coaches were level one CSCF certified, two were level two CSCF certified and one was level three CSCF and NCCP certified. One of the Program Directors was level two CSCF certified and the other two were level three CSCF and NCCP certified. The coaches had between four and 12 years of experience while the Program Directors had between 10 and 14 years of coaching experience. All coaches were self-described as Caucasian.

There were 18 parents who participated in the study (9 mothers, 9 fathers). The parents were aged 38 to 54 years old, ten families reported income levels of over $100,000, one family between $70-99,999 and one family between $50-69, 999. Ninety-two percent of the families were self-reported Caucasians. Two parents had high school diplomas, three had college diplomas, eight had undergraduate degrees and five had graduate degrees.

Finally 12 children (7 boys, 5 girls) participated in the study. The athletes were 10 years old at the time of the study. Nine athletes were in a Provincial stream program and three were in a Regional stream program. The Provincial stream athletes had been participating in ski racing for three to six years, while the Regional stream athletes were in their first or second year of ski racing. The athletes reported participating in many different activities outside of ski racing, from recreational sports on the street with friends to organized sports like lacrosse and hockey.

Researcher-as-Instrument

The credibility and quality of qualitative research depends, to a large extent, on the researcher's skills and abilities (Patton, 2002). This is because the researcher is the 'instrument' of both data collection and analysis in qualitative research. During the time of data collection I was 26 years old and had been a ski coach and instructor for the past ten years. At the time I worked at a club (not a club in this study) in the province which provided me with an insight into ski racing in Alberta. I was also a camp counselor for seven years which gave me exposure to working with many different groups of youth. To improve my skills as a researcher I completed a qualitative research methods class at the University of Alberta (PERLS 581) and received additional research methods training

from my supervisor. I completed interviews and observations for a study of children, parents, and coaches in youth sport (Holt, Black, Tamminen, Mandigo & Fox, in press a; Holt, Tamminen, Black, Mandigo & Fox, in press b). Overall, I felt that I had appropriate skiing knowledge, experience working with youth, and research methods training to complete this study.

Data Collection

The sequence of interviews is depicted by Figure 2. Participants were asked to complete a brief demographic questionnaire (Appendix 5). Each interview was based on an interview guide that contained basic lines of inquiry to ensure that each interviewee was asked about each topic (Patton, 2002). The interview contained open-ended questions so that the interviewee could provide detailed information for the data collection. There were also a few closed questions to address specific issues related to the programs provided by each club. Interviews were recorded and transcribed verbatim and saved in an electronic file. Any information which could identify participants was removed from the file, and all participants were assigned participant numbers by club.

Coach and Program Director interviews. The coaches and program directors were asked about their opinions of the HSS program and the role of the coach and parents as related to Côté's (1999) and Bloom's (1985) models. The coach interview guide is attached in Appendix 6. The coaches' interviews were conducted in a variety of locations at their convenience. In total, three interviews were conducted in coffee shops, two in ski lodges, one in a restaurant, one at the University of Alberta, and one via telephone. The interviews ranged in time from 26:47 minutes to 55:15 minutes with an average time of 42:44 minutes.

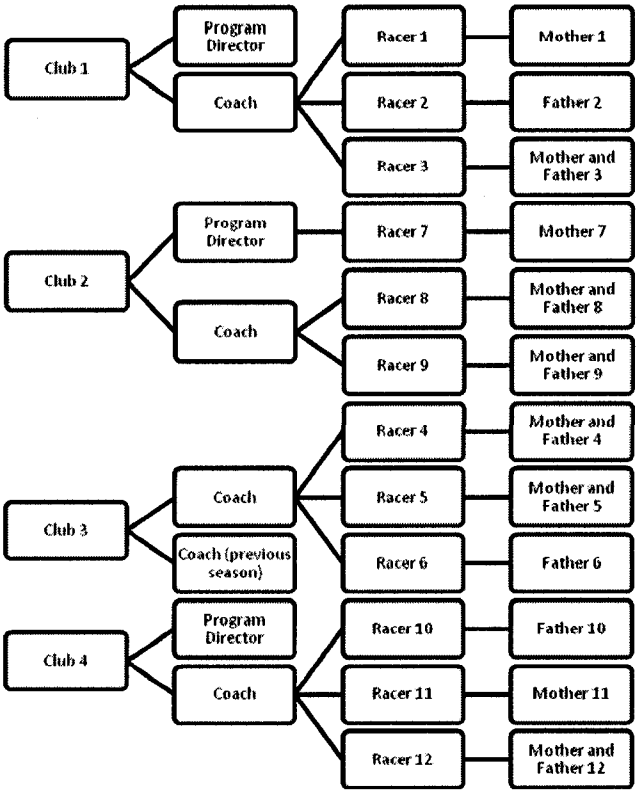

Figure 2. Resulting interviews by club

Parent interviews. The parents were asked about the HSS program and the role of the coach and parent as related to Côté's (1999) and Bloom's (1985) models. The parent interview guide is attached in Appendix 7. Parent interviews were conducted at a variety of locations at their convenience. Five interviews were conducted at the parents' homes, six interviews were conducted at the ski hill and one interview was conducted at a coffee shop. The interviews ranged in time from 13:31 minutes to 1:30:06 minutes with an average time of 49:47 minutes.

Athlete interviews. Given the cognitive, emotional and social needs of the children in this study (see Hennessy, 1999), the children's interviews were conducted in a relatively structured manner. The questions inquired about the participants' experiences

within the HSS program, the perceived roles of their coach and parents with questions derived from Côté (1999) and Bloom's (1985) models. Additionally, probing and clarification questions were used to help ensure the flow of the interview and so that the researcher could clearly understand the children's responses. The athlete interview guide is attached in Appendix 8.

The athlete interviews were conducted in a variety of locations at their convenience. In total, five interviews were conducted at the athletes' homes, six interviews were conducted at the ski hill and one interview was conducted at a coffee shop. The athlete interviews ranged in time from 24:15 minutes to 43:38 minutes with an average time of 31:56 minutes.

Data Analysis

Case studies need to be organized in a manner that allows a full and rich description of the case (Patton, 2002). In this study, each case was comprised of one club. Analysis was on a club by club basis so that the participants' perceptions within each club were compared with the perceptions of participants in the other clubs. This helped ensure that case study data were arranged in manageable case records for subsequent analysis (Patton, 2002).

Data analysis occurred concurrently with data collection (Patton, 2002; Stake, 1995). Each interview was transcribed verbatim and all identifying information removed. Athlete, parent, and coach interviews were initially analyzed separately. The South Zone Mountain club was analyzed first and then the same procedures were applied to the other clubs. Analysis followed Stake's (1995) categorical aggregation method, described below:

1. First the researcher read through the transcripts and used content analysis to identify specific themes. As themes were identified similar instances or occurrences were grouped together. Having grouped similar data together the researcher was able to make interpretations about what the categories meant. As Patton (2002) noted, sometimes this step produces areas of vagueness or very large concepts. As this occurred content analysis was repeated in order to sift through the data and make further sense of what was found.
2. The next step involved collapsing themes into larger categories. Similar themes across athletes, parents, and coaches were then grouped together as a basic coding schema. A list of the entire coding scheme initially generated for all data is included (Appendix 9). A vast amount of data were collected. Given the purpose of this study, results focus on issues related to program implementation. Data referring more specifically to children's experiences within the program have not been reported.
3. The basic coding schema was then applied, in a more deductive manner, to data collected from the remaining three clubs. During this more deductive analysis the researcher also remained sensitive to any new themes and categories, which were subsequently incorporated into the coding schema.
4. Narrative accounts were written, using key quotations from the categories and themes, to describe the experiences of the participants in each club.

Validity

There are many definitions and various terms used to describe validity in qualitative research (Chamberlain, 2000; Morse, Barrett, Mayan, Olson, & Spiers, 2002).

One such definition explains validity as the congruence between a researcher's claims and the reality the claims attempt to represent. Thus valid conclusions provide readers with a truthful description of a situation they did not experience personally (Eisner & Peshkin, 1990). The trouble with most criteria set out to validate qualitative research occurs at the end of a study when it is too late to correct (Morse et al., 2002). Morse et al. argued that there many ways for a researcher to focus on ways to ensure validity or rigor throughout the research process and that they should be built into the research project. This 'on-going' approach to validity and rigor was used in the current study.

One technique was the application of the principle of methodological coherence (Morse et al., 2002), whereby it is important that the method used in the study appropriately match the research question. This was done by using a multiple case study approach to evaluate the implementation of an LTAD program across different types of clubs.

A second technique was using an appropriate sample (Morse et al., 2002). In total, 38 people from four ski clubs participated in this study. By specifically focusing on one stage of the talent development system in each club and recruiting several people involved in this stage, it is likely that an adequate level of data saturation was attained. Because the clubs represented each type of zone (i.e., city/mountain and north/south) in the province, a full range of perspectives was also obtained. Finally, the sample size was larger than key studies of talent development published in the sport psychology literature (see Côté, 1999; Durand-Bush & Salmela, 2002; Gould et al., 2002; Holt & Dunn, 2004).

This study also used the technique of triangulating data sources (Patton, 2002) to compare the perception of different stakeholders who experienced a program from

various points of view (Stake, 2003). Qualitative researchers are interested in the multiple realities within which people live (Stake, 2005). These realities were addressed by collecting data from coaches, program directors, parents, and athletes within the HSS program (Stake, 2003). By capturing and reporting multiple perspectives the researcher is able to present one picture of how a program is implemented and experienced. This helped to provide the insight needed for an understanding of the program from multiple perspectives and by identifying different ways in which the program was perceived.

CHAPTER 4:

RESULTS

Brief Summaries of Each Club

Participants within the Alberta Alpine system are able to choose between two racing streams; the Provincial stream and the Regional stream. The Provincial stream is designed for ski racers in Entry level programs who intend to compete in the Provincial circuit as a K1 racer. The racers in this stream compete at local and Provincial races. The Regional stream is designed to promote participation in the sport of Alpine ski racing for racers at all levels. The racers in this stream compete predominately at local races.

Club 1 was a South Zone mountain club. The ski racers who participated in the study were a part of the club's Provincial stream. The program ran from December to May with training all day at a mountain resort on Saturdays and Sundays as well as one evening per week at a local city hill. This was a competitive club program with a balance between race training and free skiing to promote the overall development of the skiers. As one father from the club explained, he liked the program because it was "not about ah just ski racing it's about a skill development and the whole wide range of skills um and I think they have a balance. They do a lot of free skiing."

Club 2 was a North Zone mountain club. Club 2 only offered a Regional stream for the racers at the Entry level. The program ran from December to March with all of the training held at the mountain resort on Sundays, meaning that participants only received instruction for 12 days per season. This club was focussed on introducing young skiers to ski racing through some race training and mostly free skiing. The Program Director from Club 2 described his program by saying that " the emphasis is really on the learning the

ah basic skills, … you got to put your kids in a few races so you put them in situations in what they're learning right, it's [an] introduction to it [skiing]."

Club 3 was a South Zone city club. The racers were in the Provincial stream program. They trained every Saturday in the mountains, one evening a week at a local city hill, and every other Sunday in the mountains from December to April. Similar to Club 1, there was a balance of race training and free skiing to facilitate the development of racers in the program. As one Mother explained "there are days when the kids will be just in just doing some free skiing and other days they will be running gates and stuff like that."

Club 4 was a North Zone city club. The racers were in the Provincial stream program. This program ran from November to March with training occurring two evenings per week and Saturday mornings at a local hill. This training was supplemented with trips to the mountains for extra training, usually the day before a race in the mountains. Club 4 was a flexible Provincial program, allowing the ski racers to participate and train as much or as little as they wanted to. The Program Director described his goal for the club as being:

> To provide an environment that they can progress as much or as little as they want …to make sure that everybody, you know… has equal opportunity to progress to what ever level they want. We're not limited in any areas um or you know push everybody into the mountain series because not everybody wants it, you know just making sure that everybody's covered.

Husky Snow Stars Program

As the Provincial Sport Organization (PSO), Alberta Alpine was responsible for informing the local clubs about the national entry level program - the Husky Snow Stars. This program is an interpretation of the LTAD with ski specific tasks and activities (Alpine Canada Alpin, 2005). The goal of the Husky Snow Stars program was to provide a solid foundation and knowledge base upon which to build children's athletic abilities. Entry level clubs were expected to have incorporated this program into their annual plan.

Perceptions of the Husky Snow Stars Program and the Available Resources

The HSS program provided two main resources to clubs; a book and a video. The book provided information to the parents about the program, information to the coaches about each level, and also included end of season report cards for the athletes. The video was created to demonstrate skiing at the different HSS levels and to demonstrate various drills for the coaches. In the following sections participants' perceptions of the HSS program and resources are presented.

HSS allows coaches to speak the same language. The HSS program was generally perceived as a good idea and a benefit to entry level ski racers because (in theory) coaches across the country were coaching from the same set of guidelines. The Program Director from Club 2 explained that:

> Well first of all, all coaches have to speak the same language across Canada because we're part of the same flag, same umbrella so the kids are being coached anywhere across Canada a certain way as they grow older, and they'll recognize the same pattern, the same language.

Similarly, a father from Club 1 was positive about the idea of a coordinated national program. He said:

> I think we're, we're lucky to have... er... Nancy Greene [Entry level] program in place that is you know somewhat coordinated across the country and, and tries to sort of give the kids the same sort of beginning to the sport you know in a... in a manner that's the same everywhere.

Another perceived strength of the HSS program was that there was a good progression of the overall skills through the levels. This progression was designed to move racers from the Entry level through to the K1 level and was perceived to strengthen the future of racers by having standards to reach at the various levels. A coach from Club 3 explained it as:

> It's a good ... guide of where kids should be when they come into K1, K2 ... you know, they should be at a certain point, you know lot of kids [at the K1, K2 levels] aren't, I think it will build our future young guys and girls in the ah sport, get them stronger as they get older and better and more technical.

However, whereas the idea of the HSS program being part of a nationally coordinated scheme was received positively, there were concerns about the fact that "not all programs are the same across the country" (Coach, Club 2). The following themes describe some issues that appeared to affect program implementation across the clubs studied.

The HSS was loosely implemented as a planning tool. The HSS program was presented to the clubs by the national sport organization, Alpine Canada Alpin, and

taught to new coaches through the coaching federation. The Program Director of Club 1 explained that:

> You're presented with something that's coming from Alpine Canada and all the provinces and the CSCF [Canadian Ski Coaches Federation], all the coaches are trained on it when they take their entry level coaching course it's supposed to be the backbone of every program and yet we don't necessarily implement it that way.

In fact, all of the clubs in the study used the HSS program more as a planning tool for the season than as a strict program to follow. The usage of the HSS program as a guideline and planning tool was actually advocated by the Program Directors at each club. For example, the Program Director from Club 2 explained that:

> I told them [the coaches] it's a guideline its not, you know there's more to it, so you know by watching the video for example ah the different videos we have on hand and … with their experience … to take that as well, because the Snow Star program, I think is just a guideline.

Similarly, the Program Director from Club 1 explained that her coaches "use it [the HSS program] very loosely as a planning tool." This was consistent across all four clubs.

The coaches generally confirmed their Program Directors' opinions, but provided additional information as to why the HSS program was not strictly followed. One coach from Club 2 explained that his usage of the HSS program was based on the variation of abilities of the ski racers within his group, although he did use the resources to plan his lessons. The coach explained:

> I use bits and pieces from the book to suit the needs of my group … like I don't follow exactly … every kid in the group is at a different level anyway so I try to find something that's common across the board. … So I don't follow it strictly but I more as a guideline. Kind of pick and choose what I want to do to build my own um, plan for the day

A coach from Club 3 further explained that ski racers vary in how they progress through the levels. She said:

> You don't really keep the order of the … skills or whatever that are described in the book … some kids progress with something before they do the level two thing … but they already do level three thing right and then maybe after that comes level two … I use the book for some drills and stuff …and if something doesn't work with one kid you try something else.

The parents at each of the clubs generally had little knowledge about the HSS program and the extent to which it was used at their club. This lack of knowledge was in part due to the way the HSS program was presented to the parents by the Program Directors and coaches. The Program Director of Club 1 explained that "we just tell them [parents] it's a planning tool and not put too much emphasis on it." From Club 4, a mother explained that the Program Director "advocates through the Snow Stars program for each [coach] … individual lesson plans and using that as different ways to develop." One mother in Club 2 explained that her experience with the HSS program was limited to being given the HSS book at the beginning of the year:

> My first exposure with the program was the start of this season when I saw the booklet … I don't actually know what level she is in, but I am guessing that she will get some sort of assessment at the end based on the booklet.

A mother from Club 3 explained that the amount of information she had received about the HSS program depended on the coach her daughter had for the season. She explained:

> I'd say not that familiar [with the HSS program], every year the coaches have to do um a report card for the kids at the end of the year and I know that there's certain things that they have to achieve in order to get up to the next level. So I'd say that every year that [my daughter]'s been skiing I've been shown what level she's at and what she can do and what she can't do and some coaches have been better at that than others.

Program resources were used as an educational tool for coaches. The Program Director of Club 4 explained that they used the program to educate the coaches. "We simply use the video and the material for the coaches as a resource in combination with our own internal documents for technical development as it's a coaching resource is what we use it for." "It's a useful tool in the sense that you can access the different protocols if you're not sure how to do some of the physical capacities or some of the mental training skills there is information out there" added the Program Director of Club 1. One coach from Club 2 explained that the HSS program allowed coaches to try "new and different things that a coach may not know about. Like different drills and exercises to do that would be the number one thing… the book's good for pulling ideas off."

The video was a tool used to help the coaches to see how different drills were to be performed and how the racers should have been skiing at the various HSS levels. The

Program Director of Club 4 explained why he used the video as a resource for his coaches:

> I think the video that came out was really … useful in providing ah the coaches with a consistent resource for drills and … it gave them a picture of what the athletes are supposed to look like.

A coach from Club 4 explained that the "videos with all drills and stuff like that, those are wicked, I've looked at those a few times." Using the resources to educate the coaches was reported to benefit the racers. One coach from Club 4 explained:

> They've [the ski racers] benefited a lot from that [coach education], the kids did just because the coaches were more educated and knew what they were doing and knew kind of how to move a kid forward I think that was the … best benefit for the kids.

The Program Director of Club 4 also saw the benefits for the racers being a more efficient progression through the level because of "better coaching and I hope that [the racers] just advance through the skill levels a little bit faster and … I think if the coaches use that material … I think the kids would have seen the benefits." The racers saw some of these benefits in that "the coaches are pretty good and that like they they're really helpful for where you are [what level you are in]" explained a racer from Club 3. Another racer from Club 3 explained that his coach would play the video for the racers as a demonstration tool. He explained that "sometimes we'd watch videos about them [World Cup skiers] in training … we'd look at how their [World Cup skiers] stance is to help us."

Buy-in from coaches was limited. Despite the findings reported above, the Program Directors acknowledged that one challenge implementing the HSS program was

convincing coaches to use the program. For example, the Program Director of Club 1 explained that:

> Convincing coaches to use it is a challenge, ah trying to sell the product [i.e., the HSS program] itself, and I think it's just because of the current format … I think if it was just, if it was a tool that was more highly regarded um, you know from a technical and tactical standpoint then I think that a lot of the challenges would be alleviated.

This sentiment was supported by coaches in the other clubs who described not using the program fully. Instead they relied on their past experiences to guide them. One coach from Club 2 explained why he does not use the HSS full program. He said:

> 'Cause I just use my own experience from the past … do my thing, I got a good recipe going why would I change it? So in the past … I got a proven track record that kids have moved on in upper levels and why would I change the way I do things? If it works don't change it.

Perhaps this coach's concerns could be partially explained by the fact that his Program Director (from Club 2) had difficulties staying up to date with the program:

> I don't think it's introduced very well. To each coaches every year, ah all though I did go with [an Alberta Alpine Representative] and that was great, when I went to ah,…two years ago, I wish, well I wish I guess its probably happening every year, but I missed it this year for my coaches right, so that that could actually be more accessible, ah the training of that program, I did my best with my coaches.

Finally, the lack of buy-in was also exemplified by another coach from Club 3, who explained that she has not changed how she coaches because of the program but because of the changes in technique over the years:

> I don't think I'm coaching differently because those booklets [the HSS program booklet] changed or whatever changed. I'm still trying to progress the same way as I did ten years ago. I mean with a little, like how the technique changed like the whole approach changed but it didn't depend on those books.

The information book was received with mixed reactions. As the previous quote suggested, the book that was provided to the clubs by the HSS program received a mixed reaction from the participants. The Program Director and coach from Club 4 did not provide much information in regards to the book as that club did not use it as a resource throughout the season. Participants from the other three clubs were able to describe their perceptions of the book in greater detail. The book, as previously mentioned, was designed to provide information to the coaches, parents and racers about the HSS program. The coaches thought that as a tool for a coach the book was "not a handy dandy item … to put in their pocket … from a functional standpoint it's not very useful," (Program Director, Club 1). The Program Director from Club 1 went on to explain about how the book was wasteful because of the pages that needed to be ripped out and filled in for racers that straddled more than one level. She explained "when no one kid is at any specific level you have these massive sheets of paper that you rip out of the back of a book and therefore you waste an entire booklet for one or two pages, it is wasteful."

Some coaches thought that the book helped some parents to understand what they were working on with the racers while out on the hill. A coach from Club 1 explained:

> It is laid out so the eight year olds can understand it so it kinda gives the parents something to read if they look where their kids are and where they can end up and where they're going so they kinda … know where the coaches are kinda moving towards, they don't think we're just out there playing in the snow they kinda know kinda trying to follow this, this is kinda our ultra [main goal] where we're going to end up and this is how we're going to get there.

Coaches were meant to explain the information book to parents to ensure that they understood it and knew the stages their children were progressing through. This was a time consuming process, as the Program Director of Club 2 described:

> Having a book in their hands, I don't know, are they really going to look at it? Are they really going to ah follow it? No. I don't think there's enough time there for the coaches to sit down with each [of the] parents and start explaining 'ok you know your kid has done this right and your kid needs to improve there' you know, it's not school. I don't think we have time to do that, so for that no, this thing doesn't work too much.

But whereas most parents admitted that they received a book from the coaches at the beginning of the year, many did not take much time to read it. One father from Club 2 explained "we were given the brochures at the beginning of the year, which I think I read possibly. Husky is the sponsor, correct? Of Nancy Greene [the Entry level] and ah that part I did read." A mother from Club 2 also described that she "got a book last year, we flipped through it yup we have it somewhere." Hence, the book may not have been as informative for the parents as the coaches thought.

Coaches also thought the book could motivate the racers towards the next level and demonstrate their accomplishments in a 'concrete' manner. A coach from Club 3 explained that the check mark system was a motivation for the athletes to work for a skill. He said "it gets them motivated to get from level to level to level to push on, to get that check mark in approve, or done, or whatever that box says. So I'd say a motivation factor is a big one." In addition to the motivational influence of mastering a skills (and receiving a check mark), coaches thought the book allowed the racers to look at the next levels and see what they are required to do in the next level and the different skills that they would learn. The coach from Club 1 explained:

> It kind of gives that a goal to work towards, cause they have their books and they're looking at where they are and where they want to be, and of course they all want to be level six, level seven, like where the ski racer is. They see the really intense picture of a ski racer and I think it gives the kids something to work towards, and have all the different skills they kind of look at all the fun stuff. Like the 360's and stuff that are in there and kind of go let's do that, lets do that … I guess it kind of opens them up to looking at stuff that they can try. I guess it gives them something to work towards.

The coaches also thought that the book played an important role in that "the kids get to take something home and its something to be proud of, have your little name in there and your coach" as the coach from Club 1 explained. On the other hand, a disserting voice was a coach from Club 2, who explained that providing the racers with too much information may be problematic. He said:

> I don't think the kids even care about information at that age. They just want to have fun and ski, you give them written stuff its you know they try to separate their school work and skiing, right this is their fun day why test them again.

There were no quotes available from the racers about their opinions on the motivational aspects of the HSS book or about the amount of information provided to them.

The report cards were given mixed reviews by the coaches yet were viewed favorably by the parents and racers. The coaches liked that the report cards were not in a 'pass/fail' format but allowed the racers to see where they needed some improvements. A coach from Club 2 explained "that's better than the pass/fail thing. I think 'almost there' I mean its kinda the same 'close now try this' right and I'm all abut the second chance, third chance, that kind of thing." The coaches also liked that the report cards, similar to school report cards, allowed parents to see how their child was progressing within the program. A coach from Club 3 explained, "like let parents know like marks in school, right like you know what your child is standing on [what level the child is in]."

However, coaches also had complaints about the way the report cards were set up. The most prominent concern was that there was not enough room on the report cards to write comments about how the racers did that season and what they need to improve on, leaving the report cards vague and difficult for the parents to fully comprehend what their child had achieved that season. The Program Director from Club 1 explained:

> There's not enough room for comments. … There's the place to make a check mark for mid-season, end of season and there's really no space, like anecdotal comments or encouraging comments, whatever they maybe, there's nothing really to personalize their report cards and so that irritates me and having a sticky note

> on the report cards all the time you know the kids are going to loose it, or stapling something. It just doesn't look polished um although I know we do that and a lot of other clubs do that and "you got it" or you know "keep trying" or whatever. I don't think it really gives a super clear idea of where the athlete is.

Another concern from coaches was the specificity of the report card may lead to comparison between the racers. The coach from Club 4 explained:

> I think … when you get more specific it causes grounds for comparison, you know 'I got a check mark here you didn't' right as far as the comments, they [the racers] can compare it less so I don't know its good because its specific but its bad because it sets grounds for comparison.

On the other hand, the parents generally liked receiving the report cards. The parents appreciated that there were tasks for their children to achieve at each level throughout the program. A mother from Club 1 explained:

> I actually prefer this because they, they have a schedule of um tasks to achieve that they can accomplish and you actually mark them. … Before they had this form more formalized it was really hard to know where your kid was and what they still had to learn so I actually like the fact that it's broken down into very specific um, you know tasks accomplishments are measured and then can be tested in.

A mother from Club 3 also explained that she liked receiving a yearly report of how her daughter had progressed throughout the year:

> Every year the coaches have to do um a report card for the kids at the end of the year and I know that there's certain things that they have to achieve in order to get

> up to the next level. So I'd say that every year that **** [my daughter]'s been skiing I've been shown what level she's at and what she can do and what she can't do.

The racers found receiving the report cards from the coaches a positive experience. The racers explained that the report cards informed them of what level they were in and what they had to improve on. One racer from Club 1 explained, "they [the coaches] are completely honest about them [the report cards] and they kinda say to you … improve on this, here's like your race results from the year and that's completely fine." A racer from Club 3 added that "well last year my coach gave me something … that was a book, and it said what level you're in and what they had to say about it, but I didn't get one this year yet."

Assessing the Racers

Lack of consistency in assessing the racers between clubs. There were concerns about the ability of clubs to assess the levels of which their racers were in. Throughout the season there were Provincial races where the racers were to be at a specific HSS level in order to compete. At these races, the Program Director of Club 1 noticed a difference in the ability levels of the racers who were there to compete. She explained:

> I know I use it [i.e. the HSS program] in a certain ways but … kids can't qualify for certain races unless they're a certain level and you know then you see the range showing up at any given race, and we've [Club 1] said no to kids who are much stronger than other kids who are there.

This variability appeared to stem from each club assessing racers in a different manner. Club 1 had a few assessment days throughout the season organized by the Program

Director. Working together, the coaches and Program Directors assessed each group of racers. The coach from Club 1 explained:

> [The program director] will let us know to say 'ok these kids are around here, here, here, and if you want to get 'em to there work on this,' … we just kind of bring our kids and [the program director] watches them ski and we kind of talk about where we think they're at and how they're doing.

Club 2 was even more informal in how they assess the racers. The coach form Club 2 explained:

> I judge it on, each individual and saying what accomplishment level they have, what's their expectations, they meet their goal then I'll call that a pass for themselves. You know as long as they, like I say, demonstrate, try it, then I'm happy with it, cause its something new they're doing to experience and I don't, I don't like to put in their mind failure at something that they're trying, so I like to make it a good experience.

Alternately the Program Director of Club 4 was on snow with the coaches throughout the season and continually helped them to assess their racers. The coach from Club 4 explained:

> [The Program Director] has set up you know kind of the progression of where we move [through the levels] and … [the program director] is always coming to other groups and …was around to kind of be our guidelines, say 'ok this racer is moving here' you know and then you start to see it yourself.

Hence, there were differences between how different clubs assessed racers. These differences mainly referred to the involvement of the Program Director and the amount of time spent engaged in assessment.

Lack of consistency in racer assessments within clubs. Not only was there a lack of consistency between the clubs in how the coaches assess their racers, there was a lack of consistency *within* each club in how the coaches assess their racers. For example, in Club 3, one coach explained he would just bring a book out on the hill and the racers would "get a check mark or [they'll] have to work on this more." Another coach from Club 3 said:

> Each coach was individually assessing ah each kid right, giving them levels so I had two cases when um I think parents weren't very happy that cause their kid already pass level three from last year but I didn't give them level three this year. So it didn't look like they improved at all but they improved but I just evaluated it differently than the coach before me, because I mean its' so individual, from um each point of view.

This coach from Club 3 continued explaining that the trouble was "evaluation that's the problem because that's what people see." The parents were aware of the lack of consistency within the club. A father from Club 3 described how a previous coach, an ex-world cup ski racer, re-assessed the racers in his group to a level or two below what they had been previously awarded. But the father from Club 3 appreciated this honest approach and explained that the racers should not pass a level just because they attended the season. He said:

> Familiar enough to know that, that there's issues with what are the standards. … **** [a coach] came in and sorta rescued it … he basically just threw out, "these kids are in level what?" And, and forget that, you know they all move down a level or two because he understood skiing very highly and looked at what they had written down in the Snow Stars … and just because they're going through the program doesn't mean they bump levels … even this year we had that issue still of, of you know variability between coaches.

A coach from Club 3 explained that one reason for the inconsistency was due to the fact that the racers were able to do skills in higher levels while still unable to do some of the skills in the lower level. The coach from Club 3 explained:

> The kids each are so individual in making the progress some of them for example, keep some technical stuff from level two, but they already do the stuff at level three but they are not able to do stuff at the level two … it's so individual and skiing is so tech, highly technical sport that ah and each of us, work different, I mean it doesn't work like, you can say that level two you're gonna have kids doing vertical explosiveness, well they might not do it but they already might move laterally there might not be any vertical movement whatsoever maybe you have kids like that right so I mean some kids might be doing everything except um pole plant and timing pole plant they wont pass level four if they don't do it right.

The Program Director from Club 4, explained what can happen when parents and racers do not agree with the HSS level that their child was placed in. He explained:

> Certain kids that were truly a level three thought they were, or should be a level four and they clearly were not yet. It bothers them to the point that they feel like leaving the sport, it gets the parents involved where the parents get in an uproar, call meetings to evaluate kids that are level fours, dig up results to say my kid has beat this kid, and its turns into a big war which is ah, primarily the reason why we don't use it [the HSS levels]... And information like that, when people are dealing with their kids are volatile issues, are emotional and ah if they feel their athlete or kid is being held back, ah they will … either leave the sport or they will do everything they can possibly do to change that.

Some coaches explained the reason for the difference in assessment was the way in which children learn and progress through the skills. A coach from Club 4 explained that:

> I have a hard time putting kids into levels because you know, its tough to be like ok now you have to work on your stance, now you have to work on your movement, now you have to work on your pole plant, now you should be here you know because … not everything leads up to that, so its hard to say 'ok the kids not moving, but they're in the right position, and they have a pole plant so I mean we have to just only keep working on movement' … forget any of the advanced stuff ... sorry you're stuck here we're gonna stick with this until you do it, kids don't work that way, you know, I mean you could get a kid moving and then things like kids work all differently you know they all learn differently, they all ski differently so it's hard.

A mother from Club 4 described how when the racers receive their report cards they are more likely to straddle more than one level and that it is less obvious as to what level they

are in. She said, "since the new Snow Stars program comes in its not as obvious that this is where they [the racers] are in that, they're never usually one level like they might kind of in between levels you know." These examples show inconsistencies in the manner in which coaches applied evaluation criteria.

Transition to the K1 Level

Seven of the nine families in the Provincial stream had older children who had participated in the K1 Provincial stream or higher. Hence, the transition from the Entry level to the K1 level was quite successful for those racers. These families described many benefits that their children were going to experience by moving into the K1 level. The most prominent benefit was that the racers were granted more independence. This was described by a father from Club 3:

> His pack is better packed, his skis are better organized he ah barely forgets anything anymore for a ski outing, and ah that mostly happened in the last half of the season where he has become ... aware that he's gonna go into K1 next year and he will have to go out a lot more by himself with other people.

Another benefit that was described about the transition was that the racers were excited about the new equipment they would be getting for the next year. A mother from Club 1 described her son's excitement about the upcoming year "he's all excited that next year he'll have like slalom skis and he'll have GS skis and um so he, he'll have new ski boots." One racer from Club 3 described her perception of the transition from her earlier years in the race program until now:

> When we were smaller we did like funner stuff. Like it gets more intense as you get older and you want to wonder if you want to do the next year but really you

> figure out that it's worth it in the end and cause you get a lot of friends and stuff but at the beginning you usually just do like fun things like you race from here to here and whoever doesn't get a treat or something and but now we just sometimes we'll train with the smaller people and we'll have races.

The parents of the racers in the Provincial stream raised a few concerns about their children moving into the K1 level. Some parents were concerned that their child was going to have to decide between sports for the following season. This was only raised in regards to hockey, as it is played at the same time of the year. A father from Club 1 described:

> You know he might say you know next year I want, I want to play hockey and um in which case you know he won't be [ski racing]. On the other hand ah and he had some successes this year and, and you know he's had a lot of fun and so I would say the chances are, are probably pretty good that he'll stick with [ski racing].

One mother from Club 4 was concerned about her daughter missing school as she is not the strongest student, "I worry a little bit about her school with her, she's not quite as academically inclined as **** [her brother] is and so I don't want her to fall behind." However, this mother agreed that missing a few days of school for sport was understandable, although the teachers were sometimes difficult to deal with. She said:

> Loss of school time, … it doesn't seem to coordinate with school at all and we've had teachers that haven't been supportive … like we're not the good parent, 'how can you take your daughter out of school?' and … 'she needs to be here' and we're saying 'well she also needs to be somewhere else' and I always use the

> expression 'don't let your education get in the way of your schooling' and teachers like that one.

Outside of these concerns, the parents were supportive of their children participating in the K1 level for the following year.

The transition from Entry level to K1 was not as effective when the racers started in the Regional stream in the Entry level. The families in Club 2, who were in a Regional stream program, did not have anything positive to say about the transition into the next level. These families saw a large increase in time commitment and an increase in competition. This worried them as their children were near the back of the pack and they did not want to discourage them. One racer from Club 2 described that she did not want to go to K1 the following year because "next year it's either on Wednesdays or I ain't going. … weekends is too much for me, weekends is my time to go poof, yeah, flop down, relax." In terms of time commitment, one mother from Club 2 said that "unless they maybe come up with a junior development team, I'm not sure if she'll continue … cause I think once you jump to that next level I mean its still fun but it's a lot more serious."

The increase in competition was also a concern for these families. One father from Club 2 explained that:

> Where **** [my son] has ended up in the races has perhaps discouraged him some what, to enter something that it seems to be you know … very specific and intensive … I get the impression that he thinks his chances of success aren't as great.

Another mother, from Club 2 agreed that the increase in time and competition would be too much for her daughter and wanted to focus on skiing for enjoyment:

> She doesn't have the ambition or aggressiveness, nor I think the skills, to be a racer at that level, which I suspect is far more competitive, and I think we should concentrate on just improving her skills for general enjoyment.

These families did not intend to be participating in the K1 level because there was no part time program for their children to enter. These Entry level participants will continue skiing for fun outside of formal training and retire from participating in ski racing at the age of ten.

CHAPTER 5:

DISCUSSION

The purpose of this study was to evaluate the learning to train phase of the LTAD model for the sport of alpine ski racing in Alberta. This was accomplished through a multiple case study approach that included the perceptions of participants from four clubs across the province of Alberta.

Results were broken down via three main categories: perceptions of the program and resources, the assessment of the racers, and transitioning into the next phase of the HSS program. Main findings from each of these categories are discussed below. Prior to presenting this discussion it is important to reiterate that I was unable to find any published studies directly examining LTAD programs. The uniqueness of the current study and its findings therefore create some difficulties in comparing findings to previous research. Therefore, I have compared findings to broadly related sport psychology talent development research where appropriate, and also more specifically compared findings to LTAD publications in the non-academic literature.

The LTAD was intended to positively influence parents, coach education, club and community sport, the sport system, sport science, and the education system (Canadian Sport Centres, 2005). The HSS program was structured around the LTAD in such a way that it was aligned with the FUNdamental and learning to train stages (ACA, 2005). Within those two stages, the HSS was comprised of seven levels with benchmark tasks the racers were to accomplish in order to move to the next level, and was designed to take the racers from six years old through to 12 years old. Findings showed that the HSS program provided a framework for structuring sport systems. That is, in a general

sense, it appeared as though all the clubs used the HSS program to some extent. This is likely important because previous research has highlighted the importance of providing an appropriate 'sport system' or talent development environment (e.g., Fraser-Thomas, Côté & Deakin, 2005; Gould et al., 2002; Holt & Dunn, 2004; Martindale et al., 2005).

The finding that the HSS provided some level of integrated program was somewhat in contrast to Holt's (2002) comparison of talent development programs for soccer in Canada and the UK. He argued that the Canadian soccer system was piecemeal with a variety of bodies (such as professional teams and amateur provincial and national soccer organizations) competing in a manner which may have actually impeded talent development. He concluded that soccer coaches paid "lip service to the importance of a developmental perspective toward talent development" (p. 286). In contrast, the findings of the current study suggested that ski racing program directors and coaches did attempt to use the HSS program. To some extent at least, ski racing appears to have a more coherent talent development system than soccer.

However, whereas coaches thought that the HSS enabled them to speak the same language they did not completely buy into the program. It is plausible that some coaches did not fully embrace the HSS program because they had not been extensively consulted where the program was developed. Deci and Ryan's (1985) cognitive evaluation theory (a mini-theory of self-determination theory) proposes that perceptions of choice and control can increase people's tendency to act in intrinsically motivated ways. Therefore including coaches and giving them a sense of control and choice over program implementation may have a positive influence on coach buy-in to the program.

Overall the HSS program was perceived to be a positive program for the participants within the study. In particular, the notion of a country-wide program that facilitated coaches 'speaking the same language' was positively received. Although not a specific study of an LTAD program, Martindale et al. (2007) found a lack of coherence between different levels of the UK sport system in terms of philosophies and methods at the club, school, academy and national program levels. In contrast, the current study suggests that a strength of the HSS program was that it provided a means of integrating and coordinating a talent development system. Such systems are important for talent development (Gould et al., 2002).

However, the second category identified inconsistencies both within and between clubs at the same level of ski racing. The differences between clubs were attributed to the fact that each club had their own way of assessing the racers and applying the HSS criteria. The inconsistency within the clubs was evident in the clubs from one year to the next, as different coaches applied the criteria differently. The in-club inconsistency caused conflict with the parents when they did not agree with the assessment from the coach. There were parents, however, who appreciated a coach who came in and explained why he moved the racers back a level at the beginning of the year and re-assessed at the end of the year. The inconsistency was partly attributed to the fact that racers tend to straddle more than one level which made it hard for coaches to say what level the racer should be in.

The assessment of athlete ability has been a problematic area in talent identification and development research (Regnier, Salmela, & Russell, 1993). Further exploration into the educational literature can help with the area of assessment. It has

been observed that assessment data is of little use if teachers do not use it to guide children's learning (Dodge, Heroman, Charles, & Maiorca, 2004). Boston (2002) proposes the use of formative assessment in order for teachers to evaluate students and help them to make progress. Formative assessment is the application of what the teacher learns about his/her students through assessment in order to adapt teaching and learning strategies to help meet the students' needs. This formative assessment, if used throughout the training sessions, could be helpful to coaches in order to maintain learning throughout the season on the part of the racers.

The current findings are a useful addition to the literature because they identified the types of inconsistencies that occurred. However, further research is required to establish how such inconsistent evaluation practices actually affect the development of talented ski racers. Using a consistent approach to assessing the ability of 10 year old children is further complicated by developmental factors. For example, children are experiencing slow and consistent physical growth but increasing muscular strength and mass while body proportions are changing. Coordination becomes smoother, but of course children progress at their own individual pace (Santrock et al., 2005). In sport settings, development (and assessment) can also be influence by the relative age of children in a particular year of eligibility and maturation rates (e.g., Helsen, Starkes, & Hodges, 1998; Holt, 2002; Brewer, Balsom, & Davis, 1995). Such issues highlight the difficulties in assessing children's skiing abilities within and across programs and over time.

In terms of the resources provided by ACA, the book and report cards were received with varying responses. The book is intended to promote and improve

communication between parent and coach (ACA, 2005). The parents admitted to receiving the books but not taking the time to read through and understand the program. Coaches did not always have time to sit down with the parents to explain everything. As such, the books appeared to provide a source of information for parents, but apparently did little to actually promote communication. One implication from this study is that coaches need ways to communicate with parents in addition to simply providing them with the book. Given the time demands coaches reported though, this may be difficult to organize. The coaches found that the books were not useful out 'on the hill' and so did not use the books very often while they were actually coaching. A possible implication is that the books and other resources may be used more widely if they were more manageable and 'user-friendly' for coaches.

The report cards were generally perceived to be positive and useful tools for communicating with the parents and racers. But, the report cards may be too specific and may have caused comparison between the racers and conflict between coach and parents. This may be solved by providing enough room on the report cards for comments from the coach to describe the racers progression through the year. The parents liked having tasks that their child had to accomplish at each level and liked receiving updates as to how their child was progressing through the season. The racers liked receiving the report cards because they it let them know how they did for the year and what the coach had to say about it.

These findings do not give completely clear practical implications. It appears that there are some positive aspects to the report cards but also some concerns. From a developmental perspective, the use of check marks to evaluate 10 year old ski racers may

provide a 'concrete' means of communicating feedback (cf. Santrock et al., 2005) because 10 year old children are able to understand competition and compare themselves with others (Eppright, et al. 1997; Tofler & Butterbaugh, 2005). Some adult participants in the current study reported concerns that the use of report cards may foster comparisons between the children. However, this was not a concern reported by children themselves. Further research is required to understand if the report cards influence children's self-perceptions and tendency to compare themselves with others.

Further research may be guided by educational psychological studies of the effects of report cards on children's motivation. Children by the age of nine-years old are able to use feedback about their successes and failures to adjust their future expectations (Eccles, Midgeley, & Adler, 1984). Eccles at al. explained that children who perceived a relation between their efforts and an increase in grades maintained a high motivation towards continued learning. Eccles et al. explained that children who perceived a relation between their efforts and an increase in grades maintained a high motivation towards continued learning. Therefore, if children are trying hard and receiving report cards that reflect progress they may be motivated to sustain their effort in an activity. This finding supports the coach perceptions of the effect of the report cards on children's motivation presented in the current study.

The third major category was that of transitioning to the next level of performance within the ski racing system. The families who participated in the Provincial stream programs saw many benefits to moving to the next level and their children had already invested a lot of time training in the sport over the past two years. The parents main concerns were around having to choose between competing in hockey or skiing (being

two winter sports) and missing school due to teacher inflexibility. Similar concerns about the multiple competing demands talented young athletes face and the need to sacrifice certain activities to pursue high level sport have previously been reported in the talent development literature (e.g., Côté, 1999; Holt & Dunn, 2004).

The transition into the next level of ski racing, the K1 level, was a positive and viable option for those athletes who had already made the commitment to ski racing in the current season. Those racers who were in the Regional stream program enjoyed participating in ski racing for skill development but were not interested in increasing their commitment to the sport or increasing their level of competition. With the Regional stream, the athletes had not developed the same quality of skills as the Provincial stream athletes and had not experienced the same amount of success and enjoyment of competing as they tended to finish near the back of the pack at races. This lack of motivation, as explained by Bloom (1985) and Côté (1999), is a major factor in an athletes' choice to continue in a sport. The athletes and families from the Regional program were not upset with this as that was the program they had signed up for and were quite content to participate in skiing as an activity for life with the family.

The families who participated in the Regional stream program saw no options for their children to carry on and participate at the Regional level past the age of ten. These families were going to continue skiing for fun as a family outside of the racing environment. LTAD is intended to have an effect on community sport and recreation by promoting an active and healthy lifestyle for the participants (Canadian Sport Centres, 2005). This highlights an important area for future research; it is not clear whether being involved in a type of LTAD program actually promotes lifetime involvement in physical

activity or recreational sport. Studies have shown that early sport specialization can cause hockey players to prematurely dropout of sport (Wall & Côté, 2004). But specific studies of the effects of LTAD on sport participation and physical activity engagement in later life do not yet appear to have been published. Given that a recent survey (CFLRI, 2005) showed that approximately 90% of Canadian children and youth do not meet the guidelines in Canada's Guide for Physical Activity (i.e., to accumulate 90 minutes of moderate-to-vigorous physical activity per day or take approximately 16,500 steps), there is clearly a need to evaluate the long-term outcomes of LTAD programs in terms of performance and participation.

Limitations of the Study

Several limitations of this study should be noted. First, it was an exploratory qualitative case study. The findings from these types of studies usually provide detailed information about a small number of cases but have limited generalizability. Rather, qualitative studies typically can be regarded as having some level of naturalistic generalizability (Shadish, 1995), meaning that the findings may generalize to similar types of ski-clubs to those studies, but not beyond.

By examining the talent development environment, individual differences and psychological characteristics varying across coaches, parents, and athletes were not assessed. Furthermore, the case study methodology did not permit the analysis of demographic factors such as ethnicity and socio-economic status which may influence participants' access to ski racing programs. These issues require further attention through future research.

Other limitations include the reliance on interviews in the absence of other forms of evidence (e.g., observational work, documentary analysis). The reliability of the analysis may have been improved through the use of a member-checking protocol. Whereas it may be tempting to return the results to participants for verification, this is not in fact a verification strategy (Morse, et al, 2002). In fact Morse et al. suggested this can be a threat to validity because sometimes there are no good reasons for individuals to recognize themselves in group results. That said, member-checking can be an important technique for case study designs like the one used in this study.

Results predominantly focused on data provided by coaches, program directors, and parents. Children's data were used to a much lesser extent. There may be several reasons for this. One could be the difficulties of conducting interviews with children (see Hennessy, 1999), and it may be that the researcher required more training to more thoroughly elicit children's opinions. Another issue was that two athletes were interviewed with one or both of their parents present. These athletes were much 'quieter' than other athletes interviewed alone, and they rarely elaborated on their answers, even when prompted. Finally, it may have been that the children found it difficult to comment on abstract issues relating to program implementation because they were beyond the immediate grasp of their experiences. While these limitations are important to acknowledge, the data obtained, particularly the data from coaches, program directors, and parents, ensured that the purpose of this study could be fulfilled.

Strengths of the Study

The primary strength of this study was the uniqueness. Given that studies examining LTAD programs do not appear to have been published to date, the findings of

the current investigation could make a useful contribution to the literature. From this perspective, the exploratory case study approach was appropriate and the findings may 'open up' some new lines of inquiry for future research. Another strength was the rigorous methodological approach. The sample included program directors, coaches, parents, and athletes, which facilitated the triangulation of data sources (Patton, 2002). The sample of 38 participants was relatively large for a qualitative study and compares very favorably to similar types of published talent development studies (Côté, 1999; Durand-Bush & Salmela 2002; Gould et al., 2002; Holt, 2002; Holt & Dunn 2004; Wolfenden and Holt, 2005). Additionally, because participants were actively involved in the sport at a specific level of development, this helped overcome an over-reliance on retrospective recall (in some cases over a performer's entire life) that have been associated with other studies (e.g., Bloom, 1985; Gould et al., 2002).

In summary, the findings of this study showed that there were some positive features of the HSS program. It provided an integrated approach that enabled the coaches to speak the same language and an implementation/planning tool for the coaches. There were some inconsistencies concerning how aspects of the program were implemented, both within and between clubs. These findings provide some suggestions for program improvement. Assessment appeared to be a particularly difficult issue for coaches, and there were also some practical suggestions for improving the HSS program resources. Finally, there were some positive aspects of ski-racers transitioning through the system. The combination of a unique purpose/research question with a rigorous methodology suggests that this study could add to talent development knowledge in sport psychology.

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APPENDICES

APPENDIX 1: Coaches Information Letter

Title of Study: An Evaluation of the Learning to Train Phase of the Long Term Athlete Development Plan for Alpine Ski Racing in Alberta

Principal Investigator: Danielle E. Black Masters Student Child & Adolescent Sport & Activity Lab Faculty of Physical Education and Recreation, University of Alberta Tel: (780) 492-9296 Email: danielle.black@ualberta.ca	Supervisor: Dr. Nicholas L. Holt Assistant Professor Child & Adolescent Sport & Activity Lab Faculty of Physical Education and Recreation University of Alberta Tel: (780) 492-7386 E-mail: nick.holt@ualberta.ca

Dear Coach,

My name is Danielle Black and I am a graduate student at the University of Alberta. I would like to ask you to help me with a research study for my Masters thesis. The purpose of my study is to examine participants' experiences within the Husky Snow Stars Program.

Description of Study:
I would like to interview you. The interview will take place at a quiet and convenient location for you. The interview will cover topics about what you try to teach, your focus with the athletes and your perceptions of the Husky Snow Stars program. The interview will last about 30 minutes. It will be audio-recorded and typed up. Your name will be removed from the file once the interview has been typed up. Once I have gone through the data I will give you the opportunity to check that I got it right. This second interview will only take about 10 minutes. So, **your total time commitment will be about 40 minutes.**

Benefits:
The information from this study will help in understanding the talent development system in Alberta for alpine ski racing. This information may be useful for improving the talent development system.

Risks:
There are no expected risks associated with this study. However, there is the possibility that you will be uncomfortable talking about personal information. To reduce this risk, you can choose to not answer any of the interview questions. I will remove any information that you do not wish to be included.

Anonymity and Confidentiality:
To protect your identity you will be given a false name. I will not record any personal information in the written records. It is very important that all written records and audio tapes are kept safe. All information will be stored in a locked file cabinet in a locked office at the University of Alberta. Only members of the research team will have access to this information. The information is kept for five years post publication, after which it will be destroyed.

Freedom to withdraw:
I would like you to help me with this study, but it is completely voluntary. This means that you do not have to participate in the study. There will be no negative consequences if you do not want to participate. You have freedom to withdraw at anytime during the study. Your information will be removed from the study if you decide that you do not want to participate. If you wish to withdraw contact Danielle Black or Nick Holt via telephone or email.

Questions or concerns:
If you have concerns about this study, you may contact Dr. Brian Maraj. Dr. Maraj is the Chair of the Research Ethics Board for the Faculty of Physical Education and Recreation at the University of Alberta (Tel: 492-5910; email brian.maraj@ualberta.ca). Dr. Maraj has no direct involvement in the study.
If you would like to participate in this study, please complete and sign the attached informed consent form.

Regards,

Danielle Black

APPENDIX 2: Coaches Informed Consent

Title of Study: An Evaluation of the Learning to Train Phase of the Long Term Athlete Development Plan for Alpine Ski Racing in Alberta

Part 1: Researcher Information

Principal Investigator: Danielle E. Black
Affiliation: Faculty of Physical Education and Recreation, University of Alberta
Contact: Tel: (780) 492-9296; Email: Danielle.black@ualberta.ca
Supervisor: Dr. Nicholas Holt
Affiliation: Faculty of Physical Education and Recreation, University of Alberta
Contact: Tel: (780) 492-7386, Email: nick.holt@ualberta.ca

Part 2: Consent of Coach

Do you understand that you have been asked to be in a research study? Yes No

Have you read and received a copy of the attached Information Sheet? Yes No

Do you understand the benefits and risks involved in taking part in this research study? Yes No

Do you understand that you are free to ask questions and discuss this study with the researcher? Yes No

Do you understand that you are free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request? Yes No

Do you understand that the data collected in this study will remain confidential and only the researchers will have access to the data? Yes No

If you have any questions or concerns regarding this study, you can contact the principal investigator Danielle Black (780) 492-9296. However, should you have any other concerns or questions about the study, you can contact Dr. Brian Maraj, who is the chair of the Research Ethics Committee for the Faculty of Physical Education and Recreation at the University of Alberta (780) 492-5910; email: brian.maraj@ualberta.ca. Dr. Maraj has no direct involvement in the study.

I agree to take part in this study:

Signature of Research Participant	Date	Witness
Printed Name		Printed Name

To be completed by the researcher:

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator	Date

APPENDIX 3: Parents Information Letter

Title of Study: An Evaluation of the Learning to Train Phase of the Long Term Athlete Development Plan for Alpine Ski Racing in Alberta

Principal Investigator: Danielle E. Black Masters Student Child & Adolescent Sport & Activity Lab Faculty of Physical Education and Recreation University of Alberta Tel: (780) 492-9296 Email: danielle.black@ualberta.ca	Supervisor: Dr. Nicholas L. Holt Assistant Professor Child & Adolescent Sport & Activity Lab Faculty of Physical Education and Recreation University of Alberta Tel: (780) 492-7386 E-mail: nick.holt@ualberta.ca

Dear Athletes and Parents,

My name is Danielle Black and I am a graduate student at the University of Alberta. I would like to ask you to help me with a research study for my Masters thesis. The purpose of my study is to examine participants' experiences within the Husky Snow Stars Program.

Description of Study:
I would like to interview you and your child. The interview with your child will take place at the club prior to a training session. I will ask your child about his/her experiences within the program. I would also like to interview you. The parent interview will take place while your child is training (or at another time that is convenient for you). I will ask you about your role as a parent and your perceptions of the Husky Snow Stars program. If both parents are available I will interview you both at the same time. Both interviews will be audio-recorded and typed up. You and your child's name will be removed from the file when the interview is typed up. Once I have gone through the data I will give you both the opportunity to check that I got it right. This second interview will only take about 10 minutes. **So, the total time commitment will be about 40 minutes for you and 40 minutes for your child.**

Benefits:
The information from this study will help in understanding the talent development system in Alberta for alpine ski racing. This information may be useful for improving the talent development system.

Risks:
There are no expected risks associated with this study. However, there is the possibility that you or your child will be uncomfortable talking about personal information. To reduce this risk, you and your child can choose to not answer any of the interview questions. I will remove any information that you or your child do not wish to be included.

Anonymity and Confidentiality:
To protect you and your child's identity, you both will be given a false name. I will not record any personal information in the written records. It is very important that all written records and audio tapes are kept safe. All information will be stored in a locked file cabinet in a locked office at the University of Alberta. Only members of the research team will have access to this information. The information is kept for five years post publication, after which it will be destroyed.

Freedom to withdraw:
I would like you to help me with this study, but it is completely voluntary. This means that you do not have to participate in the study. There will be no negative consequences if you do not want to participate. You have freedom to withdraw at anytime during the study. Your information will be removed from the study if you decide that you do not want to participate. If you wish to withdraw contact Danielle Black or Nick Holt via telephone or email.

Questions or concerns:
If you have concerns about this study, you may contact Dr. Brian Maraj. Dr. Maraj is the Chair of the Research Ethics Board for the Faculty of Physical Education and Recreation at the University of Alberta (Tel: 492-5910; email brian.maraj@ualberta.ca). Dr. Maraj has no direct involvement in the study.
If you and your child would like your child to participate in this study, please complete and sign the attached informed consent form and return it to your child's coach.

Regards,

Danielle Black

APPENDIX 4: Parent/Child Informed Consent

Title of Study: An Evaluation of the Learning to Train Phase of the Long Term Athlete Development Plan for Alpine Ski Racing in Alberta

Part 1: Researcher Information

Principal Investigator: Danielle E. Black
Affiliation: Faculty of Physical Education and Recreation, University of Alberta
Contact: Tel: (780) 492-9296; Email: Danielle.black@ualberta.ca
Supervisor: Dr. Nicholas Holt
Affiliation: Faculty of Physical Education and Recreation, University of Alberta
Contact: Tel: (780) 492-7386, Email: nick.holt@ualberta.ca

Part 2: Consent of Parent/Guardian

Do you understand that you and your child have been asked to be in a research study? Yes No

Have you and your child read and received a copy of the attached Information Sheet? Yes No

Do you and your child understand the benefits and risks involved in taking part in this research study? Yes No

Do you understand that you and your child are free to ask questions and discuss this study with the researcher? Yes No

Do you understand that you and your child is free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request? Yes No

Do you understand that the data collected in this study will remain confidential and only the researchers will have access to the data? Yes No

If you have any questions or concerns regarding this study, you can contact the principal investigator Danielle Black (780) 492-9296. However, should you have any other concerns or questions about the study, you can contact Dr. Brian Maraj, who is the chair of the Research Ethics Committee for the Faculty of Physical Education and Recreation at the University of Alberta (780) 492-5910; email: brian.maraj@ualberta.ca. Dr. Maraj has no direct involvement in the study.

I agree to participate and also allow my child to take part in this study:

Signature of Parent/ Guardian	Date	Signature of Child Participant	Date
Printed Name		Printed Name	

To be completed by the researcher:

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator	Date

APPENDIX 5: Demographic Information Form

Parents Demographic Information

Please fill in the information below, it will assist with the present study to generally describe the population.

****All information provided will be treated in the strictest confidence****

Age:

Approximate Family Income (please indicate by highlighting or underlining):

Below $29 999	$30-49 999	$50-69 999	$70-99 999	Above $100 000

Estimated Annual Cost of Children's Sport Participation:

Ethnicity:

Level of Education Completed:

Coaches Demographic Information

Please fill in the information below, it will assist with the present study to generally describe the population.

****All information provided will be treated in the strictest confidence****

Gender:

Age:

Ethnicity:

Highest Coaching Qualification:

Number of Years Coaches Experience:

APPENDIX 6: Coach Interview Guide

Part I: Explanation of Study (5 mins)

I am doing my Masters degree at the University of Alberta. To get my degree, I need to complete a research study. Because I am very interested in ski-racing and ski coaching, I am studying the ski program that you coach in. I want to know what you think about ski racing and am interested in your experiences. It is really important that you know that there are NO RIGHT OR WRONG ANSWERS. I am interested in what you think about the program. The idea is that the information you tell me might be useful for helping to improve ski coaching in the future.

What you say during this interview will be confidential and anonymous. Your name will not be associated with the comments you make, and any personally identifying information will be removed (I will send you the typed up interview and you can add or remove anything you like).

**** GIVE COACH DEMOGRAPHICS FORM TO COMPLETE**

Part II: Background Stuff (5-10 mins)

First, I'd just like to ask you some background questions:

- Do you remember how you first got involved in skiing (and then ski-racing) yourself?
- Could you give me a quick 'overview' of your own career in skiing (before you started coaching)?
- What are some of the 'highlights' of your skiing involvement (prior to coaching)?
- What are some of the 'lowlights' of your skiing involvement (prior to coaching)?

Part II: Approach to Coaching (10 mins)

- How and why did you become a ski coach?
- Could you give me an overview of your career to date as a ski coach?
- What do you like about coaching?
- How would you describe your coaching style?
- What do you think the role of the coach is at this level?
- What are the main principles you emphasize in your coaching?
- What are the main things that you think your racers have learned from you?
- How would you describe your relationship with your racers?
- What do you think the benefits are of children being involved in ski racing?

PART III: HUSKY SNOW STARS QUESTIONS (15-20 Minutes)

I'd like to ask you about your experiences coaching within the Husky Snow Stars Program:

- Can you tell me about your experiences of coaching using the Husky Snow Stars?
- Can you tell me what you think the goals are of the HUSKY SNOW STARS?

- Can you tell me what you think the strengths are of the Husky Snow Stars Program? Weaknesses?
- What kind of challenges do you face while implementing the Husky Snow Stars Program?
- What are some of the benefits that the racers will experience from being involved in the Husky Snow Stars program?
- What are you clubs goals for the racers in the HUSKY SNOW STARS program?
- Can you tell me what your club's philosophy is towards ski racing?
- What are your objectives when coaching your racers?
    - What are you focusing on in training sessions?
- How would you say that skills are developed and enhanced?
- Do you try to coach to the specifics of the levels, (the benchmarks) that are given for each level or to the overall goals of the levels?
- Why are there 7 levels within the Husky Snow stars program?
- Did you attend Snow Stars training through Alberta Alpine?
    - What did you think about it?
    - What did you learn about?
    - If not, why not?
- What are your impressions of the HUSKY SNOW STARS report cards for the racers?
    - Provide enough information?
    - Is it comprehensible? For you, the parents and the racers?
    - Do you have suggestions for the report card?
- DO you have any suggestions for improving the Husky Snow Stars program?
    - What would make it better? Worse?

PART IV: Relationship with Parents (10 mins)

I would like you to describe your racer's parents. (have a list of the racers so that the coach knows which ones that I am talking about)

- How would you describe the involvement of the parents in the participation of this child? (specific children)
- How would you describe the support parents (of these children) provide? (for each racer)
- Do the parents ever hinder their child's ski racing?
- How would you describe your relationship with each of your racers' parents (in the study)? (for each racer)
- Have you ever had any differences of opinion with the parents or racers? If so, how did you deal with this?
- How would you say that your relationship with the parents affect how you coach their child?

CONCLUSION QUESTION

Is there anything I have not asked you about the Snow Stars Program, or your work as a coach, that you think I should know? (Given that I am trying to evaluate kids' experiences within this program?)

APPENDIX 7: Parent Interview Guide

Part I: Explanation of Study (5 mins)

I am doing my Masters degree at the University of Alberta. To get my degree, I need to complete a research study. Because I am very interested in ski-racing and ski coaching, I am studying the ski program that your child is in. I want to know what you think about ski racing and am interested in your experiences. It is really important that you know that there are NO RIGHT OR WRONG ANSWERS. I am interested in what you think about the program. The idea is that the information you tell me might be useful for helping to improve ski coaching in the future.

What you say during this interview will be confidential and anonymous. Your name will not be associated with the comments you make, and any personally identifying information will be removed (I will send you the typed up interview and you can add or remove anything you like).

**** GIVE PARENT DEMOGRAPHICS FORM TO COMPLETE**

Part II: Background Stuff (2 mins)

- Were you involved in skiing as a child?
- What are some of your memories about skiing?
- Did you ever compete in ski racing?

Part III: General Ski-Racing Activities (10 mins)

- Why did you put your child into ski racing?
- What do you think the benefits are of your child being involved in ski racing?
- What do you think are the costs or disadvantages of your child being involved in ski racing?
- What things has your child learned over the past year? (hope they have learned)

PART IV: Likes and Dislikes (10 mins)

- What do you think that your child likes the most about participating in ski-racing?
- What do you think your child likes the least about participating in ski-racing?
- From your own perspective, what do you like the most about your child being involved in ski racing?
- Again, from your own perspective, what do you like the least about your child being involved in ski racing?

PART IV: YOUR CHILD'S COACH (10 mins)

- Tell me about your child's coach. What would you say he or she is like?
- What types of things do you think your child has learned from your coach?
- How would you describe your relationship with your child's coach?

- Have you, or your child, ever had any differences of opinion with the coach? If so, how did you deal with this?
- How would you describe the general style/approach of your child's coach?

PART V: Parental Involvement in Ski Racing (10 mins)

- Overall, how would you describe your 'parenting style'?
- How would you describe your involvement in your child's ski racing?
- What types of things do you do that you think are particularly helpful for your child's ski racing?
- Do you ever think that you, or other parents, might do things that hinder your child's ski racing?
- What kinds of feedback, do you provide to your child?
- What type is the most effective for your child?
- Do you make any sacrifices yourself to facilitate your child's involvement in ski racing?

PART VII: HUSKY SNOW STARS QUESTIONS (5 mins)

[Instruction: Introduce this by saying you've got a series of quick questions here. Some answers will be 'no', that is ok.]

- How familiar are you with the Husky Snow Stars Program?
- What Snow Stars level is your child in?
- What kind of things do you think your child is learning from being involved in ski racing?
- Do you know what kind of things your child is working on in training sessions?
    - What are the thing that they need to work on in order to improve?
- Do you have suggestion for the Husky Snow Stars program, about how it might be able to improve?

PART VIII: YOUR CHILD (10 mins)

- Do you think that your child will go on and compete at the K1 level next year?
- Do you want your child to go on and compete at the K1 level next year?
- Relative to the other activities or hobbies your child is involved with, how much does she/he enjoy ski racing? Explain

SUMMARY: Miracle question

- If I could give you magical powers, and you could make ski racing 'perfect' for your child, what would you change?
    - What would make it better? Worse?
    - What is good and bad?

Thanks (name of Parent) your comments will really help me with my degree/study!!!

APPENDIX 8: Athlete Interview Guide

Part I: Explanation of Study (5 mins)

I am doing my Masters degree at the University of Alberta. To get my degree, I need to complete a research study. Because I am very interested in ski-racing and ski coaching, I am studying the ski program that you are in. I want to know what you think about ski racing and am interested in your experiences. It is really important that you know that there are NO RIGHT OR WRONG ANSWERS. I am interested in what you think about the program. The idea is that the information you tell me might be useful for helping to improve ski coaching in the future.

What you say during this interview will be kept in confidence. This means that when I type up this interview I will take your name off and no-one will ever know that it is you I spoke to.

Part II: Background Stuff (5-10 mins)

- Where do you go to school?
- Where do you live?
- Do you have any brother or sisters? Do they ski?
- Do your parents life to ski? Where do they like to do skiing?
- How did you get involved in skiing? Can you remember the first time?
- Then, How did you get involved in ski-racing?

Ask the demographic questionnaire

- Gender:
- Age:
- Sports Currently Involved in:
- Number of Years competing Sport:
- Level of Competition:

Part II: General Ski-Racing Activities (10 mins)

I'd like you to explain some of the things that you do in your ski-racing and training.

- What types of activities do you do for warm-up?
- What types of drills do you do?
- What types of dryland activities do you do?
- Tell me about your race days? What types of things do you do on your race days?

PART III: Likes and Dislikes (5 mins)

- What do you like the most about your ski-racing?
- What do you like the least about ski-racing?

PART IV: YOUR COACH (5 mins)

- Tell me about your coach. What would you say he or she is like?
  - Probes: How old do you think s/he is? What types of things can s/he do on skis? – a couple of 'fun' questions to warm the child up a bit
- What types of things have you learned from your coach? (Again, get specific details)
- Does your coach make you do any things that you do not like? (probe specifics)
- You know how your coach gives you feedback? (e.g., 'you did this well, this needs more work). Can you give me an example of the type of feedback that your coach often gives to you?
- Still thinking about feedback, if you had to give your coach some feedback, what would you say (probe what child thinks coach is doing well, how the coach might improve)

PART V: Parents (5 mins)

- Do your parents come to training? Events?
- Do they give you any support? (get specifics)
- If I was going to talk to the parents of another kid and I wanted to tell them what the best things to do to support their child, what should I tell them?
- Sometimes parents might put their kids under pressure? Can you think of a time when your parents might have put you under too much pressure or made you upset when you were ski racing? (or after you had been ski racing?)
- Do you parents ever try to give you feedback? What types of things do they say?
- Still thinking about feedback, if you had to give your parents some feedback, what would you say?

PART VI: SOCIAL SUPPORT QUESTIONS

- What are the other kids like in your group? Are they friends?
- What do your friends in ski racing think about you participating in ski racing?
- What do your friends outside of ski racing think about your ski racing?
- Do your friends do anything that helps you?

PART VII: KNOWLEDGE QUESTIONS

Introduce this by saying you've got a series of quick questions here. Some answers will be 'no', that is ok.

- What Snow Stars level are you?
- Have you learned anything about the national team members?
- What type of activities do you do for warm up?
- Do you do course inspections? What do you think of them?

- Have you learned about relaxation? About picturing your bedroom, equipment or yourself skiing?
- Have you learned about hydration, talking to your self?
- What kind of drills do you do in training?
    - Synchro, courses, 360's, pole plant, inclination, bumps, jumps, tucking
- In training, do you free ski? Do you train in the gates? Which do you do more?
- What type of activities do you do in dryland?
- What do you like about the snow stars program? Dislike?

SUMMARY: Miracle question

- If I could give you magical powers, and you could make ski racing 'perfect' for you, what would you change?
    - What would make it better? Worse?
    - What is good and bad?
- At the start I asked you about some of the best and worst parts about ski racing. Just to summarize and make sure I understood properly, can you tell me again what the best parts of ski-racing are for you?
- And, tell me again what some of the worst parts of ski-racing are for you?

Thanks (name of child). You did a great job and your comments will really help me with my degree/study!!!

APPENDIX 9: Coding schema.

Coding themes after collapsing over Coaches, Parents and Athletes	Themes relating to the program delivery and implementation	Final themes after all clubs were analyzed
Athlete-Parent Interactions Parent-Coach Interactions Coach-Athlete Interactions Parental Interference Parental Support Cost's sacrifices of ski racing HSS – implementation HSS – positives HSS – negatives HSS – suggestions Life skills learned and taught Athlete Peer group – conflict, social, support Perceptions of coaching style Pressure to perform Role of the coach Technical skills learned and taught Transition to K1 Why ski race/coach	HSS – implementation HSS – positives HSS – negatives HSS – suggestions Transition to K1	Perceptions of the HSS program and the available resources • National Program • planning tool • educational tool • Buy-in was limited • Information book • Report cards Assessing the Racers • Between club inconsistency • In-club inconsistency Transition to K1