Sources of Knowledge Acquisition: Perspectives of the High School Teacher/Coach

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Abstract

The purpose of this study was to investigate sources of knowledge acquisition of high school team sport coaches. Six teacher/coaches were interviewed using a semi-structured open-ended interview format. Côté, Salmela, and Russell's (1995) guidelines were used to inductively analyze and interpret the data. Results revealed three higher-order categories: (a) *sources of knowledge acquisition,* which highlighted the different ways coaches acquired their knowledge, including their physical education teacher training, observations and interactions with other coaches, as well as clinics and books; (b) *personal and contextual factors,* which included the internal and external factors influencing coaches' motivation and commitment to coach, including the challenges faced when teaching and/or coaching; (c) *coaching tasks and duties* which highlighted coaches' interactions with athletes, as well as their approach to training and competition. Interestingly, many of the findings in the current study were similar to those highlighted in previous studies pertaining to elite coach development, regardless of their undergraduate physical education teacher education (PETE) program or the fact that this sample was coaching high school athletes. However, results provided evidence to support the relative importance of practical coaching experience and interactions with other coaches as central in the development of these coaches. From a practical perspective, these findings could potentially enhance the quality and standard of formal coach education and PETE programs by incorporating more practical elements into the training of coaches and teacher/coaches.

Resumé

La raison de cette étude est d'investiguer les sources d'acquisition de connaissance des entraîneurs d'équipe de sport des écoles secondaire. Une entrevue semi-structurée a été menée avec chacun des six enseignants/entraîneurs. Les étapes dictées par Côté, Salmela, et Russell (1995) ont été suivies pour l'analyse inductive et l'interprétation des données obtenues lors des entrevues. Les résultats ont révélé trois catégories supérieures : (a) *sources d'acquisition des connaissances* qui souligne les différentes façons dont les entraîneurs obtiennent leurs connaissances incluant leur propre formation en tant que éducateur physique, des observations et interactions avec d'autres entraîneurs ainsi que des diverses cliniques et documentations; (b) *facteurs personnels et contextuels*, qui incluent des facteurs internes et externes qui influencent la motivation et l'engagement des entraîneurs. Ces facteurs incluent tous les défis inhérents à l'enseignement et à l'entraînement. (c) *taches et responsabilités de l'entraîneur* qui incluent les interactions entre l'entraîneur et les athlètes ainsi que leur approches face à l'entraînement et la compétition. De façon intéressante, plusieurs résultats se révèlent similaires à ceux rapportés par d'autres recherches qui ont été faites sur le sujet du développement des entraîneurs élites malgré le fait que les entraîneurs dans cette étude aient suivis un programme d'éducation physique universitaire et que ces entraîneurs travaillent au niveau secondaire. Cependant, les résultats exposent l'importance de l'expérience pratique d'entraînement et des interactions avec d'autres entraîneurs. Ils sont à la base de leur développement. Avec un regard sur le coté pratique de la chose, ces résultats peuvent potentiellement influencer la qualité et les standards de l'éducation formel des entraîneurs et des programmes PETE en leur incorporant des éléments plus pratiques destinés à l'enseignement des enseignants/entraîneurs.

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CHAPTER 1

Introduction

Recent statistics have indicated that over half of Canadian youth aged five to seventeen are not active enough for optimal growth and development (Craig & Cameron, 2004). Researchers examining activity levels have suggested that well designed physical education programs can be effective in increasing physical activity rates among students (Metzinger, 2004; Sallis & Mackenzie, 1991). Accordingly, a major initiative by the provincial government of Québec has been to increase its support of physical education programs (www.mels.gouv.qc.ca). These initiatives have focused on providing compulsory physical education for students from kindergarten to grade 11, mandating certified physical education specialists for all grade levels, and most recently, increasing physical education time. More specifically, physical education has increased from 60 to 120 minutes a week for elementary school students, an amount greater than the nationally recommended standard and higher than any other province or territory (Canadian Association for Health, Physical Education, Recreation, and Dance [CAHPERD], 2006).

Perhaps the most important component for ensuring quality physical education is having certified and competent physical educators. Approximately 35 universities offer physical education teacher education (PETE) programs in Canada (www.ccupeka.ca). Currently, there are two models of PETE programs: *consecutive* and *concurrent* programs. Differences between the programs occur in terms of program sequencing, program length, admission requirements, and program curriculum (Downey & Bloom, 2004). More precisely, consecutive PETE programs are designed for students following completion of a bachelor's degree, where the students may or may not have majored in

physical education. Consecutive PETE programs provide additional training in pedagogical and practical strategies to prepare students to teach at the elementary or secondary level. In contrast, concurrent programs combine physical education courses with education theory throughout a 4 to 5 year period. Students complete a variety of theory and practical courses including anatomy, biomechanics, nutrition, sport psychology, curriculum theory, instructional strategies, and skill courses. The strength of this program lies in the integration of theory and practice specific to physical education through a combination of subject-specific courses, professional courses, skill activity courses, and field experiences.

Some students initially enter PETE programs because they have a stronger interest in coaching compared to teaching (Chu, 1984; Hardin, 2000; Sage, 1989). This is not surprising since many high school physical education teachers are expected to have expertise in both domains (Figone, 1994). Although similarities exist between teaching physical education and coaching (Drewe, 2000), the training provided to coaches and teachers is different. Some concurrent PETE programs include activity courses where students may receive coaching certification (e.g., www.umanitoba.ca/phys.ed/), while others may offer coaching as an area of concentration (e.g., www.physandrec.ualberta.ca). However, the majority of PETE programs in Canada do not provide the opportunity for in-depth study of coaching theory and principles. Thus, aside from acquiring knowledge through teaching-oriented courses, which may offer courses in their curriculum such as sport psychology, aspiring coaches have limited opportunity to acquire a holistic, well-rounded (i.e., technical, tactical, physical, and mental) base of coaching knowledge.

Coaches are expected to understand and use an increasingly specialized body of knowledge (Martens, 1997). The knowledge base in coaching can be divided into two large domains: sport-specific knowledge and general coaching knowledge (Abraham & Collins, 1998). Sport-specific knowledge includes techniques, tactics, mental skills, and physical attributes of a particular sport. General coaching knowledge refers to the knowledge required to create optimal learning environments. It is speculated that coaches who have gone through concurrent PETE programs will have completed coursework from a wide array of disciplines (e.g., skill activity courses, sport psychology, pedagogy), which may facilitate the development of both sport-specific and coach-specific knowledge.

Beyond identifying the extensive knowledge base required for coaching, it is important to establish an understanding of how these coaches develop their knowledge. An extensive review of literature on coaching science and coach education concluded that coaches primarily acquired knowledge and learned how to coach through coach education programs and through their own acquired experience (Gilbert & Trudel, 2004; Trudel & Gilbert, 2006). Numerous coach education programs have been implemented to raise overall coaching competence by increasing coaches' knowledge and confidence in their coaching abilities (Douge & Hastie, 1993). One example is the National Coaching Certification Program (NCCP) in Canada, designed for coaches of all levels in over 65 sports (www.coach.ca). The NCCP has recently undergone changes to better meet the needs of all coaches. The different coaching contexts are divided into three streams including community sport, competition, and instruction. The new structure provides training and certification to coaches based on the context that is relevant to the athletes

they are coaching. Although coach education programs seem to be valued by coaches (Gould, Giannini, Krane, & Hodge, 1990), they are only one of the many opportunities to learn how to coach.

Coaches have repeatedly cited their day-to-day coaching activities and their interactions with others in the sport context as major sources of knowledge (Trudel & Gilbert, 2006). More specifically, the acquisition of coaching knowledge through competitive sport experiences (Cregan, Bloom, & Reid, 2007; Hardin, 2000; Salmela, 1994; Schinke, Bloom, & Salmela, 1995), interactions with other coaches (Gilbert & Trudel, 2001; Gould et al., 1990) and mentoring (Bloom, Durand-Bush, Schinke, & Salmela, 1998) have been identified as sources coaches used to develop coaching knowledge and sport-specific knowledge. Although valuable to the study of coach development, it is important to note that all of the aforementioned studies were based on elite-level coaches, most commonly at the university or Olympic levels. There are relatively few empirical studies on the knowledge development of high school coaches, in particular, physical education teacher/coaches. This is unfortunate since it would be equally important to examine aspects of high school coaches' knowledge and how these coaches acquired their knowledge, given the impact a high school coach can have on young athletes' overall sport experience (Humphries, 1991).

In order to identify the knowledge and skills coaches need to develop, it is important to understand how this knowledge is used in the coaching process. Empirically based research on elite coaches' knowledge has been conceptualized using Côté, Salmela, Trudel, Baria, and Russell's (1995) Coaching Model (CM) (Appendix A). The CM is a theoretical framework that allows connections to be established between the accumulated

knowledge on how and why coaches perform as they do. The CM suggests that coaches construct a mental model of their athletes' and teams' potential. This mental model is influenced by the three peripheral components: the *coach's personal characteristics*, the *athlete's personal characteristics,* and the *contextual factors.* Coaches integrate these three components to determine which of the primary components of *organization, training,* and *competition* must be enhanced as the coach strives to develop the athlete and the team. Overall, the CM is an incorporation of the peripheral and primary components which allow the coach to achieve the ultimate goal of developing the athlete and the team. In the current study, the CM will be used as the main conceptual framework to provide an understanding of the structure of coaching knowledge and the development of knowledge related to the coaching process.

Since the early 1990s there has been a growing body of research that has utilized qualitative research techniques to investigate the cognitive dimensions of coaching (Gilbert & Trudel, 2004). For the current study, a qualitative approach, consisting of semi-structured, open-ended interviews was used. While the use of quantitative methods in the area of coach development has yielded some interesting findings, such as illustrating the importance of learning from experience (Gould et al., 1990), there are advantages to using a qualitative methodological approach. In particular, interviews have been identified as one of the most powerful tools to understand human beings (Fontana & Frey, 1994). More importantly, qualitative interviews gain insight into participants' knowledge and experience in a specific domain (Gubrium & Holstein, 2002) and can permit the researcher to initiate a topic for discussion while allowing the interviewee to answer freely with relatively few restrictions (Rubin & Rubin, 1995). The utilization of

this format in the current study allowed coaches to openly share information on the development of their coaching knowledge. This information shed light on a previously overlooked aspect of coach development by illustrating how high school coaches with a concurrent physical education degree developed their coaching knowledge.

Purpose of the Study

The purpose of this study was to investigate sources of knowledge acquisition of high school basketball coaches, the factors that shaped their knowledge, and how this knowledge was applied in the coaching process.

Significance of the Study

Although coaching science research provides a fairly detailed portrait of high school coach characteristics (e.g., Cody, 1988; Cox & Noble, 1989; DePauw & Gavron, 1991; Dodds, Placek, Doolittle, Pinkman, Ratliffe, & Portman, 1991), there is very little research on aspects of coaches' knowledge (e.g., organizing a season or preparing for competition). Further to this, information on how these coaches acquired their coaching knowledge is almost non-existent. Therefore, this study addressed a gap in the literature by examining both the knowledge of these coaches and the ways they went about acquiring their knowledge. This study also provided a deeper understanding of the role of concurrent PETE programs in the acquisition of coaching knowledge. This, in turn, may lead to the development of more effective concurrent PETE programs to better meet the needs of physical education teacher/coaches. Ultimately, providing coaches with opportunities to acquire the appropriate knowledge needed to support optimal learning environments may lead to improvements in the overall quality of the high school sport

experience. This, in turn, may encourage high school athletes to remain physically active throughout their lifetimes.

Delimitations

For the purpose of this study, the following delimitations have been identified:

1. Participants were graduates of a concurrent physical education teacher education program between 1990 and 2001.
2. Participants were teaching full-time high school physical education in the Lester B Pearson School Board (LBPSB).
3. Participants were a current head coach of a midget or juvenile team sport at the high school level in the LBPSB.
4. Participants had a minimum of 5 years and a maximum of 15 years coaching experience.
5. Participants coached a minimum of 5 teams over their high school coaching career.
6. Participants had a minimum Level 1 and maximum Level 2 coaching certification from the Coaching Association of Canada (CAC).
7. The interviews focused solely on coaches' perceptions.

Limitations

These delimitations may lead to the following limitations:

1. As this study pertains to high school coaches with a minimum of 5 years coaching experience, results may not be generalized to coaches with less experience.

2. As this study pertains to coaches who have graduated from a concurrent physical education teacher education program, results may not be generalized to all teacher/coaches.
3. The qualitative nature of the study will limit generalizability.

Operational Definitions

For the purpose of this study, the following definitions were used:

Physical Education Teacher/Coaches are those who teach full-time physical education and are current head coaches in the EMSB or LBPSB.

Coaching certification refers to coaches who have acquired a minimum Level 1 or maximum Level 2 coaching education qualification from the Coaching Association of Canada (CAC).

Concurrent physical education teacher training refers to a program that certifies teachers to teach physical education at the elementary or secondary level through a combination of physical education courses, education theory courses, skill activity courses, and field experiences, over a 4 to 5 year period.

CHAPTER 2

Literature Review

This chapter will consist of three main sections. First, research on youth and high school sport, including coaches will be presented. Second, an overview of research pertaining to the development of knowledge for coaching, with particular emphasis on coach education and learning to coach through experience will be outlined. Finally, the Coaching Model (CM) will be described, including how it was created and applied in a variety of studies.

Youth and High School Sport

Participation in youth and high school sport has grown significantly since the 1980's (Clark, 2000; De Knopp, Engström, Skirstad, & Weiss, 1996). It has been estimated that approximately 69% of Canadian youth participate in organized sport during the school year (Sport Canada, 2003). In the United States, as many as 7 million students participated in high school athletics programs in the 2004-2005 school year (National Federation of State High School Associations [NFHS], 2005). Despite the large numbers of youth and high school sport participants, there has not been an abundance of research in this domain. As well, much of the research is limited to the United States (Gilbert & Trudel, 2004).

One explanation for the high participation rates is that youth perceive sport as an enjoyable activity (e.g., Ewing & Seefeldt, 1989; Gill, Gross, & Huddleston, 1983; Gould & Horn, 1984; Pugh, Wolff, DeFrancesco, Gilley, & Heitman, 2000; Scanlan & Lewthwaite, 1986). More precisely, a study of 10 to 18 year olds found that 'fun' was the primary reason children became involved in sport (Ewing & Seefeldt, 1989). Similar

results were found in studies examining high school students (Ewing & Seefeldt, 1990; Kirshnit, Ham, & Richards, 1989; Wankel & Kreisel, 1985). More specifically, a survey of 10,000 students' reasons for involvement in high school sport ranked having fun first, followed by skill improvement, challenge, and being physically fit (Ewing & Seefeldt, 1990).

Studies of youth and high school sport have also suggested that the development of self-esteem can be experienced through athletic interactions (Biddle, 1993; Frost & McKelvie, 2005; Snyder & Spreitzer, 1990; Weiss, Smith, & Theeboom, 1996). For example, Weiss et al. interviewed 38 boys and girls between the ages of eight and sixteen and found that a more positive self-esteem was one of the most frequently noted outcomes of youth sport participation. Similarly, Frost and McKelvie found that a higher level of exercise activity was associated with a higher level of self-esteem. Results revealed that this relationship occurred for male and female elementary and high school students.

While numerous positive outcomes have been associated with athletic participation, the degree of enjoyment experienced and the desire to continue involvement in sport has largely been influenced by the coach (Brustad, Babkes & Smith, 2001; Scanlan & Lewthwaite, 1988; Smith & Smoll, 1990). More precisely, research has shown that these coaches influence the sport experience through their goals, values, attitudes, and behaviors (Smoll & Smith, 1996; Weiss & Gould, 1986). Scanlan and Lewthwaite's examination of young male wrestlers revealed that athlete enjoyment was predicted by positive adult involvement and interactions. Coaches who expressed

satisfaction with athletes' performance and who interacted positively with the athlete enhanced the overall enjoyment of the sport experience.

The coach has also affected an athlete's decision to discontinue sport involvement. Many researchers have cited inadequate coaching as one of the reasons for dropping out of sport (e.g., Humphries, 1991; Orlick & Botterill, 1975; Petlichkoff, 1993; Siegenthaer & Gonzalez, 1997). For example, Humphries sought the opinions of high school sport participants and non-participants about their participation motives and found the principle reason for quitting sport was that it ceased to be fun for them. This generally resulted from not getting to play and/or a coach's overemphasis on winning. Similarly, in a review of literature, Linder, Johns, and Butcher (1991) reported that drop out rates in sports throughout the elementary and high school years were related to displeasure with the sporting atmosphere, particularly with the functions of the coach (e.g., not enough playing time, inadequate individual attention).

High School Coaches

There are an estimated 1.7 million amateur adult coaches in Canada (Sport Canada, 1998) and another 3.5 million in the United States, of which 800,000 coach at the high school level (NFHS, 2005). Given these figures, it is not surprising that there is a large body of literature examining the high school coach. However, most of this research has focused on high school coach characteristics (e.g., Cody, 1998; Cox & Noble, 1989; DePawn & Gavron, 1991; Dodds et al., 1991). Moreover, much of the research on coaches in this context is limited to high school coaches in the United States (Gilbert & Trudel, 2004).

In the United States and Canada, high school sport is often coached by physical education teachers who coach sport as an extra-curricular activity (Spencer, 1999). However, the current number of physical education teacher/coaches has been difficult to ascertain. Since the early 1980's, participation in high school athletics has increased significantly resulting in more non-teachers entering the coaching ranks (Ewing, Seefeldt, & Brown, 1996). Today, the majority of high school athletes in the United States are coached by non-teachers (Gerdy, 2000). The numbers in Canada are not known.

High school coaches may receive their training from any number of sources. Nearly all high school sport coaches have college degrees (Capel, Sisley, & Desertrain, 1987; Gillentine & Hunt, 2000); the most common field of specialization is physical education (Cox & Noble, 1989; DePauw & Gavron, 1991; Gaunt & Forbus, 1991; Hardin, 2000). In addition, most of the coaches in this context complete some formal coach education, either in the form of a clinic, college course, or coaching program (Cody, 1988; DePauw & Gavron, 1991; Capel et al., 1987).

Recent findings have identified coaches as one of the most influential socializing agents of adolescent athletes (Higginson, 1985; Smith & Smoll, 2002; Steelman, 1995). For example, Gould (1981) found that student athletes spend more time interacting with their coaches than their teachers. Coaches at the high school level have been identified as assuming at least thirteen different roles. These include, but are not limited to, teacher, instructor, trainer, leader, motivator, substitute parent, friend, social worker, administrator, mentor, manager, disciplinarian, and provider of social support (Gummerson, 1992; Sage, 1987; Smoll & Smith, 1996). To fulfill these various roles, coaches should possess both sport-specific and general coaching knowledge (Abraham &

Collins, 1998; Cushion, Armour, & Jones, 2003; Potrac, Brewer, Jones, Armour, & Hoff, 2000; Saury & Durand, 1998). Sport-specific knowledge includes techniques, tactics, mental skills, and physical attributes of a particular sport. General coaching knowledge refers to the knowledge required to set up optimal learning environments. Thus, coaches are expected to develop and use knowledge from a wide array of disciplines including anatomy, biomechanics, pedagogy, nutrition, and sport psychology (Martens, 1997).

Further highlighting the extensive knowledge base required for coaching, Cassidy, Jones, and Potrac (2004) developed a framework for categorizing coaching knowledge. Drawing on the work of Shulman (1986) and Metzler (2000), Cassidy and colleagues identified the following knowledge domains: *subject matter knowledge, pedagogical knowledge,* and *curriculum content knowledge. Subject matter knowledge* is defined as the knowledge a coach has, or has access to. This includes knowledge of the rules, skills, tactics, and strategies of a particular sport. *Pedagogical knowledge* refers to coaches' knowledge about effective teaching strategies. For example, a coach needs to know when, why, and how to adopt particular coaching methods to adapt to athletes' needs. *Curriculum content knowledge* includes the knowledge of available coaching resources, including how to implement and adapt them to their coaching practices. For example, a basketball coach needs to be able to access the most recent sport-specific coaching manuals to suit their athletes' need and coaching context. Each of these aforementioned categories have been further broken down into three components: *procedural* (knowledge coaches can express verbally or in written form), *declarative* (knowledge coaches apply before, during, and after a training session), and *conditional* (knowledge that informs coaches regarding when and why to make decisions depending

on the context). Cassidy et al.'s framework highlights the wide range of knowledge a coach should develop and use to become a quality coach.

To summarize, research has shown that children participate in sport programs "to have fun" as their primary objective. Coaches are important contributors to the sport experience and therefore are expected to possess or develop knowledge in various disciplines to provide a fun and positive environment (Martens, 1997; Smith & Smoll, 1997; Woodman, 1993). The next section will discuss how coaches develop their coaching knowledge.

Development of Coaching Knowledge

An extensive review of literature on coaching science and coach education concluded that coaches primarily acquired knowledge and learned how to coach through large scale coach education programs and through experience (Gilbert & Trudel, 2004; Trudel & Gilbert, 2006). Recently, in a study directly related to knowledge acquisition, Werthner & Trudel (2006) expanded this framework and suggested that coaches acquired knowledge through three types of learning situations: mediated (e.g. coaching clinics), unmediated (e.g. observing other coaches) and internal (e.g. reflecting on their experience) learning situations. First, a description of the National Standards for Athletic Coaches will be presented to identify the skills and knowledge coaches should possess. Following this, a review of the literature pertaining to the different learning opportunities through which coaches learn to coach will be presented.

National Standards for Athletic Coaches

A debate concerning the certification and preparation of coaches has been ongoing for decades (Clark, 2000; Conn & Razor, 1989; Woodman, 1993). As the

popularity of athletics continues to grow at all levels, the question of coach preparation and training has become a priority for many schools and communities (Clark, 2000). In 1992, a special task force was appointed by the National Association for Sport and Physical Education (NASPE) to consider ways to improve the quality of coaching. Experts from national governing bodies of sport, the United States Olympic Committee, National Federation of State High School Association, and NASPE conducted an extensive review of coaching science and sport literature. Based on this review, the National Standards for Athletic Coaches (NSAC) were developed; outlining what coaches should know and be able to do at all levels. These standards highlighted content knowledge, as well as the personal development of athletes. There were 40 standards grouped into 8 domains of knowledge and ability: philosophy and ethics, safety and injury prevention, physical conditioning, athlete growth and development, teaching and communication, sport skills and tactics, organization and administration, and evaluation (NASPE, 1995). As well, benchmarks provided examples and performance guidelines which could be used in developing and assessing coaching competence, and could be applied to any sport or coaching program.

In sum, the NSAC document reflects the fundamental competencies that administrators, athletes, and the public should expect of coaches at all levels (NASPE, 1995). As well, the standards identify the skills and areas of knowledge coaches should posses and in turn provides a framework for coach educators to design programs that meet the needs of future or practicing coaches.

Coach Education Programs

An increased awareness and recognition of the role of the coach has led to growing support for coach education programs in many parts of the world (Campbell & Crisfield, 1994; Gilbert & Trudel, 2001). For example, the National Coaching Certification Program (NCCP, www.coach.ca/e/nccp) in Canada, the American Sport Education Program (ASEP, www.asep.com) in the United States, the National Coaching Accreditation Scheme (NCAS, www.ausport.gov.au/coach) in Australia, and the National Coaching Foundation (NCF, www.sportscoachuk.org) in the United Kingdom all provide national coach education and training programs in their respective countries (Bloom, 2007). These sport organizations have developed programs for educating coaches with the objective of raising coaching competence by increasing coaches' knowledge and confidence in their coaching capabilities (Douge & Hastie, 1993).

Political, cultural, and economic influences have resulted in different approaches to coach training and education around the world (Campbell, 1993). In Canada, coach education and development is governed by the Coaching Association of Canada (CAC, www.coach.ca). The CAC is a non-profit organization with the mandate to improve the effectiveness of coaching across all levels of the sport system (CAC, 2005). In 1974, the Association founded the National Coaching Certification Program (NCCP) to provide quality training and certification to coaches across all levels and sports (CAC, 2005). To date, the program has certified over 900,000 coaches in over 65 sports (NCCP, 2006).

Until recently, the NCCP consisted of five coaching levels. Levels 1, 2, and 3 were introductory course for coaches of community, school and club-based programs while levels 4 and 5 were geared towards coaching high performance athletes. Levels 1,

2, and 3 each had three components: theory, technical and practical, requiring about 100 hours of course time to complete (NCCP, 2005). The theory component was designed to cover basic principles of coaching and included planning, sport safety, skill development, and leadership. Sport specific information relating to skills, techniques, and tactics was presented in the technical component. Finally, the practical component of certification provided coaches with feedback on their coaching effectiveness through self, peer, or trained evaluators. To be certified at Level 4 and 5 of the NCCP, coaches were required to complete a series of modules covering a range of topics including sport psychology, nutrition, planning, and biomechanics, as well as hands-on coaching evaluation and training (CAC, 2005).

Despite few empirical assessments of the program, the NCCP is undergoing changes, moving away from the traditional knowledge-based approach to a competency-based approach (CAC, 2005; Gilbert & Trudel, 2004). According to the Coaching Association of Canada, the transition to a competency-based approach should improve the program by placing a greater emphasis on what coaches can "do", rather than "know". The training and evaluation of the program reflects the core competencies identified as necessary for all coaches: valuing, interacting, leading, problem-solving, and critical thinking. Finally, to meet the needs of all coaches, the new structure of the NCCP provides training based on the context that is relevant to the athletes they are coaching. The different coaching contexts are categorized into three streams including (a) community sport, (b) competition, and (c) instruction.

Similar in many ways to the NCCP, coach education programs in both Australia and the United Kingdom (UK) have undergone significant changes in recent years.

Developed in 1978, Australia's national coaching certification program, the National Coaching Accreditation Scheme (NCAS), has trained 84,000 sport coaches at various levels in over 70 sports. Accredited coaches receive training in coaching principles, sport-specific skills, techniques and strategies, and coaching practices (NCAS, 2006). The NCAS also includes competency standards that specify the levels of knowledge and skill required for a specific level.

The United Kingdom's coach education program was established in 1983 with the National Coaching Foundation (NCF), which then changed their name to Sports Coach UK (Cushion et al., 2003). With several governing bodies responsible for the training, assessment, and certification of their own coaches (Campbell & Crisfield, 1994), Sports Coach UK works to improve the quality of coaching in the UK by enabling the education and continuous development of coaches (NSF, 2006). Coach education programs in the UK follow a similar framework to those in Canada and Australia with coaches being certified in a specific sport context and at a number of different levels based on their competence (Campbell & Crisfield, 1994).

In the United States, there is no national certification program such as those in Canada, Australia, and the UK (Gould et al., 1990). However, various coach development programs run by public or private organizations were developed to provide certification classes for their member coaches. For example, the American Coaching Effectiveness Program (ACEP) was founded in 1976, and has since evolved into the American Sport Education Program. It is arguably the most widely adopted coach education program in the United States where it is used by 250 organizations from high school to college and national sport governing bodies (Douge & Hastie, 1993). However, with one of the

largest sporting programs in the world, these programs are mandatory only for coaches at certain levels of competition or in specific areas, and consequently, do not reach all coaches (Clark, 2000).

In some countries, coach education is also offered as part of university or college curriculum in sport science. For example, in the UK 26 colleges offer degrees or diplomas related to sports coaching (Lyle, 2002), and in the United States 163 colleges offer degree programs in athletic coaching education (McMillan & Reffner, 1999). Within the Canadian sport context, competency based training for coach education has recently been implemented in a university setting in Québec (Demers, Woodburn, & Savard, 2006). The undergraduate program, referred to as the Baccalaureate in Sport Intervention (BIS), aims to develop coaches who can meet the needs of the athletes and do so within a framework of ethical practice (Demers et al., 2006). While the program is still in its infancy, with only one graduating class to date, the BIS has outlined explicit standards for professional competencies that students are expected to demonstrate in order to graduate. These include making ethical decisions, planning a practice, analyzing performance, managing training session, supporting the competitive experience, and designing a long-term program (Demers et al., 2006).

Coach education has grown to the point where there is now an International Council for Coach Education (ICCE) based at the Wingate Institute for Physical Education and Sport in Israel (www.icce.ws) (Bloom, 2007; Gilbert & Trudel, 2004). Established in 1997, this organization aims to promote coaching around the world as a true profession, to encourage the exchange of coaching knowledge, to publish a professional journal, and to assist countries in the field of coach education. To

accomplish this mission, the ICCE has organized a series of international conferences that have served as vehicles for the exchange of coaching knowledge. In 2007, the ICCE's membership included national organizations providing coach education in 30 countries.

In summary, comprehensive coach education programs have been implemented in many countries to help coaches develop coaching competencies (Campbell, 1993; De Knop, et al., 1996). However, formal coach education programs are only one of the many opportunities to learn how to coach. Using questionnaires and/or interviews, researchers have been able to identify a number of specific events or situations as sources coaches used to develop coaching knowledge and sport-specific knowledge. The next section will highlight the main sources of knowledge and skill acquisition in coach development.

Learning to Coach Through Experience

Research over the last decade has demonstrated how the development of coaching knowledge was influenced through coaches' experiences (Cushion et al., 2003). More specifically, playing experience (Cregan et al., 2007; Hardin, 2000; Salmela, 1994), coaching and interacting with other coaches (Gould et al., 1990; Fleurance & Cotteaux, 1999; Schinke et al., 1995), and mentoring (Bloom, Durand-Bush, Schinke, & Salmela, 1998), have been identified as sources coaches use to develop coaching knowledge and sport-specific knowledge.

Many coaches started as athletes, thereby gaining exposure to years of coaching strategies and techniques in what Sage (1989) referred to as an "informal apprenticeship of prolonged observation" (p.88). This informal apprenticeship seems to be typical of most sport coaches (Hardin, 2000; Salmela, 1994; Saury & Durand, 1998; Schinke et al.,

1995). More precisely, Gilbert, Côté, and Mallett (2006) found that successful high school and elite coaches accumulated over 4600 hours as athletes. It is not known if this pre-coaching experience was correlated with future coaching competency (Gilbert et al., 2006). However, Schinke and colleagues examined the career stages of six elite basketball coaches and found that these coaches adopted training exercises and tactics that were learned from individuals who coached them while they were athletes. Similar results were found by Lemyre, Trudel, and Durand-Bush (2007) who suggested that youth hockey coaches' previous experiences as players provided the opportunity not only to develop sport-specific knowledge but also socialize with other coaches. Finally, Hardin (2002) suggested that high school coaches who not only relied on their playing experience but found it was one of their greatest strengths (Hardin, 2000).

Coaches have repeatedly cited the importance of direct coaching experience and observation of other coaches as primary sources of knowledge acquisition (Gould et al., 1990; Salmela, 1996; Saury & Durand, 1998). Specifically, interactions among coaching staff and other coaches can provide important learning situations in which they discuss coaching issues and develop, experiment with, and evaluate strategies to resolve issues (Gilbert & Trudel, 2001; Wright, Trudel, & Culver, 2007). For example, Gould and colleagues surveyed 130 elite coaches in the United States and asked them to identify factors contributing to their knowledge development. Results revealed that the technical aspects of coaching were often acquired though observing and listening to more experienced coaches. Moreover, Saury and Durand (1998) and Jones, Armour, and Potrac (2003) identified experience and other coaches as significant factors in shaping the development of coaching knowledge and how it was applied within the coaching process.

Mentoring has also been highlighted as an important factor in coaches' growth and development. In an investigation of training methods of expert coaches, it was found that a formalized and structured mentoring program was considered by participants to be the most important factor in their development (Bloom et al., 1998). Moreover, Bloom and colleagues noted that mentor coaches not only taught "them the technical, tactical, and physical skills, but also shared philosophies, beliefs, and values about coaching" (p.273). Jones et al. (2003) further emphasized the influence of mentors in a case study of an elite soccer coach. More specifically, Jones and colleagues' examination revealed that learning from other coaches was central to the development of the participants' knowledge and coaching philosophy.

To summarize, there is a general agreement that learning opportunities stemming from playing experience, mentoring, and discussions and observations of other coaches play a significant role in the development of coaching knowledge. It can be argued that most high school coaches likely have several years of experience as athletes in the sport they coach. In addition, coaches in this context often hold physical education degrees and have completed some formal coach education. The Coaching Model (CM) (Côté, Salmela, Trudel, et al., 1995) provides a framework for understanding how this knowledge is used in the coaching process.

Coaching Model

Since the early 1990s there has been a growing body of research that has utilized qualitative research techniques to investigate the cognitive dimensions of coaching (Côté, Salmela, & Russell, 1995; Cregan et al., 2007; Gould, Hodge, Peterson, & Petlichkoff, 1987; Sage, 1989; Vallée & Bloom, 2005). The majority of this research has supported

the view that expertise in coaching is based on the mental skills and knowledge that coaches possess rather than their behavior in any given situation (Woodman, 1993). Accordingly, research examining coaches' interpretations of their experiences and the process by which they use their knowledge has generated a framework of research representing how coaches think and function (Jones et al., 2003).

The most widely used and cited model in the area is Côté, Salmela, Trudel, et al.'s (1995) Coaching Model (CM) (Appendix A). Based on interviews with 17 elite gymnastics coaches, the researchers developed a framework for interpreting the coaching process. By asking the coaches to talk freely about their coaching tasks and strategies, Côté and colleagues revealed the existence of similar ideas among the best gymnastics coaches in Canada. These sets of ideas were transformed into six specific categories, from which the CM was proposed.

Central to the CM is the coach's cognitive representation of what is required to develop a player or a team. This cognitive representation is termed a mental model of athletic potential and is influenced by three peripheral components: the *coach's personal characteristics*, the *athletes' personal characteristics*, and the *contextual factors* (Côté, Salmela, Trudel, et al., 1995). Coaches integrate these three components to determine which of the primary components must be enhanced as the coach strives to develop the athlete. The primary components consist of *organization, training, and competition.* Overall, the CM is an incorporation of the peripheral and primary components, which allow the coach to achieve the ultimate goal of developing the athlete and the team.

Although developed with coaches of elite gymnasts, the Coaching Model has been used as a framework for examining expert coaches in other individual sports such as

archery and judo (e.g., d'Arripe-Longueville, Fournier, & Dubois, 1998). As well, support for the CM has been found in a single case study of an elite university hockey coach (e.g., Gilbert & Trudel, 2000). The researchers used a multi-method design that combined semi-structured interviews and observations performed during early season, mid-season, and late season. The results revealed support for all six components of the model. Given this information, it is not surprising that the CM has been used as the main theoretical framework for much of expert Canadian coaching research (Bloom, 2007).

Primary Components

The following section will focus on the primary components of the CM: organization, training, and competition. Coaches apply each of these components in an effort to provide the optimal environment for athletes to fully develop (Côté, Salmela, Trudel, et al., 1995). In addition, the primary components are constantly monitored and adjusted by the coach according to how these three components interact and how they are influenced by the coach's mental model of athlete's/team's potential.

Organization. Côté, Salmela, Trudel, et al. (1995) defined organization as the process of "applying one's knowledge towards establishing optimal conditions for training and competition by structuring and coordinating the tasks involved in reaching the goal" (p.9). This definition highlights the importance of organization as one of the core components because it has a direct impact on the development of the athlete/team (Bloom, 2002; Côté & Salmela, 1996; Côté, Salmela, Trudel, et al., 1995). More specifically, Bloom noted that coaches who engaged in planning were able to create a solid foundation for the season, and were able to construct effective training sessions which provided a positive learning environment for their athletes.

Côté and Salmela (1996) examined the knowledge base of expert gymnastic coaches relating to these organizational tasks. Among their findings, they revealed that organization included: working with parents, working with assistants, helping athletes with personal concerns, planning training, and monitoring gymnasts' weight and aesthetics. Desjardins (1996) completed a similar study, with an emphasis on team sport contexts, where organization was found to include the following seven tasks: establishing a vision, creating a seasonal plan, selecting the team, goal setting, promoting team cohesion, working with support staff, and attending to administrative matters. In a more recent study, Vallée and Bloom (2005) also noted that expert team coaches' organizational tasks extended beyond previously suggested tasks to include recruiting, community involvement, and fundraising.

One of the fundamental elements of organization relates to creating a vision. According to Desjardins (1996), expert coaches began coaching their team at the beginning of the season with a vision of where the team could go and how they could get there. This vision could also be transformed into a long-term goal such as program growth and development. Moreover, Desjardins stated that once the vision was established, the expert coaches transformed this vision into a mission statement; a tangible written statement that gave the team direction for the upcoming year. Finally, Desjardins emphasized the importance of athletes buying into the vision for the team to achieve success.

Evidence supporting the importance of establishing and selling a vision to a team was found in a study of expert Canadian university coaches (Vallée & Bloom, 2005). Findings revealed that strong organizational skills, including a vision for the team, were

essential for understanding how these coaches built their successful programs. The authors found that the vision originated in the coaches' mind upon, or shortly after their appointment as head coaches. Specifically, the vision included having a picture of the team's potential and displaying the organizational skills necessary in achieving it. From planning the entire season to recruiting the right type of players, every aspect of organization was performed with the vision in mind. Finally, it was found that the holistic development of the athletes constituted the purpose behind the vision. Each of these coaches' strategies was to develop the players into great athletes, as well as great people. Thus, in a team sport setting, the elite coach may be concerned not only with developing the team, but also fostering the individual growth of their players (Vallée & Bloom, 2005).

Training. Training encompasses the knowledge coaches use to develop the skills of their athletes during training or practice sessions (Côté & Salmela, 1996; Côté, Salmela, Trudel, et al., 1995). This has been shown to include the application of technical knowledge, mental training techniques, tactical strategies, physical conditioning factors, and the intervention style (Bloom, 2002; Côté, 1998; Côté, Salmela, Trudel, et al., 1995; Durand-Bush, 1996).

Research on the knowledge of expert coaches' training techniques has revealed the importance of technical training skills (Côté, Salmela, & Russell, 1995; Côté, Salmela, Trudel, et al., 1995; Durand-Bush, 1996). For example, Côté, Salmela, and Russell stressed the importance of sound technical training to ensure athletes reached their potential during competition. Similar results were found in Tharp and Gallimore's (1976) study of the expert University basketball coach, John Wooden. In particular, the

authors found that the majority of Wooden's cues were technical and focused on the basic fundamentals of basketball. However, Bloom, Crumpton, and Anderson (1999) conducted a systematic observation of an expert basketball coach and found that the most commonly used variable was tactical training. Pertinent to physical training, coaches stated that the needs of each individual athlete determined the nature of physical training they received (Durand-Bush, 1996). This suggested expert coaches needed to develop the ability to successfully allocate the appropriate level of training to meet the needs of their athletes.

There have been mixed messages both anecdotally and empirically about the use and importance of mental training by high level coaches. Some elite coaches have placed less emphasis on mental training than physical or technical training (Durand-Bush, 1996). In contrast, Côté, Salmela, Trudel, et al. (1995) showed that expert gymnastic coaches valued the role of mental training. The knowledge of expert coaches in developing the mental skills of their athletes was described as teaching athletes to cope with stress and pain, and to develop motivation, awareness, and self-confidence. As well, these coaches often used sport psychologists to carry out the more specific aspects of mental training tasks, such as motivation and visualization. This implied that expert coaches might have started to develop an appreciation for the value of mental training, in addition to other forms of training, in the development of their athletes.

Competition. The competition dimension of coaching mainly relates to coach-athlete interactions before, during, and after competition (Côté, 1998). More specifically, developing pre-match routines, foreseeing potential distractions, and dealing with emotions following a game have been reported by coaches as important dimensions of

competition (Bloom, 1996; Bloom, et al., 1997). Côté, Salmela, and Russell (1995) investigated the nature of competition in expert level gymnastics and suggested competition involved three components: the competition floor, trial competition, and the competition site. These coaches were able to foresee potential distractions, create preparatory routines, and understood when to leave the athlete alone.

Several studies have shown that the success of expert coaches and athletes was influenced by the routines and tasks that took place throughout the day of competition (Bloom, 2002; Bloom et al., 1997; Côté, Salmela, & Russell, 1995). For example, Bloom and colleagues investigated the pre- and post- competition routines of expert team sport coaches. Results indicated that prior to competition coaches mentally rehearsed their game plan, held team meetings, and occupied themselves while the warm-up occurred. Directly before the game, coaches used words that stressed only key points. After competition, coaches stressed the importance of controlling their emotions and adopting behaviors that represented the best interests of the team given the outcome of the game. In sum, while expert coaches differed in their general coaching philosophies, they appeared to have developed similar approaches to pre- and post- competition routines.

Peripheral Components

The next section will focus on the three peripheral components of the CM: *coach characteristics, athlete characteristics, and contextual factors*. Each component impacts this mental model and alters the strategies adopted by the coach for the primary components (Côté, Salmela, Trudel, et al., 1995).

Athlete characteristics. Athlete characteristics include variables relating to their stage of learning, personal abilities, philosophy, knowledge, and passion for the sport

(Côté, Salmela, Trudel, et al., 1995). Each of these characteristics impacts the coach's overall assessment of how to utilize the primary components of organization, training, and competition, to develop the athlete's full potential and achieve success (Côté, Salmela, Trudel, et al., 1995; Salmela, 1996). This was highlighted by Bloom (2002), who suggested that coaches needed to assess the athletes' ability to develop and grow in order to establish the ideal environment to set for them.

Recently, research has found that drive, commitment, and coachability were the key determinants of athletic success and were considered by coaches to be the most important psychosocial characteristics for a successful athlete (Kulivov & Gilbert, in press). This was consistent with a previous study on 10 NCAA division I coaches, where results showed that athlete characteristics, such as player coachability and motivation, led to athletic success (Giacobbi, Roper, Whitney, & Butryn, 2002). Coaches need to be aware of an athlete's characteristics in order to foster the right environment for them, for example, when to push the athlete and when to back off (Giacobbi et al., 2002). This is especially important at the high school level, where the coach and the environment they construct will likely impact whether an athlete will continue involvement in the sport (Humphries, 1991).

Coach's personal characteristics. The coach's personal characteristics include any variables of the coaches' philosophy towards coaching, personal life demands, and their overall knowledge of the sport (Bloom & Salmela, 2000). Thus, the mental model of the athlete's potential is affected by the coach's own style, experience, and amount of time and energy the coach is able to put towards coaching (Côté, Salmela, Trudel, et al.,

1995; Salmela, 1996). Therefore, coaches need to develop a perception of their own ability and role, before they can act upon any of the primary components in the CM.

A study specifically examining the characteristics of expert Canadian coaches was completed by Bloom and Salmela (2000). Among their findings, they revealed that coaches viewed learning to coach as part of an on-going developmental process throughout their careers. They suggested that coaches learned from their interactions with peers, communication with athletes, and hard work. As well, coaches who chose to regularly attend clinics and who shared information with other coaches, likely devoted more time and energy to all other aspects of their profession. Since this implies that coach development is dynamic, it could be argued that a coach's characteristics change over time and affect the mental model of athlete potential in different ways throughout a coach's career.

Contextual factors. Contextual factors are considered to be "unstable factors, aside from the athletes and the coach, such as working conditions that need to be considered when intervening in the organization, training, and competition components" (Côté, Salmela, Trudel, et al., 1995, p.12). Some contextual factors that have been identified include training resources, competitive environments, family context, and financial resources (Côté, 1998). Coaches need to adapt to these conditions under which they must utilize organization, competition, and training, in order to achieve success.

Only a few studies have focused on contextual factors of expert coaches (e.g., Davies, Bloom, & Salmela, 2005; Draper, 1996). For example, Davies and colleagues conducted interviews with six Canadian university basketball coaches to examine their job satisfaction. Results revealed that financial constraints and excessive administrative

duties placed on these coaches increased job dissatisfaction. Moreover, these coaches noted that they could not compete financially when offering scholarships to athletes, and were unable to purchase the appropriate equipment, which prevented them from providing the optimal training and competition environment, for their athletes to fully develop.

Contextual constraints have also been shown to exist for coaches at the high school level. For example, Sage (1987) conducted interviews with high school teacher/coaches in the United States to examine their role demands. Results revealed that in addition to teaching, these coaches would spend 30 to 40 hours per week planning practices, preparing for games, studying film, and arranging for the team's transportation to and from games. Additionally, about one third of the coaches in this study planned on withdrawing from coaching within a few years, which may have been attributed to the role strain experienced by teacher/coaches and the pressure to develop competitive teams.

To summarize, the Coaching Model has allowed researchers to structure their work with a view of determining the most important components of the coaching process, and their relationship to one another (Côté, Salmela, Trudel, et al., 1995). However, research examining the various components involved in the coaching process has primarily used participants working at the collegiate and/or elite levels of competition. Thus, there is a gap in the literature examining the coaching process at the high school level and subsequently the knowledge these coaches utilize in this context.

CHAPTER 3

Method

In this chapter, the participants, procedure, interview technique, data analysis, and trustworthiness components of this study will be examined. Due to the exploratory nature of this study, a qualitative methodology was used; data analysis procedures followed the guidelines set forth by Côté, Salmela, and Russell (1995).

Participants

Six high school team sport coaches from the Lester B Pearson School Board (LBPSB) in Montreal, Québec participated in this study. Participants were purposely chosen to fit a number of criteria. Each coach was teaching full-time physical education and was a current head coach of a team sport at the high school level. Coaches represented a variety of team sports, including basketball, soccer, football, and rugby from Bantam, Midget, and Juvenile levels. Each participant coached at least two different sports and a minimum of two teams. Participants had each graduated from a concurrent physical education teacher education (PETE) program between 1990 and 2001. The PETE curriculum had to include a mixture of skill activity courses, theory courses, and yearly field experiences. Participants each had accumulated between 5 and 15 years of high school head coaching experience. Furthermore, each coach had completed a minimum Level 1 and maximum Level 3 coaching certification through the Coaching Association of Canada (CAC). Finally, they had each coached a minimum of five teams over their career. Table 1 provides a detailed summary of the six participants' history and accomplishments prior to this season.

Table 1

Background and Accomplishments of Each Coach

	C1	C2	C3	C4	C5	C6
Year of graduation	2001	1992	1992	1992	1999	2001
Highest level of athletic achievement	University	University	University	University	National	Semi-Professional
Number of years coaching	3=Y 5=H	2=Y 15=H 4=UA	5=Y 15=H	6=Y 15=H	15=Y 5=H	5=Y 5=H 3=UA
Total head coaching experience	8	17	20	21	20	10
Number of years teaching full-time	5	15	15	15	5	5
Highest level of coaching certification(1-5)[1]	2	3	1	3	2	2
Number of league championships as a high school head coach	2	5	1	0	6	2

Note. Y= youth; H= high school; UA=university assistant coach.

[1] The Coaching Association of Canada has recently undergone changes to meet emerging coaching challenges. The new NCCP model is divided into three steams, each with its own coaching requirements: community sport, competition, and instructions (see www.coach.ca/eng/certification/nccp_for_coaches/nccp_model.cfm).

Procedure

A panel of experts familiar with high school athletic programs in the Montreal area identified possible candidates for the current study. Specifically, two physical education consultants representing each of the English school boards and a university physical education pedagogy professor provided insight and contact information on coaches considered suitable for the study. Participants were contacted by e-mail or telephone, informed of the nature of the study and asked to participate. Following this, the participant was asked to complete a consent form (Appendix B) in accordance with McGill University ethics policy, and a demographic questionnaire (Appendix C). The coaches were interviewed individually for a period of time varying from one to two hours. These interviews were conducted at mutually convenient locations in the greater Montreal area.

Interview Technique

A qualitative interview technique was implemented for the purpose of obtaining coaches' perceptions of the factors influencing the acquisition of their coaching knowledge. The next section will discuss the different procedures involved with using an interview technique, including the type of interview used, the ways of building rapport with participants, the formation of the interview guide, and the types of questions asked.

Semi-structured open-ended interviews were conducted with the participants. This interview approach has been used for other studies examining the development of coaching knowledge (e.g., Bloom et al., 1998; Cregan et al., 2007; Côté, Salmela, & Russell, 1995; Davies et al., 2005). This type of interview allowed the interviewer to initiate a topic of discussion and the interviewee to answer freely with few restrictions

(Patton, 2002; Rubin & Rubin, 1995). As well, semi-structured interviews allowed the interviewer to ask for clarification or prompt the interviewee to explain their answer further if necessary (Corbetta, 2003). The interviewer remained free to build a conversation within a particular subject area, to word questions spontaneously, and to establish a conversational style, but with the focus on a particular predetermined subject (Patton, 1987).

An interview guide (Appendix D) consisting of four sections was created specifically for this study. The guide was created by the researcher and a faculty member with knowledge and experience in coaching psychology and qualitative research methods, including interviews. Introductory questions were designed to initiate the discussion (e.g., How did you first get involved in coaching?) and to preface the main topic of study. These questions also extracted information regarding the coaches overall background and experience in sport. Key questions were based on Côté, Salmela, Trudel et al.'s (1995) Coaching Model (CM) and related coaching science literature (e.g., Schinke et al.,1995; Vallée & Bloom, 2005). Each of these key questions had two parts. The first examined the participant's current knowledge on an aspect of coaching (e.g., How do you structure a practice?). The second part of each question was designed to gather information on how this particular aspect of coaching knowledge was developed (e.g., How did you learn to do this?; how did you develop this philosophy?). This format was based on the notion that in order to identify how coaches acquired their knowledge, it was equally important to understand the knowledge coaches applied in the coaching process. Summary questions were included to tie together the topic of the study and validate previous responses (e.g., In your opinion, what are the key factors in helping you

acquire knowledge to become a head coach at the high school level?). Finally, two concluding questions were developed to give the participant the opportunity to add any additional information or relate any concerns.

The same interview guide was used with each of the six participants to ensure consistency. Throughout the interview, 3 different types of questions were asked: main, probe, and follow-up questions (Rubin & Rubin, 1995). The main questions were used to direct the discussion to the principal topics of the current study. Probe questions allowed the researcher to clarify responses that lacked detail, and explore pertinent comments noted by the participant (Patton, 2002). Probe questions also helped increase the richness and depth of responses and allowed for further expansion of those areas considered relevant. In addition to probe questions, conversational repairs were useful to help clarify any misunderstood questions or responses (Rubin & Rubin, 1995). Finally, follow-up questions were used to clarify areas of the participants' experience and knowledge which may have been overlooked (Rubin & Rubin, 1995).

Prior to the interview the researcher ensured the participant felt welcomed and thanked him/her for their involvement in the research project. Lincoln and Guba (1985) noted this helps establish a comfortable environment where the participant can respond honestly and openly to questions. In the current study, a rapport was achieved by the researcher initiating an informal discussion with the participants on topics relating to the study which gently led the participant in the direction of the interview. This rapport was maintained during the interview by the researcher showing emotional understanding such as nodding and words of praise to encourage in-depth, honest answers.

Data Analysis

The main objective of the data analysis was to create a system of emerging categories that adequately described the sources of knowledge acquisition of high school team sport coaches, the factors that shaped their knowledge, and how this knowledge was applied in the coaching process. The categories were created from the "bottom-up" rather than the "top-down" (Bloom et al., 1997) since they were generated from the data obtained in the interviews rather than predetermined before analysis. Analysis of the interview data followed the guidelines proposed by Côté, Salmela, and Russell (1995) which consisted of four steps: creating meaning units, tags, properties, and categories.

Prior to the data analysis, each interview was transcribed verbatim with only minor edits, such as changing names to code numbers to ensure confidentiality (Côté, Salmela, & Russell, 1995). The interviews were then analyzed line-by-line and divided into 518 pieces of information, known as meaning units (MU). Meaning unit are separate pieces of text comprised of words, sentences or entire paragraphs that convey the same idea and relate to the same topic (Tesch, 1990). NVivo 7.0, a computer program designed specifically for qualitative data collection was used to create a computerized index system through which all these meaning units were easily retrieved. Each meaning unit received a name or a tag based on its content. Similar meaning units received the same tag. A total of 50 tags emerged from the data (e.g., learning from other coaches, initial coaching, dual role of the teacher/coach, student/athlete expectations).

Second, similar tags were divided into larger groupings, called properties. Each property was also named or tagged according to the common features shared by these meaning units (Côté, Salmela, & Russell, 1995). This process produced 7 properties. For

example, coaching clinics, learning from books and internet, learning from experience as an athlete, and learning from experience as a coach were tags grouped together to form a new property called *sport participation and resources.*

Finally, the last level of classification consisted of grouping similar properties into higher-level divisions, called categories. This step was similar to the previous one except it was done at a higher and more abstract level of analysis with higher levels of interest (Côté, Salmela, & Russell, 1995). Three categories emerged from this process. For example, the properties of educational background, learning from others, and sport participation and resources, were grouped together to form a new category called *sources of knowledge acquisition.* The data was examined until saturation of information was achieved.

Trustworthiness

Establishing trustworthiness is an essential component of qualitative research (Lincoln & Guba, 1985). It ensures the research process was conducted properly and the findings are worthy and credible. Trustworthiness encompasses the concepts of internal validity, external validity, reliability, and objectivity (Lincoln & Guba, 1985). This section will explain different techniques used to establish trustworthiness, such training in qualitative methods, prolonged engagement, member checks, and peer review.

The researcher was trained in the methods of qualitative research, as outlined by several respected scholarly sources (Lincoln & Guba, 1985; Patton, 2002; Rubin & Rubin, 1995; Sparkes, 1998). In addition, two pilot interviews were conducted to allow the researcher to practice and enhance interview skills and validate the effectiveness of the interview guide (Maxwell, 1996). These pilot interviews were observed and evaluated

by an expert interviewer, who provided feedback to the researcher regarding interview technique and the interview guide. Moreover, at the conclusion of both interviews, participants were invited to provide feedback on the questions and format of the interview.

Prolonged engagement involves the investment of time by the researcher to become familiar with the culture of and vocabulary of the participant, and well as build trust with them (Lincoln & Guba, 1985). In this study, the researcher had graduated from a concurrent PETE program, coached at the youth level, and had a Level 1 coaching certification in basketball, volleyball, and soccer through the Coaching Association of Canada. These experiences satisfied the criteria of cultural knowledge and were useful in developing rapport with the participants.

Peer review involves a neutral party examining the data analysis to ensure its credibility (Côté, Salmela, & Russell, 1995). The peer review process took place independently of the principal researcher. In total, 518 meaning units (MU) emerged from the data analysis. A peer assistant examined a random sample of 130 MU's (25%) and matched the meaning units under the tags he or she felt were the most appropriate. A reliability rate of 91% was reached for this phase of data analysis. After some discussion between the researcher and the peer assistant it was agreed that five of the MU's would be re-coded since the original tags did not adequately reflect the meaning in the passage. Of the five, two were further split into two meaning units instead of one. The remaining discrepancies occurred due to a lack of clarity regarding the definition of the tags. For example, a MU that had been given the tag, 'dual role of the teacher/coach' was placed under 'high school teaching and coaching similarities'. However, after a brief discussion

the peer reviewer acknowledged that the idea expressed in the MU related more to managing a full load as a teacher rather than a comparison between the two roles. This procedure also took place following the creation of the properties. The peer assistant classified the 50 tags into seven properties. A 96% rate of reliability was achieved. The two misplaced tags were more ambiguous, and the discrepancy between the researcher and the peer assistant was discussed until a consensus was reached. At the end, no change was made. At the next stage, the seven properties were grouped in three categories by the peer reviewer with a reliability rate of 100%. This trustworthiness technique helped to counter any biases of the researcher by providing an external check on the coding process.

According to Lincoln and Guba (1985), member checks are the most crucial technique for establishing credibility. Member checks occur when the findings are tested by the participants of the study to ensure the information provided is correct. In this study, three different forms of member checks were used. The first occurred at the end of each interview during a debriefing session. At this point, the participants were given the opportunity to add or alter any answer or idea communicated during the interview. The second check consisted of sending the participant a full verbatim transcript of the interview. At this time, the participant had the opportunity to clarify, add, or eliminate any comments from the interview. The final check consisted of sending the participants a summary of the main findings generated from the participants' comments. (Lincoln & Guba, 1985). At this point, the participant was asked to state any concerns, questions, or comments with regard to the findings. Of the six participants, four responded with

positive feedback of the results and agreed with the information and conclusions drawn from the interviews.

CHAPTER 4

Results

This chapter presents the results of the inductive qualitative analysis of this study. First, a brief summary of the nature of the data, including a description of the results that emerged from the analysis will be presented. Following this, the three higher-order categories, *sources of knowledge acquisition, personal and contextual factors,* and *coaching tasks and duties,* will be summarized and presented. Quotes from the interviews will be provided to illustrate coaches' thoughts and opinions about topics. Each quote is followed by a label (C1-C6) to credit the participant that provided the quotation.

Nature of the Data

The six interviews of the study resulted in a total of 518 meaning units. From these 518 meaning units, a total of 50 tags emerged. Table 2 (Appendix E) provides an alphabetical listing of the frequency of topics discussed by each participant. The number of meaning units discussed by each participant varied from 73 (C6) to 97 (C5). This does not signify that the interview of C5 was superior to the one of C6. Likewise, more meaning units does not necessarily denote higher quality of information; rather some participants may have expressed their ideas more concisely than others. This is not surprising given the open-ended and semi-structured nature of the interviews. For instance, C5 discussed time constraints more extensively than other participants. Perhaps the other coaches did not experience the same time constraints with coaching and teaching or did not feel it was important to discuss this topic in depth. Also, due to the open-ended nature of the interviews, not all topics were discussed by every participant. The frequency of each tag from the total sample varied from 1 to 27, reflecting how

significant topics were to coaches. For example, the tag of *practices* was frequently discussed by participants. This may be due to the importance of practices for these coaches, or may be explained by the fact that the topic was a direct response to a question asked (i.e., Describe how you structure your practices). In contrast, tags such as *parents* and *physical education courses-biomechanics* were discussed infrequently (n=2) by the participants. These two topics were each discussed by only two coaches. The 50 tags were grouped into seven properties based on their similarities of content and are displayed in Table 3.

Table 3

Properties and tags with frequencies as expressed by each participant

Properties and Tags	**n**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
Athlete Factors	**85**	**19**	**13**	**16**	**17**	**12**	**8**
athlete characteristics	10	1	3	2	2	1	1
athlete development	5	2	0	1	2	0	0
coach-athlete relationships	11	4	1	1	3	1	1
communication	4	2	1	0	0	0	1
leadership	7	1	2	3	0	0	1
player selection	21	3	2	4	6	5	1
sportsmanship	4	3	0	1	0	0	0
student-athlete expectations	18	1	4	2	4	4	3
teamwork	5	2	0	2	0	1	0
Educational Background	**66**	**8**	**11**	**15**	**10**	**12**	**10**
assessment of undergraduate P.E. program	10	0	2	2	1	2	3
coach certification through P.E. program	8	1	1	2	1	1	2
field experience – coaching	10	1	0	2	2	2	3
phys. ed courses- biomechanics	2	0	1	0	0	1	0
phys. ed courses- pedagogy	9	2	2	2	3	0	0
phys. ed courses- skills	12	2	2	3	2	2	1
phys. ed courses – sport/ed. Psych	9	1	2	3	0	3	0
reasons for entering P.E. program	6	1	1	1	1	1	1
High School Environment	**81**	**11**	**14**	**11**	**13**	**19**	**13**
dual role of the teacher-coach	20	1	2	2	6	2	7
high school teaching and coaching similarities	15	4	0	3	3	5	0
parents	2	0	1	0	0	1	0
personnel assistance	10	1	2	2	1	4	0
resource challenges	9	1	3	1	1	2	1
standards and regulations	4	0	2	0	0	0	2
support of administration and staff	17	4	3	3	2	2	3
time constraints	4	0	1	0	0	3	0
Individual Makeup	**68**	**11**	**10**	**10**	**12**	**14**	**11**
coaching philosophy	23	1	4	4	3	7	4
coaching accomplishments	3	2	0	0	1	0	0
difference between coaching males and females	4	0	0	1	0	3	0
high school coach characteristics	9	2	1	2	2	0	2
initial coaching	14	4	3	1	2	1	3
military background	1	0	0	0	1	0	0
reasons for coaching	7	1	1	1	1	2	1
sport-specific knowledge	7	1	1	1	2	1	1

Table 3 (continued)

Learning from Others	**56**	**11**	**8**	**6**	**9**	**16**	**6**
learning – coaches on staff	13	6	1	1	2	2	1
learning – from their athletes	3	0	0	0	0	2	1
learning – mentor coaches	4	0	0	0	1	3	0
learning – other coaches	12	1	3	1	1	4	2
learning – past coaches	24	4	4	4	5	5	2
Sport Participation and Resources	**78**	**9**	**19**	**11**	**14**	**14**	**11**
coaching clinics	18	2	8	2	2	2	2
learning – books and internet	16	2	5	2	1	4	2
learning – experience as an athlete	21	3	2	3	6	3	4
learning – experience as a coach	23	2	4	4	5	5	3
Training and Competition	**84**	**20**	**15**	**12**	**13**	**10**	**14**
coaches' role during game	10	3	2	2	1	1	1
evaluation of team success	6	0	3	1	2	0	0
goals – coach	6	2	1	1	1	1	0
goals – player	8	1	2	2	1	1	1
goals – season	12	3	1	1	1	2	4
practices	27	5	4	3	5	4	6
post-game routine	8	3	1	1	1	1	1
pre-game routine	7	3	1	1	1	0	1
Totals	**518**	**89**	**90**	**81**	**88**	**97**	**73**

The third and final stage involved grouping the seven properties into higher-order categories. Three categories emerged from the analysis and were labeled *sources of knowledge acquisition, personal and contextual factors*, and *coaching tasks and duties.* The seven properties regrouped into the three higher-order categories are displayed in Table 4.

Table 4

Categories and properties with frequencies as expressed by each participant

Categories and Properties	**n**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
Sources of Knowledge Acquisition	**200**	**28**	**38**	**32**	**33**	**42**	**27**
Educational Background	66	8	11	15	10	12	10
Learning from Others	56	11	8	6	9	16	6
Sport Participation and Resources	78	9	19	11	14	14	11
Personal and Contextual Factors	**149**	**22**	**24**	**21**	**25**	**33**	**24**
High School Environment	81	11	14	11	13	19	13
Individual Makeup	68	11	10	10	12	14	11
Coaching Tasks and Duties	**169**	**39**	**28**	**28**	**30**	**22**	**22**
Athlete Factors	85	19	13	16	17	12	8
Training and Competition	84	20	15	12	13	10	14
Totals	**518**	**89**	**90**	**81**	**88**	**97**	**73**

Sources of Knowledge Acquisition

The higher-order category, labeled *sources of knowledge acquisition,* was comprised of 200 meaning units and accounted for 38% of the total data analyzed. This category included the key factors influencing coaches' knowledge acquisition, from earliest sport participation to current coaching position. For instance, coaches discussed learning from their physical education training, from observations and interactions with other coaches, from their experiences, as well as from clinics and books.

Educational Background

This property described coaches' training in physical education, including the courses and experiences related to the development of their coaching knowledge. More specifically, coaches discussed their reasons for entering the field of physical education, as well as the courses and experiences that shaped their coaching knowledge. This property was the sixth largest with 66 meaning units.

All six coaches graduated from a concurrent physical education teacher education program. Not surprisingly, coaches had different reasons for entering the program. More specifically, three coaches entered the physical education program to pursue both teaching and coaching, two were interested in pursuing athletic careers at the university level, and one coach was motivated by the desire to become a coach rather than a teacher. These differences are illustrated by the following quotes:

> I went into phys. ed. because I wanted to teach and coach. I wanted to teach at the high school level and being a coach automatically comes with the job. (C2)

> When I entered the phys. ed. program, being a high school phys. ed. teacher was the last thing I thought I would be doing. I honestly entered the program to be a better coach. I was going to coach and that was it. (C5)

> I got into the phys. ed. program to play football. I was there to play ball and a phys. ed. degree was just a tool to keep playing football for another three or four years. (C4)

Although they had different reasons for entering the program, all six coaches attributed their knowledge acquisition to their university classes and experiences. In particular, four coaches noted they learned about planning, teaching skills, and organization from their physical education pedagogy courses:

> One of the better courses during my undergrad in phys. ed. was Early Childhood Activities. You get into the game and they teach you how to set things up and break it down to the level of your students. You walk away having a better sense of how to organize games, progressions, and equipment. It's easy to know a lot about how to play a sport but you really begin to understand how to teach the game after that course. (C3)

> The language, the way you approach players and teach skills, to the way you set up a drill, all that kind of stuff was transferred from my phys. ed. Methods courses to my phys. ed. classes, to coaching situations on the court and in practice, for sure. The explanation of drills was another thing I picked up from my phys. ed. background. (C2)

Learning to be a professional at all times was explicitly mentioned by one coach. Specifically, this coach recalled learning about the importance of being prepared to teach and applying the same principles to coaching:

> From my phys. ed. training I learned to be a professional. Even when you are coaching, the number one thing is to always be a professional out there. You better have a lesson plan written out and you better be dressed properly. That is something I carried over to my coaching; collared shirt, written practice and game plans, and remembering that I need to be the best I can be. (C4)

All six coaches discussed the skills courses they were required to take as part of their undergraduate training. Three coaches felt they learned valuable information about the fundamentals of the game and acquired ideas for drills to use in their practices. On the other hand, three coaches felt the skills courses did little to advance their knowledge of the sport. These differences are illustrated in the following quotations:

> Some of the drills and skills I use to run my practices come from the basketball I and II courses. You get more in-depth in basketball II where you learn more plays and you have to start creating your own. (C1)

> The skills courses that we went through were a big help for my teaching and for my coaching in terms of learning and teaching the fundamentals of that sport. (C2)

> I remember taking the soccer skills class but I can't say that I really increased my knowledge of the sport because I went in with some playing experience already. They are good for a general overview of skills. (C5)

Additionally, several coaches suggested that valuable knowledge was acquired from their Psychology courses. In particular, three coaches felt Educational Psychology and Sport Psychology courses helped them be more understanding of their athletes' needs and exposed them to different ways of dealing with athlete behavior:

> The psychology of how kids learn, to dealing with a kid who has performance problems. How to talk to a kid who is frustrated at the position or having a hard day at practice, that is all stuff I transferred from my psychology courses to my coaching. (C2)

> Sometimes my players are having problems at home; they are carrying baggage when they come to me. I have to understand that mom and dad might be going through a divorce or grandma could be sick. I don't know that stuff when I see a child after school. When I took Educational Psychology in first year I was blown away. I started to be more aware of the fact that these kids are not just athletes and realized that as a coach, you have to deal with their differences and baggage. (C4)

Likewise, two coaches spoke about mental training principles they learned from their Sport Psychology course and later applied to their coaching:

> I think the biggest thing that I took away from my phys. ed. courses is that visualization stuff. It is one of the biggest components of my coaching. There was a professor I had, I remember in his classes he used to talk about visualization a lot. He constantly talked to us about the work he did with race car drivers and golfers. Rather than visualizing what not to do, he would focus on visualizing what to do. I thought that was one of the best things I could bring to my coaching and teach the kids because you can transfer it outside of sport too. (C5)

Many coaches spoke about different coaching opportunities during field experiences in the high schools. More specifically, five out of six coaches believed this allowed them to network with other coaches and gain coaching experience as they worked alongside their supervising teachers:

> In my third year field experience, I helped coach the basketball team. The teacher I was with gave me all her practice plans and showed me how she ran her practices. Now when we go to the tournaments, she is still coaching and she'll say, 'still coaching?' and I'll say, 'Yup, still using your practice sheets'. (C1)

> At the university level my coaching experience in the schools came about when I was sent to do my field experiences. When you go into the schools, you are expected to get right into the school community, so that is where I started coaching. Whether it was my third or first field experience, I started coaching as much as possible. (C4)

> Part of the training was working alongside teachers that were responsible for training student teachers in the school. They would show you the ropes and what would be expected of you as a physical education teacher. If they were going to a soccer match, then I would go to a soccer match and help them organize and set up the equipment, prepare the teams, and run the practices. You would be assigned a team as well. So it was mainly through these experiences that I learned what coaching was about rather than any coaching clinic or course in university. (C6)

All six coaches reported receiving a level 1 coaching certification in a number of team sports upon graduating from their physical education programs. However, their opinions were mixed, regarding the effectiveness of this certification as a learning tool. Two coaches believed acquiring coaching certification outside the program would have been more beneficial, while others regretted not taking advantage of more clinics while they were enrolled in the program. These differences are illustrated by the following quotations:

> With some courses it would be a given that we would receive certification. So rather than saying an outside coach would need a level 1 certification to coach rugby, you would have achieved a level 1 through your skills course. But I think it would have been more beneficial at the time if we would have been made more

> aware of the coaching certification out there. But that is one thing I regret is not getting more coaching certifications at the time. (C6)

> I would tell first year students who want to improve their coaching knowledge, to go get their NCCP (National Coaching Certification Program) training outside the program. Even if they get it through the skills course, go to a clinic where it is being offered by a coach. You may get your credit just for taking the skills course and you will gain basic knowledge but if you want to learn more about the sport, learn it from a coach. Most of the people doing the clinics are level 3 coaches who can share direct coaching experience. You are also taking it and surrounded by coaches who want to coach, not just teachers who get their certification as a bonus. (C5)

Finally, a few coaches offered suggestions for improving the training of physical education teachers regarding the development of coaching knowledge. While all six coaches felt their undergraduate training helped them acquire coaching knowledge, three coaches believed a coaching course preparing future teacher/coaches for the organizational challenges of coaching high school sport would have been beneficial for their development:

> I think my phys. ed. program would have been even better if they had a course on the theory of coaching, something similar to the NCCP. It would help prepare people for how to pick teams and all the organizational aspects because at the high school level, you are everything. It would have been helpful to know this before and have a little background information to prepare you to take on the role of the high school coach. (C2)

> I think that there should have been at least one course to teach teachers how to coach. I think it is necessary because I know for myself a lot of the stuff you kind of go, 'what am I doing here?' I guess they sort of touch upon coaching in the skills courses but you know it's a 1 credit course. You play the sport a lot but you really are not thinking ahead to coaching the sport. Had the skills courses been worth more credits and geared towards coaching and teaching they would have been more beneficial in the long run. (C4)

> Even though I already had been involved in sport and coaching for a while I think a course on coaching as part of my undergraduate work would have really benefited me. I know I would and a lot of people would have benefited from the organizational skills, how to run practices, and the expectations you should have of your players. (C6)

Learning from Others

This property included the information and skills coaches' gained through observations and interactions with various sport related people. For instance, coaches discussed observing and interacting with other coaches, past coaches, coaches on staff, as well as consulting their athletes. This property was the smallest with 56 meaning units.

All six coaches discussed acquiring knowledge from past coaches. In particular, participants believed the coaches from both their youth and elite sport experiences helped shape their coaching philosophy:

> The idea of teamwork as my number one coaching philosophy probably came from the coaches I've had in the past. I remember having one coach when I first started playing basketball who was a drill-sergeant type and who, if you didn't do your job or did something wrong, the whole team ran. I remember one time we did suicide after suicide and ran for an hour and a half and we were all saying, 'we are going to get that girl next practice'. Then he sat us down and said, 'you know she didn't do her job, but you guys are a team and you're supposed to support one another'. I will never forget that. (C1)

> I had the opportunity to be coached by great people. When I was playing varsity football, we had a very good coaching staff. One of my coaches in university was a very technical coach. Football is the kind of sport where it is strictly discipline, strictly technical, and I try to bring that kind of philosophy throughout everything I do here. So I've been blessed to work with very good coaches and to be coached by very good coaches. (C2)

> When I was playing at the high school level, I think it was a similar philosophy to the one we have here. There were times that we were on a team, whether it was rugby, basketball, or soccer, where we had players that were less capable but the coach always made them feel part of the team. I certainly carried some of those ideas like not having an elitist attitude or philosophy over to my coaching (C4)

Most coaches also felt that observing and talking to other coaches allowed them to acquire specific knowledge pertaining to a wide variety of coaching tasks. Three coaches spoke about attending other teams' practices and games. In particular, these

participants observed other coaches' behavior with the aim of acquiring valuable information on how they carried out their coaching tasks:

> Observing other coaches is another big one. Going to watch university basketball games or college basketball games and seeing what they're doing on the floor. Rather than watching the game as a spectator, I'll go watch their game as a coach and see what it is their coach is doing. What are they trying to accomplish on the floor during that game. (C2)

> I am often in my office during the practices of other basketball teams and I would see a drill that a coach would do with their team and try it the following practice. I have also watched what they do before a game and what visiting team's coaches do during a game. I might put it in to my pre-game warm-up because these are some experienced basketball coaches. So I would use drills that they were doing, I might just adjust it slightly. (C6)

Additionally, coaches discussed openly sharing information and learning from other coaches on staff in the school. Interestingly, regardless of coaching experience, all six coaches consulted other coaches about aspects of training, as shown in the following quotes:

> We had a boy's coach here that had been coaching for 25 years. Sometimes I'd ask him, 'my team is really weak over here. Do you have any drills?' And he would say, 'well I've tried this'. Sometimes I had already tried it but most of the time I had never even thought of it or seen it before. (C1)

> We are always consulting each other here amongst the phys. ed. coaches. You know, I need some help with this student or this drill. Coaching wise it happens all the time. I have gone to the girls' football coach and asked for certain plays. Even if I am not going to use it I want to see where he is thinking on his level and what he uses. I can use that and adapt it for my boys' team. If it works, it works; if it doesn't, it doesn't. People talk to each other a lot here, and we are very supportive of each other. (C4)

Aside from learning from coaches on staff, two coaches also mentioned acquiring knowledge from mentor coaches. In particular, these coaches believed that being mentored as young coaches was important for their development:

> Having a good mentor as a teacher and a coach was important for my development as a coach. Having someone that I realized, early on, does things the

> way I want to do them; just watching them has made me who I am. My mentor was the best teacher and coach I ever worked with. This man was loved by everybody and knew and did everything a model coach would do. That was my mentor as a young coach and the guy I wanted to be like. (C4)

> When I started coaching as a teenager I had a coach who was my model of coaching. As I have grown as a coach and learned from him, he has continued to share his experiences with me and a lot of the mistakes he made along the way. It added to my bag of tricks because he helped me avoid a lot of mistakes he made as a younger coach, in terms of pushing athletes so hard they just don't want to see your face anymore. (C5)

Lastly, two coaches revealed learning from their athletes as another key strategy for gaining sport-specific knowledge. Notably, these coaches were coaching sports they did not have extensive playing or coaching experience in:

> I am not too shy or too proud to go to my players and ask them about drills and plays because when I was playing the sport it was not necessarily the same. At the senior level, most of them have experience in the sport since they were six and so they have ten years experience too. So we turn to the kids and say, 'we want to work on this skill, do any of you work on this with your club teams? What drills or plays do you use?' In return they get some input in coaching the team. (C5)

> My basketball players play outside of the school team and if I was talking about something, they would know and probably be able to tell me what to do. They would say how to change a drill because they might have done a similar type of drill before. (C6)

Sport Participation and Resources

This property highlighted the information and skills coaches acquired through their athletic and coaching experiences, as well as from coaching resources. More specifically, coaches discussed learning from their experiences, from books and the internet, as well as from coaching clinics.

All six coaches competed at the university level. Many felt their athletic careers played a role in their acquisition of coaching knowledge. In particular, coaches sensed that these experiences improved their leadership skills and provided them with a general

awareness of the technical aspects of their sport. The following quotations were reflective of coaches' responses:

> I think my strong leadership skills came from myself and developed through my involvement in sport. I had to step up as a leader when I was captain of my high school basketball team and especially as a university athlete and I've just continued from there. (C3)

> The reason I am the coach I am today has a lot to do with my athletic career. I played many different sports throughout my career even though I focused on playing football in university. This allowed me to develop a wealth of knowledge about sport and enabled me to interact with other people and experience different team environments. So playing as many sports as I could when I was younger, allowed me to coach a variety of sports later on. (C4)

Several coaches also felt they acquired valuable knowledge through their initial coaching experiences. More specifically, they learned from their mistakes and gained confidence in their decisions with each passing season:

> I think that one of the biggest things that had an impact on my coaching was learning from my mistakes. As a younger coach I didn't mind making mistakes and it is the same philosophy that I tell my athletes. It is okay to make a mistake, just learn from it. I think that is what helped me grow as a coach because I would try a lot of things that were probably off the wall at the time. But I was able to try a lot of things and it made me that coach that I am. (C5)

> When I first started coaching it was for sure harder than I am making it sound now. I would question whether I was making the right choices all the time. I was weary about who I was cutting from the team, if I was making the right choice. Even during a practice I would have a skill I wanted to work on but had three drills on my sheets that I wanted to cover but was not sure which one was the best. Eventually after gaining some experience, I started to know which drill was the best for that skill. (C4)

Additionally, coaches agreed that the process of learning from their coaching experience was ongoing and did not end once they had established themselves. Specifically, coaches felt that aspects of their coaching, such as interacting with their athletes and their coaching objectives, changed as they accumulated more experience:

> The fact that there aren't many coaches here and that I've had to step up and take two teams has helped me grow as a coach. It's given me time to practice my skills, acquire new skills, and to reflect upon myself as a coach. I've learned along the way the type of coach I am, what is important to me, and how I relate to my athletes. (C1)

> I learned a lot as I went along. At first it was a bit frustrating because I was excited to be coaching and so focused on winning and making sure everything was perfect. But as you get through your first few games and seasons, you learn that there are so many other factors beyond just winning and there are so many things that are really out of your control. When my team didn't win every game in my first couple of years, it was a bit frustrating but you learn how to adapt as you gain experience and learn more about yourself. (C3)

Another source of knowledge acquisition that emerged was coaching clinics. All six coaches had attended clinics but their opinions regarding the effectiveness of clinics as learning tools were mixed. Many coaches felt they had acquired knowledge by attending clinics, while others believed clinics held little educational value. These differences are illustrated by the following quotations:

> Coaching clinics can be very helpful but you've got to make sure that you go to the right one. I've gone to clinics and learned things that even though I've been playing for ten years and coaching for five, I never knew. I think that they can be very helpful; you just have to take the time to see what they are offering. If you already know the fundamentals then go to one on something else. It's also good to get out of your comfort zone and try new things. At these clinics you also meet and talk to other coaches who have been coaching a long time and are very knowledgeable. (C1)

> I recently had the opportunity to go to a football coaching clinic at a university in Syracuse. We got to watch how the different coaches ran their practices. I picked up both the organizational stuff and skill based stuff from watching them. Just the basic organization of how to run a practice, the intensity of the practice, the intensity of coaching at practice, and the motivation from each coach to each player was amazing. This stuff wasn't just for football; it can be transferred to any sport. (C2)

> Playing university football and having had good coaches, I knew everything presented at those clinics. I think these clinics are for coaches who have their son or daughter playing on the team, to give them a starting point. It's not really, I think, for the phys. ed. graduate. The level two is comparable to what I learned at the university level. Most of what I learned in level two, I already had coming

> into it. Level three is more about practices, coaching, philosophies, psychology, and mental imagery, so that was good. But level two, especially at the hockey level, because you are coming in with a degree in physical education it is kind of like I will occupy this chair so I will get the check mark in the box and leave with my certification. (C4)

Finally, coaches discussed reading books and using the internet as reference tools for acquiring coaching knowledge. In particular, four coaches believed books helped them acquire new training ideas and learn about coaching practices. Likewise, three coaches used the internet as a resource to add to their repertoire of practice drills. Evidence of learning from books and the internet is highlighted in the following quotes:

> When I was coaching at the beginning I was just left to my own devices and more or less had to find somebody to help me or check on the internet, which thank goodness is there because it is a huge resource. Or I would look things up in books. (C5)

> Sometimes I'll want to refresh and I'll go to the internet looking for specifics, like for a press-break, or I'll have a basketball book and I'll flip through it but for the most part I read books for pleasure. One of them was called the philosopher of sport, I think. They interviewed a whole bunch of highly successful coaches either in professional or college sport. John Wooden was in there. He talks about his philosophy and how he dealt with players. I've read that. (C3)

Personal and Contextual Factors

The second higher-order category of *personal and contextual factors* included 149 meaning units and represented 29% of the total data analyzed. This category pertained to the internal and external factors influencing coaches' motivation and commitment to coach, including the challenges faced when teaching and/or coaching. Also included within this category were coaches' philosophies, knowledge, and personal experiences.

Individual Makeup

This property encompassed coaches' personal characteristics and experiences including their knowledge, beliefs, and philosophies about coaching. More specifically,

coaches discussed their initiation into coaching, their personal characteristics, as well their background experiences that shaped their evolution as coaches. In particular, five key characteristics emerged from this part of the data helping them progress as coaches. This property was the fifth largest with 68 meaning units and not surprisingly contained information related mainly to the opening questions (e.g., how did you first get involved in coaching?).

All participants began coaching youth sport when they were high school students. Many coaches enjoyed their own sport experiences and got involved in coaching because of their love of the game and their desire to stay involved:

> I initially started coaching because of my love of the game and love of sports. I had played sports all my life and had an amazing experience so I wanted to give some of that back to the kids. (C3)

> My initial reason for coaching was to give back. I went up through the youth programs. As I grew older I always wanted to coach. My sports career was also coming to an end and I said, 'I have a lot of knowledge, I am not going to be able to play at an elite level forever, it's time for me to start giving back'. (C4)

While each coach was a unique individual with different background experiences, several common characteristics helped them progress as coaches. In particular, five coaches suggested that good organizational skills were essential in helping them fulfill their role as a high school coach:

> The organizational aspect of coaching high school sports is huge because at the high school level you are everything. You are the coach, the parent, the referee, team manager, first aid, everything. You have to pick up the uniforms, make and hand out the schedules, pick up the waivers from the parents, collect the money, go to meetings downtown. You need to be organized and be prepared to take on the role of the coach. (C2)

> You have to be dedicated to coaching and be a task manager. You need to clearly lay out your tasks and have your steps set up for yourself and know where you are going so that it keeps them on a straight path at every practice, game, and through

> the season. You can't be someone that is scattered all over the place because things will go wrong, even with a high school level team. (C4)

Several coaches also emphasized the importance of being a leader. More specifically, four coaches felt that being a leader on and off the field was a crucial component of being a successful high school coach:

> I think good leadership skills are important for a high school coach to have. Good coaches need to instill passion for whatever it is they are coaching. I think if the coach does not possess a passion for the sport, or the willingness compete in that sport and win, then these messages will be passed on to their athletes. Being a good leader is important, being compassionate is important too. I find in competition a lot of the focus in on win, win, win, but people have to understand that there is more to life than just basketball. (C1)

> I think to be a leader is a huge responsibility. To be a leader to the kids not necessarily in the specific sport you are coaching but to be a leader for them in all aspects of life and show them the right way of doing things through sport. (C3)

A small number of additional characteristics were consistently highlighted, including being passionate and flexible. Many coaches felt that being passionate about coaching helped them to survive their busy schedules. Likewise, being flexible with time commitments and remaining dedicated throughout the season were also emphasized by three coaches. Evidence for the importance of both these characteristics is shown in the following quotes:

> It's not easy working all day and you have to plan an hour and a half of your own time after school or in the morning to coach. So you really need to have a passion for it. You will suffer if you don't want to be there and I think the students can read you well and if you show them you don't want to be there, you will not get the performance you need from your athletes. (C3)

> Flexibility and time for sure. Everything happens after school and you have to be flexible on your time commitment. You can't just put in one day a week after school. There are meetings, games, practices. If you are prepared to coach then you need to be committed. You just can't expect to walk out after the bell rings. (C6)

In addition to being passionate and flexible, many coaches also discussed the

importance of confidence in their ability to coach. In particular, five out of six coaches believed they had enough knowledge and confidence to coach any team sport at the high school level:

> I could coach anything they wanted me to at the high school level. I may have to read up on it a bit more but I think it is more of a confidence thing. I have a general knowledge on how to coach it is just a matter of beefing up my knowledge of that specific sport. (C4)

> I would feel confident coaching just about anything at the high school level. I know the fundamentals and I am confident in my ability to teach the skills. (C1)

All coaches discussed their outlook on coaching high school athletes. In particular, their philosophies and goals have shaped the way they structure their high school athletics programs. For instance, four coaches identified enjoyment and skill development as their primary objectives:

> The basic philosophy of the program here, and it's always been this way, is it's basically an extension of what we do in physical education class. Get the kids to learn the game so they can leave this school with an attitude that they want to continue on in sport. For example, we are in the middle of rugby season and the big thing is we want to see kids continue on in that sport at the next level. It starts here. We want them to leave this program with the knowledge of what is going on in that sport, technical wise and tactical wise. They leave here with a good base and they can go on to the next level and enjoy that sport for as long as they want to enjoy it. That is the big thing I want to get across to my team. (C2)

> With the high school teams I really just try to get all the kids involved, you just want them to have fun and enjoy the sport. That is the number one thing I am trying to accomplish. If you win provincials it's a bonus, but in high school coaching, winning is not the ultimate goal. The ultimate goal is that the kids walk away wanting to play again next year. (C5)

Finally, three coaches highlighted the importance of learning life lessons and improving personal discipline through sport. In particular, coaches felt that athlete enjoyment and winning was an important goal, but personal development was the purpose of their sport participation. This is highlighted in the following quotes:

> The approach or philosophy I try to bring is to teach them more than just about soccer or basketball. Sport is a great way to learn about life lessons. Essentially my philosophy is all about teaching my players about commitment to practices, having a good attitude, teamwork, and respect; on the field for opponents and in school. (C6)

> One of the things we try to do is to make these students not so much good players but good men. I believe that being on a team is not a right but a privilege and these kids have to earn their spot on the team. I think at times you are going to be competitive; it's just a huge factor in sport, but I think it's important for coaches to take into consideration that these athletes are at a critical age where they're dealing with a bigger picture beyond just sports. So yes, a sense of learning the game and yes winning, but I want that whole experience to make them good men. (C3)

High School Environment

This property referred to the challenges and support coaches' experienced on a daily basis within the high school setting. This included coaches' role as a teacher and a coach, support of administration and staff, time constraints, and resource challenges. This property was the third largest with 81 meaning units.

Several coaches felt that while they were employed as teachers, they identified most with their role as a coach. In particular, all six coaches suggested they devoted more time to coaching than to teaching, as evidenced by the following quotes:

> I tell people at this school, teaching is something I just do around here. I am the athletic director of the school and a coach. I spend more time doing athletic director stuff and coaching than I do teaching. Planning my classes compared to planning the practices or planning the athletic director stuff, I just spend more time doing that stuff. (C2)

> To be honest, I probably sound quite passionate at the moment about coaching, but that is the part of the job that I enjoy. The day to day teaching is good depending on the group you have, but the thing I look forward to most is a practice or a game because you just get so much more out of the kids because they really want to be there and you see the commitment. (C6)

> There are some people who start coaching and it becomes a task. If it is something that you're willing to do for free and that you won't give up, then you're good. It's something that I look forward to doing at the end of my day and spend most

> of my time doing. I usually say, 'Ok, I had a crappy day teaching today but at least I've got to stay and coach. As opposed to, 'I had a crappy day teaching and now I've got to stay and coach'. (C1)

Additionally, all six coaches spoke about their responsibility to coach at least one team a year. Interestingly, four coaches felt their teaching load afforded them the time to coach, while two felt their teaching prevented them from devoting more time to coaching:

> My teaching load was quite good this year but sometimes if we have an away game, I would miss a class or two because of travel. Being in phys. ed. I have enough time to manage both. But when I was teaching science and phys. ed., I was running all over the place. It was hard going from the classroom and getting to the field on time. But being in phys. ed. I find the transition a lot easier. (C6)

> As a phys. ed. teacher we don't have correcting and I am a big believer that because of that our trade off should be to coach the teams. A lot of the phys. ed. department feels the same way, so we all coach at least two teams. So in that respect, that is our contribution as a teacher. (C5)

> My teaching load does, in a sense, interfere with my role as a coach in that I would prefer to give more time to my coaching. I can't get out there sometimes and I have to get someone else to come and coach them. Sometimes the kids demand more from me than what I can actually give because I have other priorities in school and I have to prepare for my teaching before coaching. Sometimes the kids want more practices and I can't give them anymore because I need the prep time for my actual classes. So sometimes teaching interferes with my coaching but, at the same time, if it weren't for teaching then I wouldn't be coaching. (C4)

Many coaches felt that similarities existed between coaching and teaching. Specifically, three coaches believed that excellent teaching skills are required to be successful coaches. In some instances, coaches felt their teaching experience gave them an advantage as a coach:

> There is a huge teaching component in coaching. In a sense my teaching background gives me an advantage as a coach because I know how to teach skills but I also think coaching takes a lot more than just being able to teach a skill, you really have to have all the components. (C3)

Coaches also noted differences between coaching and teaching. For example, "I find the students I deal with, their attitudes, and skill level distinguishes my role as a coach and a teacher." (C1). Likewise, all participants felt coaching allowed them to teach and interact exclusively with students who wanted to be involved and were interested in learning about the game:

> One of the things I began to understand early on is that teaching and coaching are essentially the same. The only difference more or less is your clientele. When I am teaching I might have some kids that want to be there and some kids that really don't. But when I am coaching I have a captive audience that wants to be there and want to learn. That challenges me to do my best. (C5)

Another area that emerged was the support of the administration and staff. On the whole, coaches believed they received positive support from their principal, as evidenced by the following quotes:

> The administration is extremely supportive of athletics here. We have two ex-phys. ed. teachers and the vice-principal was a music teacher so they're very supportive of athletics and extra-curricular activities in general. But they are supportive all the way through. From coming out to games to funding the team with new equipment. We have already made changes together and continue to work on how the program can be further improved. (C6)

> The administration is very supportive in that yes, they allow us to have teams and yes, they allow us to take the kids and miss last period to go to a game. Hockey, for example, every time we have a game the kids are released early. But in terms of saying, 'he's coached three teams this year, let's give him a break', it doesn't happen. I get the old pat on the back, 'way to go, thanks'. (C2)

Likewise, coaches felt teachers were generally in support of the athletic programs in their schools, but academics were still the priority. Specifically, three coaches explained that dealing with teachers' concerns and supporting athletes academically was part of their role as a teacher and coach in the school:

> There are always some teachers that are completely unsupportive, 'why does the kid have to miss class? They shouldn't be on the team! School is more important and you should take away their basketball instead of catering to them'. As a coach

> and teacher, you've got to apply your own philosophies and be politically correct and try to talk it through with them. I've always been true to my word. If a teacher comes to me and says x, y, z, happened, my players know they will be on the bench. But you have those teachers in every school, every year. You just learn to deal with them. (C1)

> The teachers are very supportive of athletics but there is a limit because academics still is the priority. Sports are extra-curricular. A child really has to step off to be pulled off a team, it's very rare. But as a coach and a teacher in the school you have to be aware of your boundaries and remember you are a teacher first. (C5)

A few coaches received support from teachers who volunteered as staff assistants. Interestingly, only four of the six coaches had staff assistants this season. However, the degree of involvement and the role the assistant played in the coaching and decision making varied from team to team, as evidenced in the following quotes:

> I can tell you that both of us played university football together. He also coached at the college level so he has a lot of experience to draw from. It is rare to have a very knowledgeable staff member to help out at the high school level. You might get someone to help with the paper work so I am very lucky to have someone with as much experience in the sport as me. (C4)

> The managing of the players and the strategic aspects of the game are my role and the other coach takes care of all the administrivia. The game sheets, the lines, all the initial set-up for a game. We share roles but I do most of the hands-on and on the field stuff and he does all the paper work. (C5)

> If you have an assistant coach at the high school level you are very lucky because usually there aren't even enough head coaches to cover the teams. This year, my assistant coach was there basically because this person wanted to take the team over next year and wanted to know how you do it. Wanted to know how much time you need and how you organize practices. (C2)

Several coaches found that resource constraints impacted their coaching. Specifically, all six coaches noted that the physical space afforded for training limited their ability to coach. Likewise, sharing gym and/or field time with numerous teams also presented a challenge:

> If I had unlimited use of the gym I'd probably run three practices a week, plus games. But I just don't have the space here. We've got five teams, and five days a week, which works out to one practice each. There are also games here in the gym after school and lunch time activities so I just can't get the time in I'd like to. (C1)

> This year we had six soccer teams and four touch football teams so we had ten teams using one field at a time. We have to share our field for practices as well as work around games, so it is very limited. When the game schedule comes out we schedule our practices right away. Some nights you may only have half a field or a quarter of the field. It's just the way it is. (C5)

Coaching Tasks and Duties

The higher-order category of *coaching tasks and duties* included 169 meaning units and represented 32% of the total data analyzed. This category pertained to the coaches' tasks and responsibilities involved in coaching high school athletes both inside and outside of competition. More specifically, the current category highlighted the coaches' interactions with athletes, as well as their approach to goal setting, training, and competition.

Training and Competition

The following property discussed coaches' approach to training and competition and their involvement in setting goals for the team, themselves, and their athletes. This property was the second largest with 84 meaning units.

All coaches talked about having a routine before, during, and after competition. In particular, similarities were found between the ways coaches acted prior to competition. For example, all coaches met with their players prior to the game. Coaches used these meetings to focus their athletes and repeat the game plan:

> Once we get to the school they all go to the locker room and I tell them to meet me in the cafeteria or wherever the school tells us we can meet until the game. Before the game I don't put my game face on until we are in the gym or on the bench. We talk about key things we want to work on but it's short. Mostly, I want them just to be together and get them ready to play. (C1)

> When I get to the game, we go through a pre-game warm-up. There is no time really to have a meeting and say, 'okay, remember what we worked on in practice'. At the home gym, before we leave for the game, I make sure we are all on the same page and review what we want to focus on. But at the game, we just don't have time. We usually get there and go right into the game. (C2)

> Before the game, we already got to a certain level or point of preparation for the game. The kids know their place, they know the time of the game, and they know I will get them there. Once we are there I just let them perform on the field. (C4)

Consistency was also found between the coaches regarding their post-competition routines. Several coaches believed that specific feedback should not be given immediately following a game. Instead, the coaches would give short and general feedback to the whole team, and wait until a later time to give athletes specific feedback:

> We debrief after a game for about one or two minutes just to say what happened here, what are the things we need to work on. I then let them think about things in their own mind. If you speak too much after a game, they're not there mentally anyways. It's better just to talk about things next practice. (C4)

> After the game we'll usually sit down once the buzzer's gone and talk about the game. We might have won by 20 points or lost by 20 points but we keep it short. I'll say, 'this wasn't good or this was good' but we'll get into it the next practice. The players who ride back to school with me after the game, I tend not to talk about the game unless they bring it up. (C6)

While coaches' routines were similar before and after competition, discrepancies were revealed between the coaches' behaviors during competition. Some coaches actively coached throughout, while others hoped to prepare their athletes sufficiently so that their input during a game would be minimal. These differences are highlighted by the following quotes:

> During the game I am very vocal. I try to stay positive. I sometimes become a teacher because you have to be able to identify when something is not working and what they are doing well. You need to be able to evaluate those things and when there are time outs or at half-time, you need to be able to provide that feedback to your players. (C3)

> I will call plays that I think they need to play the game. But at the same time they are given the flexibility to call or make adjustments themselves based on what they see on the field. I am a facilitator at that point. They know the game. If I am not there, they should be ready to go on without me. I stand on the sidelines and I am just basically observing and helping them along. (C4)

Coaches also shared similar goals for their teams. In particular, many coaches set outcome goals such as making the playoffs or winning the league championships:

> The vision is the championship. I am a competitive individual. I am not going to put a team together just to go out and have fun. No matter what level they are at, I want them to do their best. I am going to work them like I would any other team, with the vision that we want to make the playoffs, there is no doubt about it. (C4)

In addition to setting outcome oriented goals, four coaches set process oriented goals. Specifically, coaches focused on maintaining player commitment throughout the season and improving as a team from game to game:

> One of the team goals I set is doing things the right way and not worrying about what the effect is on the score board, just do it the way we want and apply the things we learn in practice. Seeing your team improve by the end of the season is a bigger reward than winning any championship. (C2)

> Although we are competitive and we have won in the past couple of years, we don't sit down and say, 'okay, we want the championship; these are the goals we will have to achieve to get there'. It's more focusing on commitment and team atmosphere. We don't miss practices, we don't miss games. We want to make sure that everyone can get to every game and make sure we are all on the same page. The championships tend to come with it. (C5)

Coaches also appeared to measure success in similar ways. This is not surprising since it has been highlighted that coaches shared similar goals and objectives. In particular, improvements in player performance as well as player commitment were two ways coaches evaluated their success:

> I see the success with the kids on the floor or on the team who show me they have learned something. That's how I see my success and at the end of the year, the kids can say, 'that was cool, I want to do that again next year'. (C2)

> If you see the team play at a certain level at the beginning of the season, it is how far they've come by the end of the season. It is not whether we won or loss, it is whether or not they have improved and if we have come together as a team. (C4)

Another area that emerged was how coaches trained their athletes. In particular, all six coaches explained the need to adapt their practices to athletes' skill level. For instance, "I definitely focus on different things depending on the level of the team I am coaching. With my bantam team, the skill level of the players can vary from beginner to someone who's been playing for five years. So you could be working on three different shooting drills, each at different levels of difficulty" (C3). Regardless of athletes' skill level, coaches focused their practices on teaching the fundamentals of the sport:

> Every practice has to involve skill development. I don't think the emphasis in high school sport should be on team systems necessarily. We definitely touch upon team systems in different aspects but the fundamentals are what will take you where you need to go at any level. I think the key is trying to help each individual improve to their potential. So the main aspects of my practices are shooting, passing, dribbling, and defense. Then we add in game strategies. But generally speaking, I spend most of my time on the fundamentals and making sure they are as good as can be. (C2)

Finally, several coaches highlighted the importance of planning each practice session. While a few coaches made detailed practice plans, most coaches made a few notes prior to each practice. For example, "I plan my practices on the train on the way to work or the night before on the train ride home. I would just think about what I wanted to do and jot a few things down" (C6). Others wrote out detailed practice plans, one coach handed out typed practice plans to his athletes because he believed it prepared them for what they would be working on:

> For basketball I really needed to write out detailed practice plans but for soccer or rugby I just worked from what was already up here (points to head) and jot down a few notes. (C6)

> I write stuff down on a clipboard when I am out there and later in more detail. Something I do is I type out my practice plan on the computer and give the kids a copy of the drills and skills I want them to learn. It is like a mini manual for them of the things I want them to learn. (C4)

Athlete Factors

Athlete factors pertained to coaches' interactions with their athletes, including how they built their team and the behaviors and values they expect and impart upon them. More specifically, coaches discussed student-athlete expectations, athlete characteristics, and the values and outcomes coaches hoped athletes gained as a result of their participation on the team. This property was the largest with 85 meaning units.

All coaches felt athletes needed a number of characteristics in order to be successful. In particular, coaches explained how these characteristics influenced player selection. While all coaches felt athletic ability was a determining factor, four coaches also believed a positive attitude and willingness to learn were important characteristics:

> You might have an athlete who has played sports all their life and the less skilled athlete who likes to be involved with a team or a group but they're not necessarily the most skill players. So there is a wide variety of players. You want players who are willing to listen, that are coachable. (C3)

> When picking my athletes at the beginning of the season I look for skill obviously. I also look for someone that has a good attitude. They have to be respectful. I've coached teams where you have players that are rough around the edges and didn't care and were disrespectful towards coaches or other players on the team. To have a team as a unit is better than having the best player in the school on your team. I also look for coachability, their willingness to learn. If there are two kids at about the same level and one of them comes after practice and says, 'Did I do this or that right?', well that kid might get the last spot on the team because of their willingness to learn. (C1)

Coaches also seemed to share similar thoughts pertaining to athletes' academic standing and behavior in school. More specifically, all coaches acknowledged that part of

their coaching responsibility was to support athletes' academic aspirations and ensure they were behaving in class:

> This year we had a kid on our team who struggles in school but does well in our athletics program. He is a very good basketball player, very good athlete, not great as a student. A couple of times his math teacher came to see me, 'he didn't have his book, he didn't do this, he didn't do that'. I would go up to him, as his basketball coach and say, 'you better bring that to class. If your teacher comes back to see me again well then it becomes a team problem and we are going to have to deal with it'. It is a reflection of what we do on the team here. One game he was asked to sit on the bench for a half because he wasn't performing in school. It always comes back to, we cannot justify bringing you on the basketball court unless you put up your end of the deal in the classroom and in the hallways of the school. (C2)

> One of my biggest pet peeves is dealing with behavior problems because it means my players are not earning their spot on the team. I hate to do it but if a kid is misbehaving in class or not doing their homework, I don't like to pull them off the team. I think some of the teachers would like me to use the team in that way but I hate to do it. It's the thing that bothers me the most about coaching at the high school but it is part of the territory and every year it's different. You have a new set of guys with a whole new set of personalities and problems. But at the end of the day if I have to and I think it will get results, I will sit them out for half the game. (C3)

In some instances, students were required to have contracts signed by their teachers in order to play on the team:

> Here at the school the kids have to sign contracts. Some of the kids who play on the teams have behavior problems. If a teacher does not want to sign the contract, I'll often go speak to the teacher and say, 'from October to March, this student will be perfect in your class. Please sign it. The minute he or she does not do their homework or is disrespectful, you come tell me and they will be sitting on the bench'. That's their worst nightmare. It's worse than calling home, or taking away television, because these kids love playing basketball. (C1)

Coaches also discussed their relationships with athletes. In particular, coaches believed positive interactions were important, and most felt they had a good rapport with the majority of their players:

> Kids have enough stuff during the daytime, between their homework and their after school jobs, and then they are adding this on to their lives. You cannot come

> down too hard on them as a disciplinarian. You can be there and you can also be black and white with them, because sometimes they need that. I take the time get to know my players and ask them, 'what's going on in your day today?' I make sure they know I am there for them and when there's a problem, they will usually open up to you. (C4)

Coaches also discussed teaching athletes' about personal discipline and values through their participation in sport. In particular, four coaches believed their leadership role influenced athletes' behaviors and attitudes:

> I think that the players learn a lot from my behavior as the coach in practices and games and with the opposition as well. If they see me being respectful towards the opposition and coaches then hopefully that will pass through to them. I hope I can instill those values through my actions and they will know how to act responsibly in return. (C6)

> Being a leader and showing the kids not necessarily in the specific sport you are doing but to be a leader for them in everything. To show them the right way of doing things through sport. I hope that if I could show them how to be leader on the field or court that they can bring some of those things to their studies and in the hallways at school. (C2)

Another area that emerged was the importance of teamwork. Several coaches felt their athletes should understand the benefits of teamwork and consistently applied these principles to practice and game situations:

> We played in a basketball division where there were players that were probably too good to be playing at that level so we really focused on playing as a team. We put a lot of conditions on the game and some of those players would become frustrated and I dropped a few from the next game. I brought in other weaker players to make them see that it is not all about putting up points individually in a basketball game; it is much more than that. (C6)

> When I was in high school I did a lot of team building stuff and that was a big aspect with a lot of the teams I coach, the importance of working together. It doesn't matter how good you are, if you are by yourself and you don't have anyone to help you, you're not going to be successful in team sports. So I try to remind my players of that throughout the season. (C3)

Likewise, a few coaches also postulated that it was important for their athletes to be respectful of other teams and demonstrate good sportsmanship:

> Good sportsmanship is something that is really important to me as a coach, it's way up there. I don't allow my players to be disrespectful towards the other team members, towards the referees, or the coaching staff. I find a lot of the times when you play competitive sports, even when I was playing, there were some coaches who teach their players the dirty underhanded tricks. I tell my players that the refs are there for that. If they are not calling it, they're not calling it, but at least our team will be above that, we're going to win the right way. (C1)

Finally, in addition to teaching their athletes about sportsmanship and teamwork, a few coaches also felt it was important not to limit their athletes to participating on one team but to expose them to a number of sports:

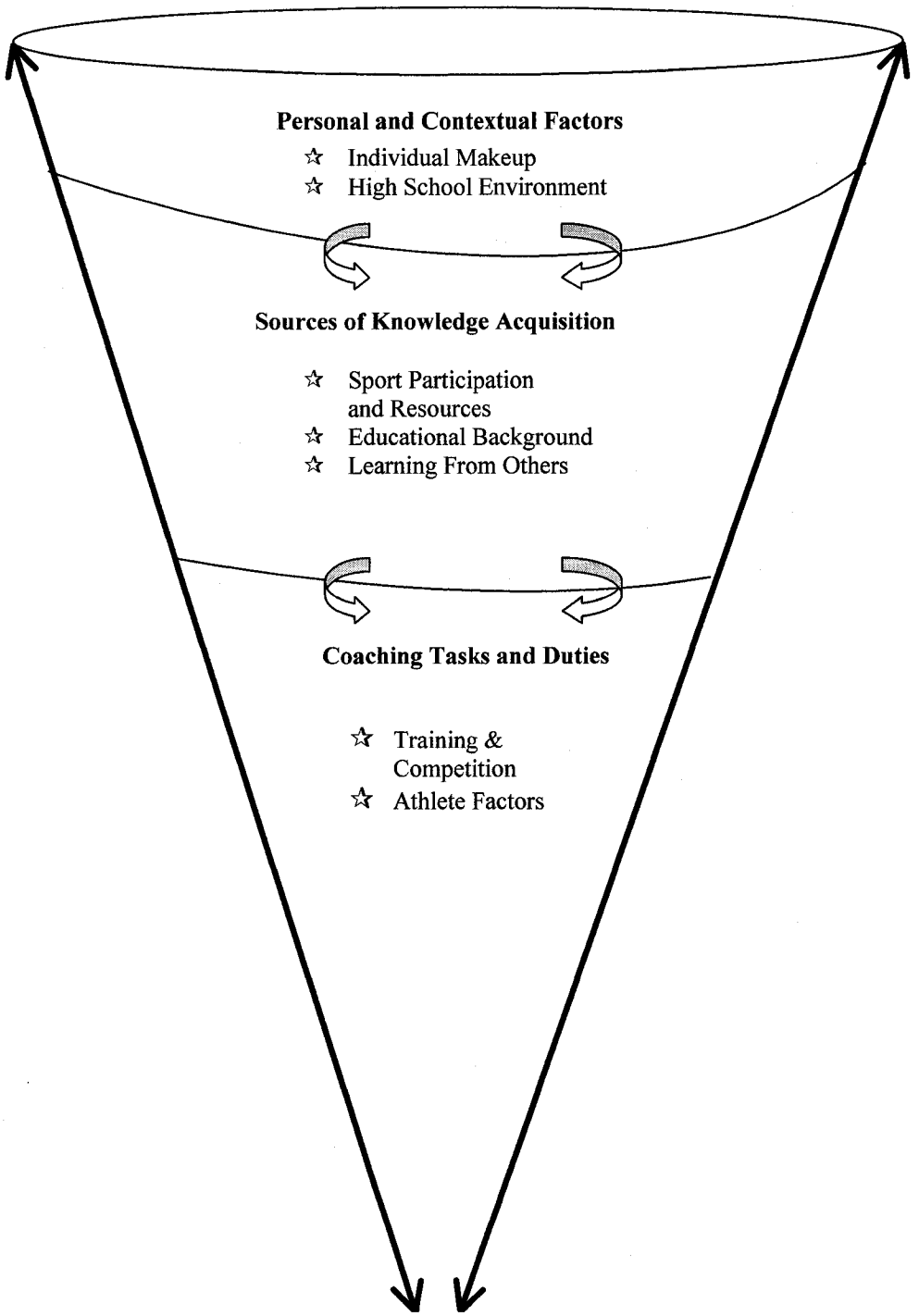
> I am able to see a kid doing great in a sport who could really be great in another sport. I think it is my job to expose them to new things, especially at this age. Some of them tend to fixate on one sport; I'm going to be a soccer or football player. There is a chance that you are not, try something else in case because you might be a lot better at this sport than you thought you were. (C4)

Summary

The participants in this study were purposefully chosen to fit a number of criteria. Each coach was teaching full-time physical education and was current head coach of a team sport at the high school level. Participants had each graduated from a concurrent physical education teacher training program between 1999 and 2001 and each had accumulated between 5 and 15 years of high school head coaching experience. Furthermore, each coach had completed a minimum Level 1 and maximum Level 3 coaching certification through the Coaching Association of Canada. Six high school team sport coaches were interviewed and an inductive analysis of the data revealed three higher-order categories, which were titled *sources of knowledge acquisition, personal and contextual factors, and coaching tasks and duties.* These categories explained who coaches were and provided descriptions of both their teaching and coaching environments. Additionally, results highlighted the different ways coaches acquired

coaching knowledge as well as how they applied it to their tasks and duties (see Figure 1).

Figure 1 *Relationship among the higher-order categories describing the key factors influencing high school coaches' knowledge acquisition.*



Sources of knowledge acquisition described the key factors influencing their knowledge acquisition, from their earliest sporting experiences to their current coaching positions. All six coaches graduated from a concurrent physical education teacher education program, which required a total of four field experiences (2 x 3-week and 2 x 6-week) in both elementary and high school settings. All coaches felt their field experiences provided them with coaching knowledge. More specifically, part of their field experiences involved helping to coach some of the high school teams. These experiences allowed them to network with more experienced coaches and gain valuable coaching experience in a supervised setting. Aside from acquiring knowledge from field experiences, four coaches learned organizational, planning, and pedagogical skills from their teacher training courses. Likewise, many coaches believed their skills courses provided them with fundamental knowledge of different sports. While all six coaches felt their university training helped them acquire coaching knowledge, three coaches said a specific course geared towards coaching high school sport would have been beneficial for their development.

Aside from their university training, there was consistency amongst the coaches regarding other sources of knowledge acquisition. For instance, talking with and observing other coaches was deemed important. In particular, coaches believed attending other teams' practices and games and observing coaches' behavior allowed them to acquire specific knowledge pertaining to a wide variety of coaching tasks. Interestingly, regardless of coaching experience, all six coaches shared information with and consulted other coaches on staff about aspects of training. Coaches had different opinions regarding the value and effectiveness of coaching clinics as learning tools. All six coaches

consulted coaching books or the internet to further supplement their coaching knowledge. Overall, it can be concluded that coaches acquired knowledge through a combination of different learning sources. Formal education was perceived to be important by coaches providing a basic understanding of sport science and pedagogical practices. Likewise, field experiences provided coaches with practical experience in the high school setting. This knowledge base was further developed as coaches learned from experience and interacted with other coaches.

Personal and contextual factors included the internal and external factors influencing their motivation and commitment to coach, including the challenges faced when teaching and/or coaching. Also included within this category were coaches' philosophies, knowledge, and personal experiences. All coaches revealed that their characteristics, including organizational skills, leadership, passion, and confidence had helped them fulfill their role as high school coach. In addition to sharing a number of characteristics, coaches identified more with their coaching role despite being employed as a teacher. For example, many coaches found they devoted more time to coaching than to teaching. There was also agreement between the coaches regarding the support of administration and staff. On the whole, coaches believed they received positive support from their principal and colleagues but felt the physical space afforded for training limited their ability to coach. Likewise, sharing gym and/or field time with other school teams also presented a challenge. In general, these findings highlighted that coaches shared similar characteristics and philosophies towards coaching. Additionally, coaches experienced challenges specific to the high school environment that impacted their coaching.

Coaching tasks and duties pertained to tasks and responsibilities both inside and outside of competition. All coaches talked about having a routine before, during, and after competition, such as meeting with athletes to discuss key points before competitions. Despite this, discrepancies were revealed between coaches' behaviors during competition. Some actively coached throughout the game, while others took a more passive approach. All coaches set outcome goals such as making the playoffs or winning the league championships and process goals such as improving as a team from game to game. Commonalities existed between coaches' approaches to training. Coaches structured their practices around teaching fundamentals and cited the need to adapt their practices to athletes' skill level. In general, these findings highlighted that coaches shared similar beliefs and approaches to athlete development. Likewise, similarities were also found between the knowledge coaches possessed and how they applied it to perform their role effectively.

Taken together, results highlighted the key factors influencing the knowledge acquisition of high school team sport coaches, including coaches' personal characteristics and working environment. *Sources of knowledge acquisition* arguably provided the most pertinent information to the current study, highlighting the different ways coaches acquired their coaching knowledge. This journey was influenced by the coaches' *personal factors,* which explained who they were, and *contextual factors,* which presented daily challenges as teachers and coaches. *Coaching tasks and duties* was the result of this journey, containing information pertaining to the knowledge coaches acquired and how they utilized it to fulfill their day-to-day roles and responsibilities. Interestingly, while each coach's journey was unique, their knowledge acquisition was

similar in two ways: the resources they used to initially acquire knowledge and the sources used to gain further knowledge. Initially, their formal education provided coaches' with training in sport sciences and pedagogical practices as well as the opportunity to gain practical coaching experience. This knowledge base was further developed once they began working in the high school, interacting with more experienced coaches and learning from their own experience. Given that knowledge was acquired from a variety of sources, this supports the notion that coach education and physical education teacher training programs should utilize a combination of formal training, informal learning opportunities, and practical experience to prepare aspiring high school coaches to work in their domain.

Chapter 5

Discussion

The purpose of the current study was to investigate sources of knowledge acquisition of high school team sport coaches, the factors that shaped their knowledge, and how this knowledge was applied in the coaching process. Three higher-order categories emerged from this study: *sources of knowledge acquisition, personal and contextual factors, and coaching tasks and duties.* The following chapter will discuss these categories as they pertain to previous research, specifically with the acquisition of knowledge of high school coaches. The final section of this chapter will provide a summary of the current research, along with conclusions, implications of the study, and recommendations for future research.

Sources of Knowledge Acquisition

The higher-order category entitled *sources of knowledge acquisition* included the key factors influencing coaches' knowledge acquisition, from earliest sport participation to current coaching position. The coaches discussed learning from their physical education teacher training program, athletic experiences, observations and interactions with other coaches, as well as from clinics and books. Interestingly, the coaches' differed on the importance of each learning source. These findings will be discussed with respect to previous coaching literature.

All coaches attributed their knowledge acquisition to their university classes and experiences. Specifically, knowledge was acquired through their pedagogy, psychology, and skills courses, as well as their field experiences in the high school setting. These findings were consistent with recent literature (Werthner & Trudel, 2006) which has

suggested that coaches acquire knowledge through three different learning situations: mediated, unmediated, and internal. Using Werthner and Trudel's framework, current coaches' pedagogy, psychology, and skills courses could be classified as mediated learning situations. Specifically, participants acquired organizational, planning and teaching skills from their pedagogy courses. Likewise, three coaches felt their psychology courses helped them to be more understanding of their athletes' needs and exposed them to different ways of dealing with athlete behavior. This finding was in accordance with previous research (e.g., Anderson & Gill, 1983; Hardin, 2000) which found that expert high school coaches acquired fundamental coaching knowledge while studying physical education at university. Perhaps the most important source of learning came through field experiences in the high schools. This unmediated learning situation, allowed participants to network with other coaches and gain valuable coaching experience. Similarly, expert coaches have been shown to have gained knowledge through initial coaching experiences as assistant coaches at the high school level (Cregan et al., 2007; Sage, 1989; Schinke et al., 1995). Finally, reflecting on their field experiences and current knowledge illustrate an internal learning situation. Overall, the current findings suggest that a wide variety of learning sources were available for coaches to acquire and refine their coaching skills. Despite this, three coaches felt a specific coaching course geared towards coaching high school sport would have been beneficial for their development. Thus, it would be of value for future studies to investigate how the inclusion of a coaching course may influence coaches' field experiences.

Participants in the current study accumulated hours of experience as athletes in a number of different sports. Interestingly, five out of six coaches had competed at the university level before they started coaching in their respective sport. This pre-coaching experience seems to be typical of most sport coaches (e.g., Bloom et al., 1998; Cregan et al., 2007; Gilbert, et al., 2006; Saury & Durand, 1998). For example, Gilbert and colleagues found that successful high school and elite sport coaches accumulated, on average, over 4600 hours as athletes. Similar to coaches in other studies (Hardin, 2000; Sage, 1989; Potrac et al., 2002), several participants felt their athletic experiences were important in helping them develop basic knowledge, such as rules of the game and the technical skills to demonstrate. For example, Hardin found that expert high school coaches drew heavily on their athletic experience to demonstrate drills which were important for gaining player respect. Contrary to these findings, recent empirical research has suggested that expert university coaches developed coaching knowledge and achieved success without drawing upon expert athletic experience (Carter & Bloom, in press). These coaches revealed they had to work harder to try and obtain the knowledge that their peers acquired from their athletic careers. In the current study, all coaches had competed at the university level. While athletic experience was deemed to be an advantage it was not identified as a necessity. Furthermore, two coaches reported learning from their athletes as another key strategy for gaining sport-specific knowledge. Notably, these coaches were coaching sports they did not have extensive playing experience in. Overall, these findings appear to highlight the importance of athletic experience as one of the many sources of knowledge acquisition, providing coaches with basic knowledge of their sport. In addition, results also supported Carter and Bloom's findings suggesting

that different sources of knowledge acquisition were available to coaches who lacked athletic experiences.

In addition to learning from their athletic experiences, results indicated that coaches acquired knowledge through their initial coaching experiences. In particular, coaches learned from their mistakes and gained confidence in their decisions with each passing season. This finding is in accordance with previous research with youth (e.g. Gilbert & Trudel, 2005) and elite level coaches (e.g. Bloom & Salmela, 2000; Werthner & Trudel, 2006) identifying experience as an effective strategy for developing coaching skills and knowledge. In particular, Gilbert and Trudel suggested that coaches often examined their coaching behaviors and the subsequent consequences, which allowed them to determine which aspects of their coaching repertoire were successful and should be maintained. However, coaches in this study suggested that although this was an important method for gaining knowledge, they felt that it was not always by choice, as highlighted in by the following quotations: 'The fact that there aren't many coaches here and I've had to step up and take two teams has forced me to rely on my experience and grow as a coach' (C1). Taken together, the current findings contribute to existing research which has established coaching experience as a key resource for coaches. More precisely, results underscore the importance of trial and error for high school coaches given the challenges they face (e.g. lack or resources, coaching several teams).

Regarding the role of others, results showed that coaches learned from observing and talking to other coaches. This supports previous research (e.g. Bloom et al., 1998; Gilbert & Trudel, 2001; Sage, 1989; Werthner & Trudel, 2006) which has ascertained the importance of informal and unmediated learning sources, including interacting with

coaches, watching other teams' practices, and mentoring. For example, Sage's research with high school coaches in the United States found that coaching skills and knowledge were learned through constant observation of and listening to more experienced coaches. Similarly, Bloom and colleagues found that mentoring by more experienced coaches allowed younger coaches to acquire knowledge and helped shape their coaching philosophies and beliefs. In the current study, participants interacted and observed coaches in a practical context; however, only two reported having mentor coaches. It is reasonable to suggest that assuming the role of assistant before becoming head coach is not as common at the high school level, and therefore the current participants did not have the same access to mentor coaches as elite level coaches. In light of this evidence and previous research which has recommended the implementation of formal mentoring programs to improve coach development (e.g. Bloom et al., 1998; Saury & Durand, 1998), it would be worthwhile to further investigate the role and impact of a formalized mentorship program on high school coaches' development.

Coaches also openly exchanged information and learned from other coaches on staff in their school. Regardless of coaching experience, all coaches consulted other coaches about aspects of training and player development. Specifically, participants identified the importance of watching and consulting other coaches on staff and adapting their ideas to suit their own situation. These findings support previous research (Gilbert & Trudel, 2001; Lemyre, et al., 2007) which has suggested that "communities of practice" (Lave & Wenger, 1991) or interactions among the coaching staff can provide important learning situations in which they discuss coaching issues and develop, experiment with, and evaluate strategies to resolve these issues. The community of practice framework has

recently been examined in studies with youth sport coaches. In particular, Trudel and Gilbert (2004) suggested that the hockey subculture limits the emergence of a community of practice because youth hockey coaches tend to see each other as enemies instead of colleagues working together to create a safe learning environment. Second, Culver and Trudel (2006) conducted two studies in sport clubs, and results suggested that although instructors recognized the potential to learn by sharing their knowledge, time and space to meet were important limiting factors. An important distinction to note is that coaches in the current study all worked together as coaches and teachers and arguably were afforded the time and space to exchange information and ideas during lunch hours or breaks. Furthermore, these coaches were not competing against each other and therefore did not see the exchange of knowledge as a threat to the success of their teams. Overall, the current findings contribute to existing literature which has underscored the value of consultations with other coaches. Further research is needed to gain a greater understanding of the community of practice at the high school level and examine whether it is possible to create an environment for coaches to interact on a regular basis to share their knowledge and discuss coaching issues.

The current results also revealed that all coaches attended coaching clinics, but their opinions regarding the effectiveness of these clinics as learning tools were mixed. Many coaches felt they acquired valuable knowledge at these clinics, including new aspects of their sport and a basic understanding of sport science and pedagogical practices. By contrast, other coaches believed clinics provided little new information for them. Moreover, coaches' previous university coursework in physical education provided them with information more advanced then that presented in a coach education program

over a weekend. These results must be interpreted with caution, however, as these coaches still invested, in some cases, a considerable amount of time in formal education, even though there was no requirement to do so. The current findings appear to support researchers (Lyle, 2002; Werthner & Trudel, 2006) who have postulated that coaches require a mix of formal education and application of this knowledge in their day to day coaching.

Finally, coaches revealed that learning also occurred from books and the internet. In particular, four coaches believed books helped them acquire new training ideas and learn about coaching practices. Some of the books they read included coaching autobiographies, coaching text books, and sport-specific books. Likewise, half the coaches thought the internet was an important resource for both acquiring and refining their repertoire of practice drills. Not surprisingly, coaches with less coaching experience tended to search more for information on drills and how to develop certain technical elements. These findings support previous research (e.g. Gilbert & Trudel, 2001; Lemyre et al., 2007; Wright, et al., 2007) which suggested that youth coaches used books and the internet mainly to search for information and drills and learn new aspects of their sport. Overall, the current findings suggested that although books and the internet may not have been the most important factors in knowledge acquisition for these coaches, they were still viewed as potential learning tools.

Personal and Contextual Factors

Whereas the previous category discussed the journey of knowledge acquisition by the current sample of coaches, the following category highlighted how this journey was influenced by who the coaches were. More specifically, *personal and contextual factors*

included the internal and external factors influencing their motivation and commitment to coaching, including challenges faced when teaching and/or coaching. Also included within this category were coaches' philosophies, knowledge, and personal experiences. This higher-order category was similar to the *coach characteristics* and *contextual factors* dimensions of Côté, Salmela, Trudel, et al's (1995) Coaching Model. According to the CM, each of these components (e.g., coaches' philosophy, training resources) heavily influences coaches' thoughts and interactions with their athletes. Specifically, coaches' need adapt to their environmental conditions as well as develop an awareness of their role and ability in order to achieve success. The following section will examine various aspects of coaches' characteristics and how these influenced their knowledge acquisition, including the contextual factors they faced in their day-to-day coaching.

Four coaches identified enjoyment and skill development as their primary coaching philosophy. In addition, coaches highlighted the importance of learning life skills and the personal development of their athletes. According to the CM, the goal of the coach is to develop the athlete and the team (Côté, Salmela, Trudel et al.,1995), although the authors never explicitly expanded on this idea. Recent research has shown that high school (e.g., Gould, Collins, Lauer, & Chung, 2007) and expert university coaches (e.g., Bloom & Salmela, 2000; Vallée & Bloom, 2005) espoused the importance of advancing their players' individual growth, in addition to their athletic attributes. For example, Gould and colleagues showed that successful high school football coaches did not view the coaching of life skills as separate from their general coaching strategies for performance enhancement. Similarly, Vallée and Bloom showed that coaches believed that placing the holistic development of their athletes as a top priority was a key element

in developing a successful program. Thus, similar to other coaches, it appears that the current participants believed that the main purpose of their program was the overall development of the athlete.

Although each coach possessed a unique set of characteristics, five commonalities emerged. For instance, coaches suggested that good organizational skills were essential in helping them fulfill their role as a high school coach. In addition to their teaching role, coaches spent hours planning practices, preparing for games, arranging the team's transportation, making schedules, and counseling athletes. This finding contributed to previous research identifying the roles of the high school coach (Gummerson, 1992; Sage, 1987; Clark, 2001). For instance, Sage demonstrated that high school coaching responsibilities included assuming the role of the teacher, trainer, administrator, motivator, and disciplinarian. In sum, results underscore the importance of organizational skills in helping coaches manage their teaching and coaching responsibilities as they move between the two contexts.

Additionally, coaches in this study noted the importance of flexibility, leadership, confidence, and passion, which are characteristics previously reported by expert coaches (e.g., Bloom, 2002; Côté, Salmela, Trudel, et al., 1995; Saury & Durand, 1998). Of particular importance to the coaches in this sample was being passionate about coaching to help them survive their busy schedules and dual role demands. Both of these viewpoints are supported by previous research (e.g., Cregan et al., 2007; Davies et al., 2005). In particular, Davies and colleagues found that coaches' believed that passion was a key factor in helping them deal with the lack of financial resources and increased administrative duties place upon them. Thus, it is reasonable to conclude that

organizational skills and passion were crucial characteristics of these high school teacher/coaches, helping them manage their teaching and coaching responsibilities.

In addition, the current participants believed that coaches needed to have excellent teaching skills in order to be successful. In some instances, coaches felt their teacher training and experience gave them an advantage as a coach. These findings contributed to existing literature (e.g. Abraham & Collins, 1998; Douge & Hastie, 1993; Jones, Housner, & Kornspan, 1995; Lyle, 1998) which has interpreted the role of the coach as being synonymous with that of the teacher. For example, Jones and colleagues found that the interactive decision making involved in teaching and coaching were similar. Likewise, Lyle postulated that the theoretical basis for exploring coaching effectiveness was dependent on research in teacher behavior due to the vast similarities between the two professions. As such, the current findings support the notion that expert coaches require effective pedagogical skills in order to be successful.

Results of the current study also revealed participants' perceptions of their roles as teacher and coach. Specifically, coaches highlighted that while they were employed as teachers, they identified most with their role as a coach. In fact, participants felt they devoted more time to coaching than to teaching. These findings support previous research (e.g. Chu, 1984, Curther-Smith, 1997; Dodds et al., 1992; Macdonald, 1999) which has suggested that high school physical education teachers preferred their coaching role to their teaching role. For example, Macdonald reported that physical education teachers listed extracurricular activities, such as coaching, as a challenging and enjoyable aspect of their work. Likewise, Pauline and colleagues indicated that enjoyment from working with players and the excitement of coaching were important reasons for continued

involvement in coaching. While all coaches in the current study generally enjoyed the dual responsibilities of teaching and coaching, only two coaches felt their teaching load prevented them from devoting more time to coaching. This finding is noteworthy given that meeting the demands of both roles simultaneously has been reported as one of the primary reasons for disengagement in coaching among high school physical education teachers (Macdonald, 1999; Pauline, Lund, Pauline, & Weinburg, 2004; Rupert & Buchner, 1989). Overall, these findings highlight current participants' coaching orientations and suggest that enjoyment of coaching was an important factor in their ability to manage their teaching and coaching responsibilities.

Finally, results revealed coaches' perceptions of their working environment. The current study supports the importance given to contextual factors and their role in the coaching process indicated by Côté, Salmela, Trudel et al. (1995). More specifically, a number of variables within the high school environment affected how coaches applied their knowledge. In particular, coaches felt they received positive support from the administration and staff in their schools. For instance, several coaches revealed that the administration showed support by attending games and providing funding for equipment and uniforms. Likewise, a few coaches received support from teachers who volunteered as assistant coaches. Additionally, coaches talked about the impact of resource constraints on their coaching. Specifically, all six coaches noted that the physical space afforded for training limited their ability to coach. Likewise, sharing gym and/or field time with numerous teams presented a challenge. In light of this evidence and previous research (e.g. Pauline et al., 2004) which has recommended that administrators maximize the enjoyment of coaching by providing their coaches with the necessary resources to

work with players/teams, it would be worthwhile to further investigate the impact of the environment of high school coaches' overall enjoyment and career progression. Finally, emphasizing the challenges within the high school coaching context may make a significant contribution to understanding high school coach development.

Coaching Tasks and Duties

The higher-order category *coaching tasks and duties* pertained to the participants' current knowledge base and may be viewed as the result of their journey of knowledge acquisition. Hence, it included information pertaining to the knowledge coaches acquired and how they utilized it to fulfill their day-to-day roles and responsibilities both as teachers and coaches. This category contained information similar to many elements within the three primary components of Côté, Salmela, Trudel, et al.'s (1995) Coaching Model (CM): *organization, training, and competition.* According to the CM, coaches apply their knowledge to structure and coordinate various coaching tasks, to provide their athletes with optimal sporting environments. Coaches in the current study emphasized the importance of organizing and adapting training sessions, particularly to accommodate differences in athletes' skill levels. Likewise, coaches believed that setting individual, team, and personal coaching goals were important for providing focus and direction throughout the season. Thus, the following section will examine various aspects of coaches' knowledge, including their vision for athlete growth and development, as well as their approach to goal setting, training and competition.

The property entitled athlete development encompassed all interactions between coaches and athletes. In particular, coaches acknowledged that dealing with student-athletes was an important part of their professional (coaching) responsibility. For

example, current coaches placed primary importance on their athletes' academic aspirations and behavior in school. These findings were consistent with recent literature (Gould, Collins, Lauer, & Chung, 2007) which found that high school football coaches took special interest in their players' academic performance whether it was monitoring academic progress, encouraging good grades, or tutoring players. Likewise, current coaches recognized that they had a powerful influence on their athletes. In particular, they felt that teamwork, time management, and good sportsmanship were the skills most developed through sport participation. These findings support previous research identifying the holistic development of athletes as one of the main goals of elite level coaches (e.g., Côté & Salmela, 1996; Vallée & Bloom, 2005). In a study of elite gymnastics coaches, Côté and Salmela found the coaches not only cared about their gymnasts' athletic development but also their personal development. Similarly, Vallée and Bloom showed that fostering the individual growth of players was a key element in developing a successful university program. Overall, the current findings suggest that current participants were concerned not only with developing the team but also fostering the individual growth of their players. One possible explanation for the current findings may be that participants were also teachers. As a result, they undoubtedly placed a greater emphasis on helping their athletes achieve scholastic goals. Future research is needed to better understand high school coaches' views about the personal development of athletes and examine coaches' role in teaching life skills.

Additionally, results suggested that current coaches were similar in their approach to training. In particular, coaches highlighted the importance of planning each practice session. All coaches planned extensively and used written practice plans as an

instructional tool in coaching. For instance, one coach handed out typed practice plans to his athletes because he believed his athletes would arrive knowing the format of the practice. Notably, current coaches suggested planning helped establish more effective practices and in turn helped the team properly prepare for games. This finding is consistent with previous research identifying organization as a key aspect of expert coaching (e.g., Bloom, 2002; Desjardins, 1996; Vallée & Bloom, 2005). For instance, Bloom noted that coaches who engaged in planning were able to create a solid foundation for the season and construct effective training sessions which provided a positive learning environment for their athletes. Furthermore, current coaches emphasized the need to plan effectively in order to accommodate variability in athlete's skill levels. It is reasonable to suggest that participants' teaching experience helped them develop the knowledge and skills to effectively plan practices and adapt to different skill levels. These findings supported research in teaching expertise which has indicated that expert teachers plan extensively, use flexible plans, and relied on their experience (e.g., Berliner, 1994; Dodds, 1994; Rupert & Buschner, 1989). For instance, Dodds included planning and organization as key characteristics of expert physical education teachers. Similarly, Jones, Housner, and Kornspan (1995) found that expert basketball coaches used written plans and felt that planning was an important ingredient in their coaching success. Overall, the current findings contribute to existing coaching literature which has underscored the value of organizing training sessions, regardless of the level of competition.

Another component of organization revealed in the current study was coaches' approach to goal setting. Specifically, all coaches used a combination of process and

outcome goals for both individual and team goals. For example, coaches believed that making the playoffs or winning the league championships were important team goals. Likewise, current coaches focused on maintaining player commitment throughout the season and improving as a team from game to game. To date, there has been a paucity of research examining coaches' role in the goal setting process (Gilbert & Trudel, 2004; Weinberg, Butt, & Knight, 2001). A small number of studies have shown that expert coaches employed goals both in practice and competition, set process, performance, and outcome goals, and involved athletes in the setting of goals (e.g. Gilbert & Trudel, 2000; Weinberg et al., 2001; Weinberg, Butt, Knight, & Perritt, 2001). More specifically, Weinberg and colleagues found that high school coaches emphasized performance and process goals rather than outcome goals. In contrast, coaches in the current study focused on process and outcome goals but did not set any performance goals. Moreover, there was a great deal of variability on the implementation of goal setting principles. For instance, in most cases, current coaches did not write down or measure goals. In light of this evidence and previous research which has recommended that coaches focus on performance and process goals (e.g., Gould, 1993; Weinberg, 1996), it would be worthwhile to further investigate this topic to gain a greater understanding of coaches' role in the goal setting process. This in turn would provide coach educators with knowledge to inform high school coaches of the best ways to implement goal setting for their players and teams.

Finally, results of the current study revealed information regarding coaches' preparation and roles before, during, and after competition. Although the purpose of the current study was not to compare the behaviors of the current sample of coaches with

other coaches, it was interesting to note that all of the current high school coaching participants appeared to have developed similar competition routines to other expert team sport coaches (e.g., Bloom, 2002; Bloom et al., 1997). For instance, all coaches met with their players prior to a game and they used these meetings to focus their athletes, repeat the game plan, and stress final key points. After a game, they withheld giving specific feedback, instead giving short and general feedback to the whole team. In sum, the current sample of high school coaches appeared to have developed similar pre- and post-competition routines to expert team sport coaches. One possible explanation for the current findings may be that all the participants' had competed at the university level, and perhaps they were adopting many of the behaviors and routines modeled by their university coaches. Moreover, participants' physical education training provided coaches with a theoretical and practical base to draw from.

Summary of Study

In the last decade there has been an increase of empirical research investigating the development of knowledge of coaches of elite athletes (Gilbert & Trudel, 2004). Despite this, few empirical studies have focused on the knowledge development of high school coaches, in particular, physical education teacher/coaches. This is unfortunate since it would be equally important to examine how high school coaches acquired their knowledge, given their impact on young athletes' psychosocial development and overall sport experience. Thus, the purpose of the current study was to investigate sources of knowledge acquisition of high school team sport teacher/coaches.

Participants were six high school team sport coaches. Coaches represented a variety of team sports, including basketball, soccer, football, and rugby from Bantam,

Midget, and Juvenile levels. These coaches were identified by a panel of experts familiar with high school athletic programs in the Montreal area. The participants were invited to participate if they met six criteria. First, they must have graduated from a concurrent physical education teacher education program between 1990 and 2001. Second, they must have been teaching full-time physical education and was a current head coach of a team sport at the high school level. Third, each participant must have accumulated between 5 and 15 years of high school head coaching experience. Fourth, they must have coached a minimum of five teams over their career. Sixth, they must have had a minimum Level 1 and maximum Level 2 coaching certification from the Coaching Association of Canada (CAC). Participants were contacted by email and informed of the nature of the study. They were then asked to participate and complete a demographic questionnaire (Appendix C). The coaches were interviewed individually at mutually convenient locations in the greater Montreal area for a period of time varying from one to two hours.

Semi-structured, open-ended interviews were conducted following a predetermined format. The pre-interview routine included building a general rapport with the participant and the completion of a consent form (Appendix B) in accordance with McGill University ethics policy. Then the interviewer explained the purpose of the study and began the interview. The interview guide was created specifically for this study by the researcher and a faculty member with knowledge and experience in coaching psychology and qualitative research methods.

Data were analyzed inductively, following the guidelines of Côté, Salmela, & Russell (1995). Three-higher order categories emerged from the data analysis which

indicated the key factors influencing the knowledge acquisition of high school team sport coaches, including coaches' personal characteristics and working environment. These three categories were titled *sources of knowledge acquisition, personal and contextual factors,* and *coaching tasks and duties. Sources of knowledge acquisition* pertained to the coaches' journey of knowledge acquisition, from their earliest sporting experiences to their current coaching positions. This included learning from their physical education teacher training program, observations and interactions with other coaches, from their athletic experiences, as well as from clinics and books. *Personal and contextual factors* discussed how coaches' journey of knowledge acquisition had been influenced by who coaches were. More specifically, this category involved coaches' characteristics, philosophies, and personal experiences, including the challenges faced when teaching and/or coaching. *Coaching tasks and duties* was the result of this journey and included information pertaining to the knowledge coaches acquired and how they used it to fulfill their day-to-day roles and responsibilities. In particular, this category discussed coaches' interactions with athletes, as well as their approach to goal setting, training, and competition.

While each coach was a unique individual with different background experiences, several common themes emerged. Most notably similarities were found in the different ways knowledge was acquired, particularly through their university training, interactions with other coaches, and coaching experiences. Likewise, coaches appeared to share similar characteristics, such as good organizational skills, flexibility, and a passion for coaching. Finally, coaches seemed to have adopted similar approaches to training and goal setting. Interestingly, many of the findings that emerged were similar to those

highlighted in previous studies pertaining to elite coach development. This implies that although current coaches had formal training in physical education, which included theoretical coursework and practical experiences, the resources they used to initially acquire knowledge and the sources used to further their knowledge base were similar to coaches without formal training. Therefore, the results provided evidence that high school teacher/coaches require a combination of formal training, informal learning opportunities, and practical experience to acquire the necessary knowledge to work in their domain.

Conclusions

Within the confines and limitations of the current study, the following conclusions appear warranted:

- All six coaches attributed their knowledge acquisition to their university classes and experiences. Specifically, coaches acquired organizational, planning, and pedagogical skills from their pedagogy courses. As well, half the coaches felt their psychology courses helped them be more understanding of their athletes' needs and exposed them to different ways of dealing with athlete behavior.
- There were differences in coaches' perceptions of the skills courses they were required to take as part of their undergraduate training. Several coaches believed their skills courses provided them with fundamental knowledge of different sports, while others felt they did little to advance their knowledge of the sport.
- All coaches felt their field experiences provided them with coaching knowledge. These experiences allowed them to network with more experienced coaches and gain valuable coaching knowledge.

- Select coaches offered suggestions for their teacher training curriculum. These suggestions ranged from including a specific course geared towards coaching high school sport to acquiring coaching certification outside the program.
- Every coach discussed acquiring knowledge from past coaches. In particular, participants believed coaches from both their youth and elite sport experiences helped shape their coaching philosophy.
- Coaches believed attending other teams' practices and games and observing coaches' behavior allowed them to acquire specific knowledge pertaining to a wide variety of coaching tasks.
- All coaches openly shared information with and consulted other coaches on staff about aspects of training.
- All coaches competed at the university level. They felt these experiences improved their leadership skills and provided them with a general awareness of the technical aspects of their sport.
- Every coach believed they acquired valuable knowledge through their initial coaching experiences. More specifically, they learned from their mistakes and gained confidence in their decisions with each passing season.
- The majority of coaches felt they had acquired knowledge by attending clinics, while a small number of coaches believed coaching clinics held little education value.
- All six coaches consulted books and used the internet as reference tools to further supplement their coaching knowledge.
- All coaches agreed that the process of learning from their coaching experience was ongoing and did not end once they had established themselves.

- Several characteristics were shared between the coaches and contributed to their progression as coaches, including good organizational skills, flexibility, passion, leadership, and confidence in their abilities.
- Several coaches felt that while they were employed as teachers, they identified most with their role as a coach. In particular, all six coaches suggested they devoted more time to coaching than to coaching.
- There was also agreement between coaches regarding the support of administration and staff. In general, coaches believed they received positive support from their principal and colleagues but felt the physical space afforded for training limited their ability to coach.
- Similar routines for before and after competition emerged. All coaches met with their players prior to the game and tended to give short and general feedback directly after a game, waiting until a later time to give athletes specific feedback.
- Inconsistency was revealed between the coaches' behavior during competition. Several participants actively coach throughout competition, while others hoped to prepare the athletes sufficiently so that their input during a game would be minimal.
- Each coach set goals for their athletes and their team. This included outcome oriented goals such as making the playoffs or winning the league championships, and process oriented goals such as focusing on maintaining player commitment throughout the season and improving from game to game.
- Commonalities existed in coaches' approaches to training. Specifically, coaches highlighted the importance of planning each practice session and structured their practices around teaching the fundamentals.

- All coaches acknowledged the importance of supporting their athletes' academic aspirations and suggested that sport was a vehicle for learning life lessons and improving personal discipline. In particular, several coaches consistently applied principles of teamwork and sportsmanship to practice and game situations.

Practical Implications

The current study is of interest to the entire coaching community as it provides an outline of how a number of high school teacher/coaches developed and acquired their coaching knowledge. More specifically, the results of the current study have useful suggestions for developers of coach education programs. For example, recognition that learning occurs most frequently through practical coaching experiences and interactions with other coaches suggests that coach education programs should add a more practical element to their coach training. Drawing on practices from the education field, coach education programs could include supervised field experiences in a variety of contexts to enable coaches to make mistakes, reflect and learn from them. As well, evidence of the importance of having access to knowledgeable and respected coaching peers, may direct future coaches and program developers towards organizing group meetings or coaching pods as a valuable source of coaching knowledge. This is in accordance with previous research (e.g., Bloom, Durand-Bush, Schinke, & Salmela, 1998; Cushion, Armour, & Jones, 2003; Gilbert & Trudel, 2005; Saury & Durand, 1998) which has suggested that formal coach education programs fail to provide adequate practical experience and mentoring opportunities for aspiring coaches. Thus, the current study may be utilized to provide further evidence for the need to incorporate more practical elements into the training of coaches and teacher/coaches.

Furthermore, the current study can be used to gain an understanding of the role of concurrent physical education teacher education programs (PETE) in the acquisition of coaching knowledge. In particular, the current results illustrate the diverse learning situations that contributed to high school coaches' acquisition of knowledge, including pedagogy, psychology, and skills courses, practical experiences, and reflecting on those experiences. Moreover, each learning situation seems to have played a unique role in the development of the coach. For example, the current study validates the impact of practical experiences as an important source of coaching knowledge. Specifically, results suggest that aspiring teacher/coaches could benefit from field experiences requiring supervised practical coaching experiences in addition to their teaching experiences. In turn, concurrent PETE programs may enhance the overall development of physical education teacher/coaches. Thus, the current study may also help to develop coaches that are better prepared to take on the role of the high school coach by broadening the range of experiences offered by PETE programs. Likewise, providing coaches with appropriate knowledge to work in their domain may lead to improvements in the overall quality of the high school sport experience.

In addition, the current results may be used to enhance researchers understanding how high school coaches develop. As previously mentioned, little to no empirical research has examined the development of high school coaches. The current study has begun the process of addressing this overlooked aspect of coach development and can be used to provide a better understanding of how high school coaches develop and acquired coaching knowledge.

Recommendations for Future Research

The objective of the current study was to address a gap in the literature pertaining to how high school coaches developed and acquired their coaching knowledge. As such, there are a number of future directions research could take. For instance, it may be interesting to explore differences by replicating the current study with other team sports, such as hockey or volleyball, as well as with dyadic sports, such as rowing or tennis, to explore possible sport differences. Likewise, replicating the study with a larger sample of male and female coaches would allow for any gender differences in coach development to emerge.

As an extension of this study, further research could examine the differences in developmental paths between coaches with different levels of experience. For instance, it may be interesting to examine the knowledge acquisition of high school coaches without physical education training in order to draw comparisons with the current sample of coaches. Likewise, including high school coaches with a consecutive physical education degree would enhance our understanding of the role of PETE programs in the development of coaching knowledge. In particular, future studies can follow up on both the learning processes of these coaches and whether a transfer of knowledge specific to their high school coaching role occurs. Further research is also needed to explore whether the inclusion of a coaching course as part of their undergraduate physical education training would influence coaches' knowledge development and preparation. Finally, utilizing a similar design to McCullick, Belcher, and Schempp (1999), which qualitatively analyzed coaches' perceptions of a coaching and sport instructor certification program, would contribute to a comprehensive picture of optimal content,

delivery, and methods of assessment for coaches. In turn, this information would help PETE programs and coach education programs to work more effectively with these coaches.

Although this study has provided considerable information regarding the development and acquisition of high school coaches, many questions about these coaches still remain for future researchers. Since this study was exploratory and the dynamic nature of coach development seems complex, a conceptual framework that may explain how coaches develop may help the advancement of research on this topic. One such model may be Moon's (1999, 2004) generic view of learning, as suggested by Werthner and Trudel (2006). The advantage of this model is it indicates how coaches may acquire knowledge while recognizing that this process will always be idiosyncratic. Thus, future studies investigating the development of high school coaches may benefit from the application of this model in order to further research in this area.

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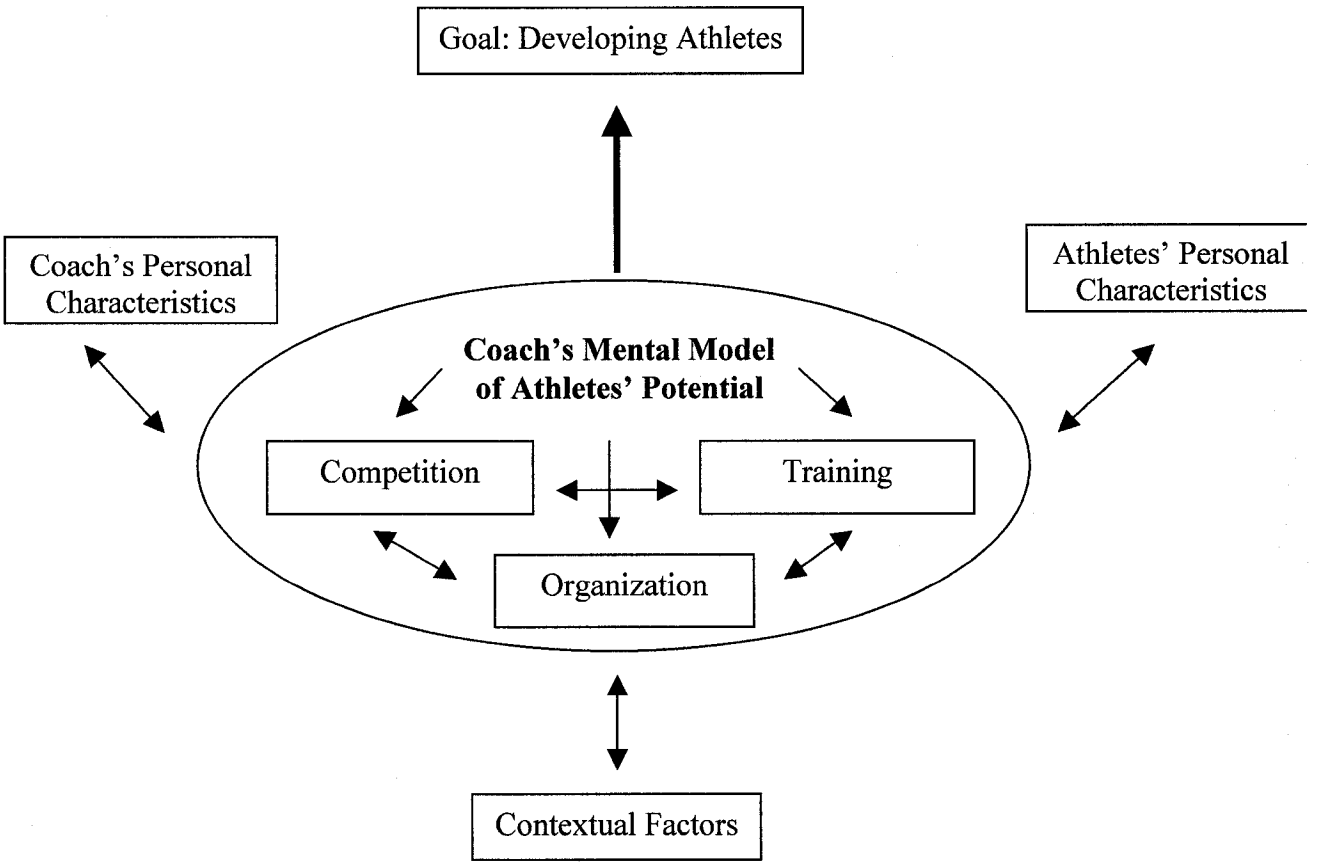
Appendix A

The Coaching Model



Adapted from:

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MCGILL UNIVERSITY
FACULTY OF EDUCATION

INFORMED CONSENT FORM

McGill University requires that participants be informed of the details of any research study in which they participate. However, this does not imply that the participant is put at risk through their participation; the intention is simply to ensure the respect and confidentiality of individuals concerned. This study is in partial fulfillment of the requirements for the degree of Master of Arts for Laurie Wilson, a graduate student in sport psychology, in the Department of Kinesiology and Physical Education at McGill University.

The purpose of this study is to gain information on the experiences of high school coaches in regards to coach knowledge and development. Specifically, the study aims to identify similarities in how different high school coaches acquired their coaching knowledge. If you participate in this study you will be requested, without payment, to partake in a 90 minute interview which will be audio taped. If more information is necessary, then a follow-up telephone conversation may occur. Once the interview is complete, you will obtain a typed transcript, which may be edited at your discretion. Prior to publishing, you will also receive copies of the results and the conclusion of the study. The information you provide here will **remain confidential,** and all the data will be destroyed 2 years after the study ends. The information disclosed during the interview will remain confidential and will be used for publication purposes in scholarly journals or for presentations at conferences. The researchers will not disclose names or identify of the participants at any time.

Your participation in this study is voluntary and not mandatory. You are free to withdraw from participation at any time, for any reason, without penalty or prejudice.

I (please print your name), _____, have read the above statements and have had the directions verbally explained to me. I freely consent and voluntarily agree to participate in this research project based on the terms outlined in this consent form. I recognize that I may refuse to continue participation at any time, without penalty, and that all the information gathered will remain confidential.

_____ _____

Signature Date

Please feel free to contact us at any time:

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Appendix C

Demographic Questionnaire

1. Name: _____

2. Age: _____

3. E-mail: _____

4. Address: _____

5. Phone Number (home, work, and cell): _____

_____

_____

6. (a) What University did you graduate from? _____

_____

(b) Degree(s): _____

_____

_____

(c) Major/Minor: _____

_____

(d) Year of graduation: _____

7. Number of years teaching physical education (indicate elementary or high school):

_____

_____

_____

8. Current teaching position and duration: _____

_____

_____

9. Past coaching experiences (list your role, the age of the athletes, and the sport level):

(a) Outside the school setting (community): _____

_____

_____

_____

_____

_____

_____

_____

(b) Within the school setting: _____

_____

_____

_____

_____

_____

_____

_____

10. Current coaching position and duration: _____

_____

_____

11. List all level(s) of coaching certification: _____

12. Past successes as a coach (list personal coaching awards, team championships, recognition, etc): _____

13. Personal athletic experiences (list sports, years played, highest level reached, awards):

14. Reason(s) for coaching high school sport: _____

Appendix D

Interview Guide

Pre-Interview Routine

Introduction
Consent Form
Demographic Questionnaire

Opening Questions

1. How did you first get involved in coaching?
    i. When and how did you get involved in coaching?
    ii. Why?
    iii. At what levels and sports have you coached?

2. How long have you been coaching?
    i. Coaching experience prior to teaching physical education
    ii. Coaching at the high school level

Key Questions

3. (a) In general, what are your coaching beliefs and philosophies?
   (b) How did you develop these?
    i. Physical education teacher training
    ii. Experience in sport (as an athlete or coach)
    iii. Interacting with other coaches
    iv. Books, Journals, DVD's, etc.
    v. Coaching clinics

4. (a) What type of goals do you set for yourself, your athletes, and your team?
    i. How do you measure personal and athlete success?
    ii. Vision (deciding on a mission statement, view of athlete potential).
   (b) How did you learn to do this?
    i. Physical education teacher training
    ii. Experience in sport (as an athlete or coach)
    iii. Interacting with other coaches
    iv. Books, Journals, DVD's, etc.
    v. Coaching clinics

5. (a) How do you structure a practice?
    i. How often does your team practice?
    ii. When do you plan your practices?
    iii. How does a typical practice run?

(b) How did you learn to do this?
   i. Physical education teacher training
   ii. Experience in sport (as an athlete or coach)
   iii. Interacting with other coaches
   iv. Books, Journals, DVD's, etc.
   v. Coaching clinics

6. (a) What is your role during competition?
   i. Before, during, and after competition.
   ii. Describe your role with your athletes at the competition site.
   (b) How did you learn this?
   i. Physical education teacher training
   ii. Experience in sport (as an athlete or coach)
   iii. Interacting with other coaches
   iv. Books, Journals, DVD's, etc.
   v. Coaching clinics

7. (a) What characteristics do you feel are important in being a high school coach?
   i. Characteristics you yourself possess.
   (b) What factors helped you develop these characteristics?
   i. Physical education teacher training
   ii. Experience in sport (as an athlete or coach)
   iii. Interacting with other coaches
   iv. Books, Journals, DVD's, etc.
   v. Coaching clinics

8. (a) What characteristics do you feel are important in high school athletes?
   i. How do you select players for your team?
   ii. How do you teach these characteristics to your athletes?
   (b) How did you learn to do this?
   i. Physical education teacher training
   ii. Experience in sport (as an athlete or coach)
   iii. Interacting with other coaches
   iv. Books, Journals, DVD's, etc.
   v. Coaching clinics

9. What role, if any, did the high school environment play in the development and acquisition of your coaching knowledge?
   i. Teaching load.
   ii. Principal/Administration
   iii. Peers, Support.

Summary Questions

10. In your opinion, what were the key factors in helping you acquire knowledge to become a head coach at the high school level?

i. What should aspiring physical education teacher/coaches do to help acquire valuable knowledge to become a head coach at the high school level?
ii. How do you distinguish, observe the differences between your roles as a physical educator and a coach?

Concluding Questions

11. Is there anything else you would like to add?
12. Do you have any final questions or comments?

Appendix E

Table 2
Alphabetical Listing of the Frequency of Topics Discussed by Each Participant

Tags (Level 1)	**n**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
assessment of undergraduate P.E. program	10	0	2	2	1	2	3
athlete characteristics	10	1	3	2	2	1	1
athlete development	5	2	0	1	2	0	0
coaching accomplishments	3	2	0	0	1	0	0
coach-athlete relationships	11	4	1	1	3	1	1
coach certification through P.E. program	8	1	1	2	1	1	2
coaches' role during game	10	3	2	2	1	1	1
coaching clinics	18	2	8	2	2	2	2
coaching philosophy	23	1	4	4	3	7	4
communication	4	2	1	0	0	0	1
difference between coaching males and females	4	0	0	1	0	3	0
dual role of the teacher-coach	20	1	2	2	6	2	7
evaluation of team success	6	0	3	1	2	0	0
field experience – coaching	10	1	0	2	2	2	3
goals – coach	6	2	1	1	1	1	0
goals – player	8	1	2	2	1	1	1
goals - season	12	3	1	1	1	2	4
high school coach characteristics	9	2	1	2	2	0	2

Table 2 (continued)

Tags (Level 1)	n	C1	C2	C3	C4	C5	C6
high school teaching and coaching similarities	15	4	0	3	3	5	0
initial coaching	14	4	3	1	2	1	3
leadership	7	1	2	3	0	0	1
learning – books and internet	16	2	5	2	1	4	2
learning – coaches on staff	13	6	1	1	2	2	1
learning – experience as an athlete	21	3	2	3	6	3	4
learning – experience as a coach	23	2	4	4	5	5	3
learning – from their athletes	3	0	0	0	0	2	1
learning – mentor coaches	4	0	0	0	1	3	0
learning – other coaches	12	1	3	1	1	4	2
learning – past coaches	24	4	4	4	5	5	2
military background	1	0	0	0	1	0	0
parents	2	0	1	0	0	1	0
personnel assistance	10	1	2	2	1	4	0
phys. ed courses-biomechanics	2	0	1	0	0	1	0
phys. ed courses-pedagogy	9	2	2	2	3	0	0
phys. ed courses-skills	12	2	2	3	2	2	1
phys. ed courses – sport/ed. psych	9	1	2	3	0	3	0
player selection	21	3	2	4	6	5	1
post-game routine	8	3	1	1	1	1	1

Table 2 (continued)

Tags (Level 1)	**n**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**
practices	27	5	4	3	5	4	6
pre-game routine	7	3	1	1	1		1
reasons for coaching	7	1	1	1	1	2	1
reasons for entering P.E. program	6	1	1	1	1	1	1
resource challenges	9	1	3	1	1	2	1
sportsmanship	4	3	0	1	0	0	0
sport-specific knowledge	7	1	1	1	2	1	1
standards and regulations	4	0	2	0	0	0	2
student-athlete expectations	18	1	4	2	4	4	3
support of administration and staff	17	4	3	3	2	2	3
teamwork	5	2	0	2	0	1	0
time constraints	4	0	1	0	0	3	0
Totals	**518**	**89**	**90**	**81**	**88**	**97**	**73**