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Learning How to Plan in High Performance Athletics

by

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Abstract

Coach learning is a key component for developing quality coaches. While researchers have identified many ways that coaches learn, there is little agreement as to how coaches learn best. As a way of examining these discrepancies found in the research, this study's aim was to explore how Canadian high-performance athletics coaches learned how to plan their athletes' training. Semi-structured interviews were conducted with ten high-performance athletics coaches. Despite the contextual focus, the results of this study illustrated that learning how to plan in high-performance athletics was highly idiosyncratic. Coaches' learning was influenced by both individual and social factors including their dispositions about planning, their ability to learn how to plan, and their trust in their planning knowledge. To this end, there appears to be a need to understand coach learning from both individual and social perspectives, and to develop coach learning systems that are centered on individual coaches' learning needs.

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LEARNING HOW TO PLAN IN HIGH PERFORMANCE ATHLETICS

Coaching is imperative to athlete development and national success in sport (Cushion, Armour, & Jones, 2003; Werther & Trudel, 2006) and coach learning is central to developing quality coaches (Cushion et al., 2003; Mallett, Trudel, Lyle, & Rynne, 2009). Accordingly, several national governing bodies of sport (NGBs) have developed learning opportunities to advance coach learning. For instance, in 1974 the Coaching Association of Canada (CAC) created a coach education program known as the National Coaching Certification Program (NCCP) (Erickson, Bruner, MacDonald, & Côté, 2008). This program has since been revised to support the development of ongoing coach learning (Trudel & Gilbert, 2006).

The NCCP was originally based on a novice-expert continuum of learning. The fundamental assumption of this continuum was that there was one body of coaching knowledge that served coaches in all contexts (Lemyre, Trudel, & Durand-Bush, 2007; Trudel & Gilbert, 2006; Werthner & Trudel, 2006, 2009; Young, Jemczyk, Brophy, & Côté, 2009). Coaches were assumed to obtain this knowledge progressively as they advanced from a novice to an expert coach, or alternatively, from a 'development' to a 'high performance coach.' For instance, coaches had to begin as a novice coach and be certified at Levels I and II before becoming a certified expert, or Level III, coach. It has since been recognized that coaching is context dependent, meaning that the nature of the coaching practice will vary depending on contextual factors such as the development and

competitive level of the athlete, the sport, and the culture. These contextual factors influence the needs and objectives of the athletes, and subsequently the required knowledge, skills, and competencies of the coach (Côté & Gilbert, 2009; Côté, Young, North, & Duffy, 2007; Lemyre et al., 2007; Lyle, 2002, 2007; Trudel & Gilbert, 2006). Accordingly, Cassidy, Jones, and Potrac (2009) argued that coach learning programs should be tailored to the specific contextual needs of the coach so that it is relevant to his or her everyday practice.

In 1995, the CAC evaluated the NCCP program and recognized the need to tailor their programs to the coaches' contextual needs (Coaching Association of Canada, 2005). Subsequently, they revised the program to introduce context-specific knowledge. The NCCP now recognizes eight contexts within three coaching streams: Instructor, Community, and Competition. For instance, contexts within the competition stream range from Competition Introduction to Competition High performance (nccp.athletics.ca). In accordance with the context-specific model (Trudel & Gilbert, 2006), it would seem that rather than progressively advancing from the Competition Introduction to the Competition High Performance level, coaches should be able to become an expert coach in their respective context. The rate and capacity of redesigning the NCCP programs has varied across sports. In athletics, or track and field, the NCCP recognizes just two coaching streams: Instructor and Competition. Within the Instructor stream there is only one context: the Run Jump Throw grassroots program. Within the competition stream there are three contexts: Competition Introduction (consisting of Sport Coach and Club Coach), Competition Development, and High

Performance (to be developed) (nccp.athletics.ca).

The new context-specific NCCP requires that the content is relevant to each coach's context (nccp.athletics.ca). For instance, the content presented for development coaches should differ from the content presented than for high performance coaches (Lyle, 2007). In accordance to the literature, it appears that a large part of coaching development-level athletes is centered on developing their technical skills. High-performance athletes, on the other hand, have for the most part already developed technical skills and require more intensive training plans that lead towards enhanced sport-specific performance (Côté et al., 2007; Lyle, 2002). This is especially evident in the context of high-performance athletics, which is highly focused on strengthening and conditioning athletes and subsequently planning their training. Accordingly, to become relevant to the high-performance athletics coaching context, coach learning programs that are centered on how to plan these athletes' training programs are needed.

Importantly, the coach learning method needed to best teach planning may differ from the methods needed to teach other subjects such as biomechanics (e.g., Irwin et al., 2004). Though I have already discussed formalized coach education, this represents just one method for coach learning (Piggott, 2012). Coaches also learn coaching techniques from coaching clinics and seminars, books, videos, the internet, experience as an athlete or a coach, reflection, and mentoring (Erickson et al., 2008; Irwin, Hanton, & Kerwin, 2004; Lemyre et al., 2007; Reade, Roger, & Spriggs, 2008; Rynne & Mallett, 2012; Winchester, Culver, & Camire, 2012; Wright, Trudel, & Culver, 2007). Although the previously mentioned literature

identifies several coach learning sources there is no agreement on how coach learning best occurs. The majority of this literature also lacks a context-specific focus. With this in mind, the intent of my study is to further understand coach learning by contextualizing the literature. Specifically, I aim to understand how high-performance Canadian athletics coaches learned how to plan their athletes' training. The sport of athletics was chosen because of my personal interest as a former athlete a current coach of the sport.

It should be noted that planning includes both designing and implementing the athletes' training plans. While designing and implementing complement each other, they are two separate concepts. In my research, 'designing' will refer to the development of athletes' training plans, which includes scheduling competitions, workouts, and recovery. On the other hand, 'implementing' will refer to putting those training plans into practice. Implementation may depend on environmental factors or other elements associated with the athletes' response to the training, such as their health, psychological state, or efficiency of movement. The training that is implemented in practice may differ from what has been planned. However, these concepts should be taught in a complementary fashion given that they jointly shape and influence the final outcome of planning: what the athlete ultimately does in training. Therefore, the purpose of my research is to understand how high-performance Canadian athletics coaches learned to both design and implement their athletes' training plans. This will enable me to better understand how to design future educational interventions to enhance coach effectiveness. To follow, I will present my research that I have conducted to answer my research

question. I will first review the literature and outline the research methods I intend to employ. I will then present my results and discussion and conclude with practical implications.

Literature Review

The Nature of Learning

Learning involves processes that influence a learner's knowledge, attitudes, skills, and behaviour (Nelson, Cushion, & Potrac, 2006). While the term 'learning' has often been used synonymously with education, the latter is just one type of learning that is fundamentally institutionalized and guided by an instructor (Piggott, 2012; Winchester et al., 2012). Although most agree that learning is ongoing and occurs in multiple situations (Coombs & Amhed, 1974; Jarvis 2007; Winchester et al., 2012), there is no apparent agreement of what learning is (Brockbank & McGill, 2006).

Learning is defined by the Collins English Dictionary as the 'the act of gaining knowledge' (Sfard, 1998). Cushion et al. (2003) recognized learning as the act of gaining not only knowledge, but also attitudes and beliefs. Sfrad (1998) acknowledged that conceptualizing learning as an act of gaining possession over some concrete entity such as a concept of knowledge, an idea, or meaning represents the earliest fundamental view of learning. She entitled this perspective of learning the acquisition metaphor (AM). Sfrad (1998) represented a more recent view of learning with a participation metaphor (PM) whereby knowledge is viewed as an action as opposed to an object that can be acquired. This metaphorical shift represented a shift of thinking of learning as having to doing, and a language shift of knowledge to knowing.

Coach learning situations have often been classified as taking on one of two conflicting learning perspectives. For instance, researchers have classified

coach education by the AM and experiential learning by the PM (e.g., Erickson et al., 2008; Trudel & Gilbert, 2006; Wright et al., 2007). Sfard argued that this classification may be problematic because isolating a single learning metaphor would create undesirable learning practices. To begin, she claimed it is nearly impossible to abandon either metaphor as any learning situation likely presents both perspectives. Secondly, she suggested there is no singular way of teaching or learning that is suited to all educators or learners. Isolating a single metaphor would lead to fixed ways of thinking about learning that may not adequately address the needs of all learners or educators. Lastly, she proposed that both the AM and PM have unique contributions and limitations and that an adequate combination of the two would illuminate their strengths and mask their weaknesses. Thus, while the metaphors appear to be mutually exclusive, Sfrad (1998) argued that they are mutually complementing and recognized a need for metaphorical pluralism.

Learning has also been understood using learning theories that range from behavioral to social learning theories (Cushion, 2010). Sfrad (1998) claimed that while the AM and PM metaphors conceptualize what learning is, learning theories conceptualize how learning occurs. Learning theories carry underpinning philosophies and assumptions relating the nature of the learner, knowledge, and reality (Cushion, 2010; Cushion, et al., 2010). Just as there are conflicting views of what learning is there are conflicting views of how learning occurs, or which learning theory is most appropriate. Primarily, a significant controversy in the learning literature revolves around the debate between cognitive and behavioral

learning theories and constructivist learning theories, which will be outlined below.

Learning has been traditionally understood using behavioral and cognitive learning theories (Cushion 2006, 2010; Cushion et al., 2010). Behavioral theorists focus on behavioral outcomes (Kolb, 1984) and "identify learning in changed behavior" (Brockbank & McGill, 2006, p. 25). These theories assume that learning is disconnected from the mind and that learning occurs through behavioral rewards (Jarvis, 2010). For instance, if a learner discovers a successful behavior, he or she will repeat the behavior until it no longer produces a desired outcome (Brockbank & McGill, 2006). On the other hand, cognitive learning theorists view learning as transforming internal mental structures. Knowledge acquisition, information processing, and instruction are central to cognitive learning theories (Cushion, 2010). These theories have often been grouped together and challenged against constructivist learning theories (e.g., Cushion, 2010).

Kolb (1984) challenged cognitive and behavioral learning theories because of their focus on learning outcomes rather than learning processes. He claimed that cognitive learning carry epistemological assumptions based on empiricism. Specifically, these theories are based on the notion that there are fixed ideas or elements of consciousness and therefore the outcomes of learning can be measured by either how much of these fixed elements the learner has accumulated (cognitive learning theories). Similarly, he argued that behavioral learning theories measure learning by outcomes of behavioral responses to stimulus. In

contrast, constructivist theories, such as experiential learning theories, focus on learning processes rather than outcomes. They are based on the assumptions that ideas are flexible and learning occurs as these ideas are *constructed,* or "are formed and re-formed through experience" (p. 26). As opposed to cognitive learning theories, these approaches allow for the idea of knowledge generation, as "no two thoughts are ever the same since experience always intervenes" (p. 26)

Cushion (2006, 2010) further argued that cognitive and behavioral approaches encourage an impersonal and view of knowledge and treats the learner as a passive recipient of that knowledge. Moon (2004) represented these theories using an 'accumulation model of learning' whereby knowledge is synonymous with a brick wall and the learner seamlessly accumulates concepts or ideas (bricks) to construct a 'wall' of knowledge (p. 19). She contrasted this with a constructivist perspective on learning that she called an 'accommodation model of learning.' From this perspective, knowledge is viewed as a "flexible network of ideas and feelings" derived from past learning experience and is known as the 'cognitive structure' (p.19). In this model, new material is not simply accumulated onto what the learner already knows but is compared, and adapted, to his or her dynamic network of existing knowledge via a process of accommodation (Moon, 2004). The cognitive structure then guides the learning process and is used to shape, and make sense of, the world (Kolb, 1984). This perspective takes on a personal view of learning in that the learner is not an empty vessel waiting to accumulate knowledge (Cushion, 2010) but carries value and beliefs about a topic (Kolb, 1984) that will impact their learning (Moon, 2004).

Moreover, constructivist learning theorists have often challenge cognitive and behavioral learning approaches because they fail to recognize the learner as a social being and ignore the influence of his or her environment (Cushion 2006, 2010; Cushion et al., 2003; 2010; Kolb, 1984). Constructivist learning theories carry the assumption that learning and knowledge are highly contextualized and complex social phenomena that are constructed through, and mediated by social, cultural, and historical contexts. Constructivist theorists are interested in how learners construct their own mental structures by interacting with their environment. They believe that learning is most effective when the learner actively engages in dilemmas and issues, and develops contextualized meanings from human interaction within their context (Cushion, 2006, 2010; Cushion et al., 2010).

Similarly, Jarvis (2007, 2012) also believed that learning is most likely to occur when there is tension or dissonance (e.g., dilemmas) at the interaction of the inner-self with the external environment, or when there is a "sense of not knowing" (2012, p. 13); a state he referred to as 'disjuncture.' At this point, the learner does not have a sufficient repertoire to automatically cope with the situation and beings to problematize and question his or her world and search for solutions until she/he returns to a harmonious state. The learner will stay in this state until she/he encounters another problem and is motivated to learn again, so that learning cycles through states of disjuncture and harmony (Jarvis, 2007).

Sfrad (1998) acknowledged the theoretical controversy of how learning occurs and argued against the conceptual unification of learning theories. She

claimed that isolating a single learning theory, like metaphorical exclusiveness, could lead to undesirable practices and restricted learning experiences. Moreover, arguing for the existence of a sole learning theory may be unnecessary because as Brockbank and McGill (2006, p. 25) claimed, "there is no science or theory of learning that embraces all activities involved in human learning." Similarly, Hokinson, Biesta, and James (2008) argued against the dualism between individual and social learning that is often associated with cognitive or behavioral learning and constructivist learning, respectively, claiming that neither view would give a holistic perspective of learning. Individual learning theories generally focus on the individual with little regard for the influence of the social world where the learning is taking place while social learning theories tend to focus on the impact of the social world on learning and disregard the individual person who has agency and learns. Regardless, while theories are meant to frame practice, coach learning sources have been largely detached from theory (Cushion et al., 2010) and debates surrounding learning theories have been largely theoretical. Empirical evidence concerning how coaches have learned largely focused on identifying coach learning sources. It is to these learning sources that I now turn.

Coach Learning Sources

Coach learning structural frameworks. Coaches encounter many learning opportunities throughout their careers (e.g., Erickson et al., 2008; Irwin et al., 2004; Reade et al., 2008; Rynne & Mallet, 2012; Winchester et al., 2012; Wright et al., 2007). Using Coomb and Ahmed's (1974) structural learning

framework, Nelson et al. (2006) and Mallet et al. (2009) organized learning opportunities as formal, non-formal, or informal based on their structural characteristics. Formal learning is characterized as structured, institutionalized, and hierarchical. It is commonly presented as 'train-and- certify' classroom-based education that delivers a standardized curriculum and evaluation (e.g., Canada's National Coaching Certification Program, NCCP). Participants must obtain specific prerequisites before commencing the program and demonstrate specific objectives to complete it. Non-formal learning is also organized and systematic but occurs outside of formal coach education. It generally does not require prerequisites for attendance or an assessment for completion. These programs are often short and have a specific interest focus that is targeted at a particular subgroup of coaches. Examples of non-formal learning may include coaching seminars, clinics, workshops, and conferences. Informal learning, on the other hand, is not systematic. It pertains to the lifelong learning process of acquiring knowledge, skills, and insights while participating in the coaching environment. It includes athletic or coaching experience, interacting with others, mentoring, reflection, or consulting books, journals, videos, or Internet resources (Nelson et al., 2006).

In reference to Moon's (2004) constructivist perspective of learning, Werthner and Trudel (2006), organized coach learning into three categories depending on how they acted on the cognitive structure: mediated, unmediated and internal. In mediated learning the cognitive structure is transformed by external knowledge that is provided by others (e.g., coach education, mentor)

whereas in unmediated learning the learner seeks out external knowledge to modify their cognitive structure (e.g. learning from resources). Alternatively, internal learning involves transforming the cognitive structure without the addition of new knowledge (e.g., reflection), also referred to as 'cognitive house keeping (Mallet et al., 2009; Werthner & Trudel, 2006).

Researchers have categorized coach learning into discrete categories within Coomb and Ahmeds's (1974) and Moon's (2004) structural learning frameworks (e.g., Wright et al., 2007). For instance, coach education has been considered to be formal or mediated learning. Coach education however, may involve both formal mediated instruction and informal unmediated coach interactions. Thus, a single learning opportunity could feature characteristics of multiple structural framework categories. Nelson et al. (2006) stressed that these structural learning categories should not be considered as discrete entities but rather as interconnected ways of learning that may occur simultaneously.

Additionally, Coomb and Amhed's (1974) structural learning framework has often been seamlessly linked with Moon's (2004) framework. For instance, formal and non-formal learning have been considered mediated learning while informal learning has been considered unmediated (e.g., Wright et al., 2007). However, mediated learning could exist in both formal (e.g., coach education) and informal learning (e.g., mentoring). Along the same token, informal learning can include mediated (e.g., mentoring), unmediated (e.g., coaching experience), or internal learning (e.g., reflection) (Mallet et al., 2009). Clearly, seamless links do not exist and categorizing learning sources by frameworks can be problematic.

For the purpose of organization however, I will refer to Coomb and Ahmed's (1974) formal, non-formal, and informal learning to structure this review.

Formal learning. Traditional coach education-certification, or 'train-and-certify,' programs are the most common worldwide sources of coach learning (Cushion et al., 2003; Mallet et al., 2009; Werthner & Trudel, 2006; Wright et al., 2007) and have received extensive research. Most of this research is based on the assumption that they represent behavioral and cognitive learning theories. It is commonly argued that while these programs may increase the overall knowledge base (Cushion et al., 2003) they are considered ineffective learning sources (Cassidy, Jones, & Potrac, 2004; Cushion 2006; Cushion, 2010; Cushion et al., 2003; Werthner & Trudel, 2006).

The delivery is one factor that has been thought to contribute to the ineffectiveness of coach education programs because it is argued to be too short, to offer limited follow-up, and to promote content memorization through assessment (Nelson et al., 2006). Formal coach education programs are also assumed to use limited and standardized delivery methods for any type of knowledge and any type of learner. In this way, they are thought to promote a linear and generic perspective of learning when in actuality learning may be more complex (Cushion, 2010; Cushion et al., 2003; Nelson et al., 2006).

The delivery of coach education has also been criticized for delivering a standardized pre-determined curriculum without considering the needs of the coach learners. In this manner, the coach educators determine what the coach should know, similar to Moon's (2004) brick wall metaphor. However, from a

constructivist perspective, rather than arriving at the course as empty vessels waiting to seamlessly accumulate knowledge (Cushion, 2010) the coach carries deep-rooted dispositions that will impact which knowledge they consider meaningful so that is the learner (*sic* coach) who considers which knowledge is meaningful rather than the instructor (Moon, 2004).

The content of formal coach education programs has also been thought to lead to the programs inadequacy. First off, these programs have been thought to deliver a toolbox of pre-defined knowledge and step-wise solutions to typical coaching issues. Subsequently, it has been argued that these coach education programs privilege a technocratic rationality and oversimplify the complex integrative coaching practice. This would produce 'cut out' mechanistic coaches, who lack practical competencies, innovation, and the ability to apply and adapt knowledge, values and judgment (Cassidy et al., 2004; Cushion, 2010; Cushion et al., 2003; Nelson et al., 2006). Secondly, critiques of formal coach education assumed that the content does not relate to the coaches' practice (e.g., Cushion et al., 2003). As a result, coaches fail to see the content as relevant and are not motivated to learn it (Piggott, 2012).

Critics of formal learning also argue that coach education is decontextualized and provides limited opportunities to integrate course knowledge and theory into the everyday coaching practice (Cushion et al., 2003; Nelson et al., 2006). As such, coaches often leave the program unable to understand that the human context of coaching is dynamic and are unprepared to

adapt to such an environment (Cassidy et al., 2004; Cushion et al., 2003); yet certification deems coaches as 'competent' practitioners (Cushion, 2010).

Coach education is also criticized for being driven by assessment and controlled by NGBs. The NGB delivers a predetermined curriculum of what they consider important and the coach learner in this case has little power and control over his or her learning (Mallet et al., 2009; Nelson & Cushion, 2006). Consequently, Nelson et al. (2006) debated that coach education should instead be considered training or indoctrination, meaning that there is a right and a wrong way of thinking. In this way Piggott (2012, p. 542) argued that NGBs operated in a 'closed circle system'. NGBs deliver knowledge by coach education that is enclosed within their circle, and this knowledge represents the circle's core knowledge. The NGBs' knowledge becomes common sense and is 'protected from criticism from within and without' of the circle. In other words, NGBs are unlikely to accept ideas from outside the circle while coaches within the circle are unlikely to reject the NGBs' knowledge for fear of not passing the course (Piggott, 2012). The coach in this case learns to uncritically legitimize certain knowledge over others by way of social editing, whereby some themes are promoted and others are eliminated. In particular, it is the dominant views of the NGB that have become accepted as legitimate through unrecognizable power relations between the NGB and the coaches. From this view, coach education can be considered political act of professional disempowerment (Cushion, 2010; Nelson & Cushion, 2006; Nelson et al., 2012).

Though the above postulations about coach-education effectiveness may certainly be plausible they are based on theoretical learning principles and lack empirical evidence. While theory is meant to frame educational practice theoretical research has minimally impacted the design of coach education (Cushion et al., 2010; Nelson et al., 2012; Trudel & Gilbert, 2006). Instead coach education's development has been based on 'folk pedagogies' (strong beliefs concerning how people learn that are based on tradition) that have been developed through experience of 'what works' and based on the interests of external authority (Lyle, Jolly, & North, 2010; Nelson et al., 2012). Consequently, the delivery, content and nature of coach education courses have been variable (Gilbert & Trudel, 1999; Irwin et al., 2004; Piggott, 2012). Empirical evidence is required before legitimizing theoretical assumptions.

There are considerable discrepancies concerning coach education effectiveness in the empirical research. Many coaches perceived coach education to be ineffective (Gilbert & Trudel, 1999; Irwin et al., 2004; Lemyre et al., 2007; Wright et al., 2007). Others, mainly inexperienced coaches (e.g., Winchester et al., 2012) and those in the context of youth (e.g., Banack, Bloom, & Falcão, 2012; Vargas-Tonsing, 2007; Wright et al., 2007) or development sport (e.g., Erickson et al., 2008), valued coach education. Methodological issues may partially explain these discrepancies. For one, few researchers have conducted accepted evaluation criteria to assess the impact of coach education (Stoszkowski & Collins, 2012; Werthner & Trudel, 2006). Instead, the impact has largely been self-perceived (Stoszkowski & Collins, 2012) and influenced by enjoyment factors, finances,

logistical concerns (e.g., Vargas-Tonsing, 2007; Winchester et al., 2012), and the opportunity to meet others (Irwin et al., 2004; Lemyre, 2007). As an exception, Gilbert and Trudel (1999) conducted a very intensive evaluation process that was comprised of various pre- and post- methods to evaluate the impact of formal coach education. Using this evaluation, they found no change in a coach's knowledge and little change in the coach's practice following a NCCP course. However, these results were based on a single participant. More rigorous methods and larger sample sizes are needed to effectively evaluate coach education programs (Cushion et al., 2010).

Secondly, most empirical evidence has been stylistic, meaning that researchers have simply identified that coaches learn from coach education and theorized why, or why it has not, been a valuable source based on it's style (Lyle et al., 2010) rather than considering the learning process, or what has actually happened in the course. They have not considered what has actually happened in the course. Given that the design of coach education has been found to be variable (e.g., Irwin et al., 2004) the impact of coach education will likely be variable as well. The variable design may be attributed to the recent redesign of selected coach education programs (Trudel & Gilbert, 2006; Mallet et al., 2009). For instance, in 1995 the NCCP was redesigned in to provide competency-based knowledge instead of theoretical knowledge and context-specific knowledge instead of generic knowledge (Coaching Association of Canada, 2005). Other countries (e.g., UK) have adopted a similar program but have included a different number and type of contexts (Trudel & Gilbert, 2006). Additionally, NCCP

courses can be multi-sport or specific sport (nccp.athletics.ca). The impact of the coach education will likely depend on the design of the course in question; yet few critiques have acknowledged the course design when critiquing formal coach education.

Even formal coach education programs with a similar design can have a variable nature. Piggott (2012) interviewed a range of coaches from the UK and discovered that the nature of coach education courses, and subsequent perceived impact of the course, were variable across sports in the same NGB, and even across award levels within the same sport. The variability of perceived impact stemmed from the different teaching methods (e.g., lectures, discussions, demonstrations) and their nature (e.g., open or closed discussions) employed by the instructor. Therefore, the instructor may be central to creating a meaningful experience in coach education. The preferred method of learning could also affect the learner's perceived impact of the course (Cassidy et al., 2004). If the instructor's teaching methods do not suit the coach learner's preferred learning method the coach may perceive the course as ineffective. Furthermore, multiple learning situations may be presented in each coach education course. Critiquing the style alone provides little insight into which specific learning situation (or its nature or design) was effective, and how to effectively facilitate coach education. However, few researchers have considered the nature and design of the course, the coaches preferred method of learning, or the effect of specific learning situations employed when critiquing coach education.

Non-Formal Learning. Though not as popular as formal learning, non-formal learning has been a valuable coach learning source (Wright et al., 2007). Coaches from different contexts valued non-formal learning for different reasons. High-performance university coaches considered coaching clinics to be the most important source to search for new ideas (Reade et at al., 2008). On the other hand, high school development coaches considered clinics to be essential in gaining sport-specific understandings and to observe more experienced coaches (Winchester et al., 2012). Despite its apparent popularity there is a paucity of research on non-formal coach learning. This is likely because these learning sources are not offered in every sport context (e.g., Lemyre et al., 2007) or because they have an interchangeable definition. In the latter case, non-formal learning may have been misclassified as, for instance, formal learning and may have been overlooked in the literature. Given the inconsistent definition of non-formal learning courses the design of the course and subsequent impact may also be inconsistent. For instance, high-performance gymnastic coaches who were interviewed by Irwin et al. (2004) indicated that the nature of their non-formal clinics were variable (composed of a combination of education courses, mentoring, and practical experience), which subsequently influenced its effectiveness. Seemingly, non-formal learning research would benefit from definitional clarity.

Informal Learning. Informal learning sources have been noted to be important sources for coach learning. Compared to formal and non-formal learning, informal learning encompasses a wide range of learning opportunities

(Nelson et al., 2006). Rather than discussing informal learning as a whole, in what follows I will discuss each informal learning source individually, including: self-directed learning, learning from experience, learning from interactions, reflection, and mentoring.

Self-directed learning. Learning from coaching resources such as books, videos, journals, or the Internet are considered forms of informal, self-directed learning (Nelson et al., 2006; Wright et al., 2007). Self-directed learning provides coaches with more responsibility and autonomy over their own learning. Coaches can choose what they learn and how they learn it to meet their own learning interest and needs (Werthner & Trudel, 2006). Coaching resources such as high-quality magazines, DVD, or online resources, were valued by coaches in the UK (Nelson, Cushion, & Potrac, 2012) and video analysis was valued by high performance gymnastic coaches (Irwin et al., 2004). Lemyre et al. (2007) interviewed coaches of youth athletes and discovered that the type of information sought out from coaching resources depended on coaches' contexts. Less experienced development coaches were more inclined to use coaching resources to search for technical and tactical information while more experienced coaches used these resources to search for bio-scientific information (Lemyre et al., 2007).

Although self-directed learning from resources may be valuable it can be limited by factors such as coaches' access to information, their ability to self-learn, their ability to search for knowledge they aren't aware of, and their assurance of achievement (Mallet et al., 2009). For instance, high-performance coaches claimed that academic journals (e.g., Reade et al., 2008) and books were

not easily accessed and those that were, lacked quality and practicality or were too specialized (Irwin et al., 2004). Furthermore, while self-directed learning is thought to serve the interest of the learner and is considered unmediated learning, learning resources have been developed with intended learning outcomes by a third party. Self-directed learning can therefore be considered teaching (Nelson et al., 2006) and serve repressive interests (Nelson et al., 2012). Moreover, Mallet et al. (2009) argued that learning from resources lacks the important learning experience that comes from human interaction.

Learning through experience. Coaches reported to learn from both experience as an athlete and a coach. Lemyre et al. (2007) referred to learning from athletic experience as the law of isomorphism whereby coaches spontaneously reproduce what happened in their past athletic practice in their current coaching practice. Coaches of both development (Erickson et al., 2008; Wright et al., 2007) and high performance athletes (Occhino, Mallett, & Rynne, 2012; Werthner & Trudel, 2006, 2009) considered athletic experience to be a valuable learning source but for different reasons. Development coaches valued athletic experience for learning technique and drills (Bloom, Durand- Bush, Schinke, & Salmela, 1998; Lemyre et al., 2007; Winchester et al., 2012) whereas high-performance coaches valued it for understanding the athlete's perspective of performance. Though the latter considered athletic experience important they did not believe it was absolutely necessary (Irwin et al., 2004). High-performance coaches also considered coaching experience to be a valuable learning source (Occhino et al., 2012; Rynne & Mallett, 2012). Others have also reported athletic

and coaching experience to be important development, or learning, activities (e.g., Gilbert, Côté, & Mallett, 2006; Koh, Mallett, & Wang, 2011; Lynch & Mallet, 2006; Young et al., 2009). However, these results were based on numerical questionnaires that indicated that a large amount of time was spent coaching compared to the time spent performing other possible learning activities. Accordingly it was assumed that learning was more likely to occur in the former merely due to the substantial amount of time spent participating in the activity. However, quantifying coach learning in such a manner can be problematic because participation in an activity does not necessarily mean that the coaches learned from that activity (Lynch & Mallet, 2006).

Nonetheless, with the exception of Erickson et al. (2008), many believe experience- based learning has a greater impact on coach learning than formal coach education (Cassidy et al., 2004; Cushion 2006; Cushion 2010; Cushion et al., 2003; Nelson et al., 2006). Cushion and colleagues (Cushion 2010; Cushion et al., 2003) reasoned this using Bourdieu's (1990) concept of habitus. They indicated that during athletic and coaching experiences coaches develop habitus - or internalized and unconscious dispositions, deep- rooted knowledge, and values and beliefs. Rather than arriving at coach education as empty vessels that seamlessly acquire knowledge, coaches' deep-rooted habitus act as filters and influence their inclinations towards incoming knowledge. If the content of the coach education contradicts coaches' habitus, or views, coaches may covertly contest the content but pretend to accept it merely to pass the course, only to revert back to their own coaching style when they return to their own practice.

Though habitus may theoretically affect coach learning there is limited research to confirm its influence. Light and Evans (2011) conducted extensive semi-structured interviews with elite rugby coaches and claimed to have identified the coaches' habitus and to demonstrate its influence on how the coaches' implemented new coaching ideas. Additionally, although Callary, Werthner, and Trudel (2012) and Werthner and Trudel (2006) did not use the term habitus, they respectively demonstrated how coaches' episodic experiences and cognitive structures influenced their inclinations towards future learning. Apart from these studies, there is a lack of evidence supporting the habitus' influence on coach learning. Habitus can be difficult to measure due to their unconscious and vague nature. Though coaches developing in similar fields may develop similar habitus, habitus are "not coherent and may display varying degrees of integration and tension depending upon the social settings that have shaped it" (Light & Evans, 2011, p. 3).

Learning through interactions. Interactions, including discussions and observations, with other coaches of the same and different sports are valuable learning opportunities (Erickson et al., 2008; Occhino et al., 2012; Reade et al., 2008; Rynne & Mallett, 2012; Werthner & Trudel, 2006; Winchester et al., 2012). However, the opportunity to learn from interactions with other coaches can be limited by the coaches' competitive context (Lemyre et al., 2007). Coaches also reported to learn from interactions with non-coaches (Winchester et al., 2012) such as athletes (Rynne & Mallet, 2012), assistant coaches, league supervisors, family and friends (Callary et al., 2012; Lemyre et al., 2007).

Learning from both interactions and experiences are recognized as key sources of ongoing coach learning (Cushion et al., 2003; Cushion 2006; Nelson et al., 2006). Together, they make up Lave and Wegner's (1991) social constructivist learning framework of Community of Practice (CoP). A CoP is a group of like-minded individuals who mutually engage in a common purpose, interact to share information and resources, and collaboratively understand and shape their coaching culture (Cushion, 2006, 2011; Nelson et al., 2006; Occhino, 2012). Coaches learn as they become members of a CoP through a legitimate peripheral practice framework (Lemyre et al., 2007) whereby they become community members by first entering at the periphery of the community and participating in less crucial tasks (e.g., as assistant coaches) before gradually participating in more crucial tasks (e.g., as head coaches). This has been considered to be a process of socialization (Cushion, 2006; Lemyre et al., 2007).

Though Light and Evans (2011) demonstrated how coaches learned by becoming a member of a CoP and developing habitus, other empirical evidence supporting the CoP learning framework is rare. Some have indirectly identified a coaching CoP from regular coach interactions (Erickson et al., 2008; Lemyre et al., 2007). While regular interactions are key components of a CoP and indicate the potential to develop a one, they do not necessitate that a CoP exists. A CoP also requires other components such as mutual engagement, joint enterprise, and shared repertoire. For instance, Occhino et al. (2012) demonstrated that even though competitive, high-performance coaches interacted regularly the interactions lacked a shared integrative purpose. Instead of a CoP these

interactions may have represented other social networks (e.g., networks of practice (NoP), informal knowledge networks (IKN), or dynamic social networks (DSN)).

While informal learning from experience and interactions appear to be valuable, they also have limitations. Learning from a CoP is not an individual process but a social one (Jones, Morgan, & Harris, 2011) that is shaped by the social press (social, cultural, and historical factors) (Cushion et al., 2010). Jones, Harris, and Miles (2009) argued that learning to coach includes "an element of socialization within a subculture […] with a personal set of coaching views emerging from observations of, and interaction with, existing coaches of 'how things should be done'" (p. 275). With this in mind, learning from the CoP framework could serve as a mechanism to either challenge social norms or, if managed incorrectly, to reinforce them. For instance, coaches may conform to the community norms and unquestionably perpetuate its knowledge and perceptions if they feel pressured to be approved by the community (Stoszkowki & Collins, 2012). In this sense, learning by experience and interactions can be considered mechanisms of cultural reproduction (Nelson, Cushion, & Potrac, 2012). Like formal coach education, informal learning can also be value laden and restrict learning (Stoszkowki & Collins, 2012). Additionally, learning from experience and interactions has also been criticized for lacking the direction and assurance of quality learning that formal learning has (Callary et al., 2012; Stoszokowki & Collins, 2012). Moreover, experience in the coaching field does not always translate into learning (Callary et al., 2012; Cote et al., 2007; Cushion, 2006;

Cushion et al., 2003; Gilbert & Trudel, 2001). When learning does occur from experience, there is a potential that coaches may neglect, or develop immature or incorrect concepts if the experiences are unmediated (Cushion, 2006).

Learning through reflection. Reflection is an informal and internal source of learning. It is defined as "the ongoing process of critically examining current and past practice as a method of improving future practice and increasing knowledge" (Cushion, 2006, p. 135). It is more than considering an action's success and failure but also critically considering the assumptions and consequences of that action (Cushion, 2006). Critical reflection enables the coach to take ownership of the learning process. In doing so it adds meaning and value to the coach's learning (Cassidy et al., 2004) while increasing the coach's operative attention, or attention to information (Cushion, 2006). Reflection also allows the coach to build a personal coaching model (Morgan, Jones, Gilborne, & Llewellyn, 2012) and increases the coach's responsibility of his or her coaching practice (Jones et al., 2011).

There are many models for reflective learning (Werthner & Trudel, 2009). It can be a learning source on its own (Callery et al., 2012) or it can complement other mediated and unmediated learning sources (Cushion et al., 2010; Gilbert & Trudel, 2001; Nelson & Cushion, 2006; Werthner & Trudel, 2006). Schön's (1991) theory of reflection suggests that reflection occurs both in- and on-action as a reflective conversation. A reflective conversation in this case is considered "a repeating spiral of appreciation (problem setting), action (experimenting), and appreciation (problem setting)" (Gilbert & Trudel, 2001, p. 17). Reflection is also

a key component of experimental learning (Cushion, 2006). Gilbert and Trudel (2001) used observations, interviews and documents to qualitatively examine how youth coaches learned from experience and framed their research with Schön's theory of reflection. They discovered that coaches learned not only *through* experience as both 'reflection-in-action' (during practice or competition) and 'reflection-on-action' (after practice or competition), but also *from* experience as 'retrospective reflection-on-action' (after the season) (p. 30). Differing from Schön's theory, Gilbert and Trudel (2001) characterized the reflective conversation as an ongoing process of issue setting, strategy generation, experimentation, and evaluation that was initiated by a coaching issue and bounded by the coach's role-frame. Alternatively, reflection was featured within Kolb's (1984) experimental learning, which consisted of a cycle of "concrete experience, reflective observation, abstract conceptualization, and active experimentation" (Irwin et al., 2004, p. 426).

Experimental learning has also been considered to occur without reflection. For instance, Irwin et al. (2004) represented experiential learning as trial and error and Erickson et al. (2008) represented experimental learning as learning from experience and interaction. While experience, or experiential learning, is certainly a key component of experimental learning, the former is generally considered to be unintentional whereas the latter is intentional (Cushion et al., 2010). Because many models of reflection and experimental learning exist, without clarifying how learning from these sources have occurred it is difficult to interpret findings about them. This is exacerbated by the fact that reflection is not

a stable isolated activity but a social one that is influenced by interacting with others and the environment (Gilbert & Trudel, 2001; Knowles, Gilbourne, Borrie, & Nevil, 2001). Therefore, each reflective learning situation, along with its associated experimental learning situation, may be unique. Results concerning one unique reflective or experimental learning situation cannot be generalized to all situations without indicating how the learning occurred. Research exploring reflection and experimental learning would benefit from a more in-depth exploration and definitional clarity.

Though reflection appears to be valuable, reflective skills (and subsequently experimental learning skills) may be limited by coaches' knowledge and cannot be assumed to develop naturally with experience (Knowles et al., 2001). As such, Nelson and Cushion (2006) recommend that reflective skills should be developed in formal coach education. Knowles, Borrie, and Telfer (2005) examined the curriculum of six formal coach education programs in the UK. They reported that though the programs used methods that could potential to develop reflective skills (e.g., from coaching logs or mentoring) only two had reflection-related outcomes while none actually taught reflective skills or theories. Alternatively, Knowles et al. (2001) examined a coach education program that did involve reflective workshops. They identified that six of the eight coaches examined developed reflective skills but that those skills were variable. Implementing reflection in coach education can be difficult and requires a large amount of time and commitment. Lyle (2007) advocated that future research should address both how reflective learning occurs and how it can be taught.

Learning through mentoring. Mentoring is a popular form of mediated learning that involves human interaction and contextual learning. Many definitions of mentoring exist that ultimately suggests it is a dynamic interactive relationship between an individual of more experience, rank or expertise and one with less. The former individual guides and supports the latter through professional, psychological or interpersonal development (Cushion, 2006). Unlike mediated formal coach education, mentoring involves "doing something with as opposed to a trainee" (Jones et al., 2009, p. 269).

Mentoring has become a significant coach learning source (Bloom et al., 1998; Irwin et al., 2004; Jones et al., 2009; Lynch & Mallet, 2006). Bloom et al. (1998) believed that engaging in, and being guided through, the complex and social coaching practice is the most effective way to experience and learn about it. They demonstrated that mentors helped coaches reach their fullest potential, develop and shape their coaching philosophies, and enhance their coaching performance. Mentors can also help coaches understand the complex holistic coaching process, assess important information, and guide them through coaching dilemmas while encouraging individual thinking and insight. They can also play a critical role in experiential learning by helping coaches to analyze and construct meanings from important experiences (Cushion, 2006) and guide the reflection process (Irwin et al., 2004). Mentors are thought to be especially helpful during the initial stages of a coach's career (Bloom et al., 1998; Nelson et al., 2006) and to assist with the induction process into a CoP (Cushion, 2006; Wright & Smith, 2000).

Like the other learning sources mentioned in my review, the nature of the mentoring relationship should be considered when interpreting its results because, as stated, there are many definitions for a mentor (Cushion, 2006). In addition to the definitions presented earlier, a mentor has been identified as a respected coach who helped develop other coaches (e.g., Lynch & Mallett, 2006). Others considered a mentor to be someone who monitors coaches' practices, or to be a 'coach development director' (Wright et al., 2007, p. 140). Definitional clarity of mentoring is needed before conclusions can be made (Jones et al., 2009).

The mentoring experience can largely be influenced by the quality of the mentor. If the mentor is too egocentric, exploitive, protective, or controlling, the protégé may uncritically reproduce knowledge that is restricted to the mentor's perspective (Irwin et al., 2004; Merriam, 1983; Werthner & Trudel, 2006). Exposure to restricted views, practices, and expectations could limit the socialization or induction process into a CoP and lead to assimilation or exclusion (Cushion, 2006). The quality of the mentor can also constrain the reflection process (Irwin et al., 2004).

Mentoring is currently described as 'just happening' (Cushion, 2006 p. 131). Establishing a mentoring relationship was often the result of "being in the right place at the right time" (Bloom et al., 1998, p. 279). Given its potential importance Bloom et al. (1998) suggested that mentoring should expand beyond an informal setting to a formalized program to promote interaction and consistency. Formalized mentorship has been recognized as being one of the most important coach learning sources (Bloom et al., 1998; Cushion, 2006; Cushion et

al., 2003). Over-formalizing mentoring however, can affect the rapport of the relationship and the degree of learning (Jones et al., 2009).

Redesigning Coach Learning

As my review has so far established, the coach learning pathway is influenced by a variety of sources (e.g., Erickson et al., 2008; Irwin et al., 2004; Wright et al., 2007) and appears to be idiosyncratic (Callary et al., 2012; Werthner & Trudel, 2006, 2009). Evidently, researchers have not reached an agreement about how coaches best learn. Wethner and Trudel (2006) argued that debating between the effectiveness of learning sources (e.g., between formal and informal learning) is a false debate. Each learning source has both benefits and limitations and contributes uniquely to coach learning (Wright et al., 2007). Rather than supporting a single learning source over another, coach learning may depend on a combination of learning sources (Lyle, 2002; Werthner & Trudel, 2006). Wright et al. (2007) suggested that future research should examine the effects of such combinations.

In light of this suggestion, researchers have conducted several theoretically informed pedagogical experiments that featured a combination of learning sources. Specifically, these experiments featured formal learning situations in which the formal coach education curriculum was revised to include informal learning situations such as reflections and CoP. Examples of such experiments include theory-based learning (e.g., Jones et al., 2011), such as the 'CoDe' program (e.g., Cassidy, Potrac, & McKenzie, 2006, p.146), problem-based learning (e.g., Jones & Turner, 2006), and ethno-drama (e.g., Morgan et al.,

2012). The experiments were intended to bridge the learning-practice gap and to develop critical reflection, problem-solving skills, and a greater insight into coaches' practices. Though the coaches in the studies positively perceived the programs, results were largely based on one-time experiments that had small sample sizes. More research is needed before making conclusions about these programs.

As mentioned earlier, in some instances the formal coach education curriculum was also redesigned to feature a competency-based curriculum (e.g., Canada's NCCP and UK's Coaching Certificate) (Trudel & Gilbert, 2006; Mallett et al., 2009). With the intent to integrate knowledge into practice, Deemers, Woodburn, and Savard (2006) suggested that competency-based learning should involve learning strategies that are action-based, relating to the coaching task, and performed in authentic settings. While competency- based learning programs are becoming more popular in coach education there is minimal research evaluating these programs.

More recently, a coach-centered (CC) learning approach has been advocated in coach education. CC learning is derived from Carl Rogers' person-centered learning (Nelson et al., 2012) that stems from humanist learning theories. The central assumption of these theories is that learners have the power and ability to self-learn and to learn what interests them (Brockman & McGill, 2006). CC learning involves facilitation rather than traditional instruction and is suited to the learner's needs rather than delivering pre-defined knowledge. CC learning is argued to increase learner's knowledge retention as well as to challenge prevalent

ideologies and discourse. While CC learning was advocated to reduce the oppressiveness of formal coach education it too can impose an ideology, which is one of 'person-centeredness.' Forcing freedom on someone who does not want it may also be oppressive (Nelson et al., 2012).

Though many learning approaches claimed to be CC (e.g., Jones et al., 2011) few actually are. CC learning means completely transferring power to the learner whereas in most cases it is only lent. Fully implementing CC education may be difficult because it challenges existing practices. Course educators must be comfortable with relinquishing power and transferring the responsibility of learning to the learners. This may appear risky because educators are accountable for coach learners' success. Additionally, coach learners must be comfortable with accepting that power and taking full responsibility of their learning. This may be feared because it creates the possibility of making mistakes and dealing with the consequences (Nelson et al., 2012).

Piggott (2012) argued that researchers have been too quick to revise coach- learning programs without properly understanding the problem. Instead of exploring why coach education was ineffective, the programs have been revised based on theoretical limitations. Though, theoretically, coach education lends itself to be autocratic and prescriptive (Nelson et al., 2012), Piggott (2012) demonstrated that this was not always the case. The nature (and ultimately the effectiveness of) the course varied depending, in part, on the instructors' teaching methods. Before attempting to correct problems within coach education,

researches should first identify what the problems are by further exploring the learning process, or what happens in these courses.

Not only have researchers been too quick to identify problems within coach education, it appears they have also been too quick to advocate theoretical solutions to these problems. Given the inherent unstructured nature of less formal learning situations, and the existence of multiple designs (e.g., coaching clinics) and models (e.g., experiential learning) of these situations, it is unlikely that any two of these learning situations will be the same. Though less formal learning situations may appear beneficial, like formal learning, their variability will influence its effectiveness. The nature of these learning situations should be considered before they are either assessed or advocated.

Learning Objectives

According to Nelson et al. (2012), "while research might help coaching identify the impact of certain educational practices, this is relative to, and can only be achieved with, clearly defined and 'appropriate' educational outcomes" (p. 5). Identifying the learning objectives (educational outcomes) when considering how coaches learn is important for several reasons. For one, learning objectives (including knowledge and competency objectives) mark the purpose of a learning source. To fairly judge if a source has achieved what it was meant to achieve it must be assessed against its learning objectives (Nelson et al., 2012). Yet, with the exception of Banack et al. (2012) who explored if youth cross-country skiing coaches learned specifically about Long Term Athlete Development (LTAD)

from a course centered on the LTAD, coach learning critiques have been largely disconnected from the educational outcomes.

Additionally, according to Kolb (1984), developing different skills require different instructional approaches. For instance, Irwin et al. (2004) demonstrated that high-performance gymnastic coaches learned about biomechanics from a bio-mechanist but about coaching strategies from a mentor. Therefore, "the method of gaining more knowledge would be generally dependent upon the nature of the question (Kolb, 1984. p. 436). In this regard, it is essential to consider the nature of the subject when deciding how to teach it (Kolb, 1984).

It seems that researchers should investigate how coaches have learned a specific objective rather than how they have learned in general as the latter will give ambiguous and idiosyncratic results depending on what topic the coach is referring to in their learning. This is especially important given that coaches require a range of knowledge to be competent in their respective coaching context (Côté et al., 2007; Werthner & Trudel, 2009). Anderson (2006) and Cassidy et al. (2009) conceptualized coaches' knowledge as declarative or procedural. Declarative knowledge, or knowing, is related to the concepts and ideas about coaching tasks whereas procedural knowledge, or doing, is knowing how to perform those tasks (Côte & Gilbert, 2009). Côte & Gilbert (2009) grouped declarative and procedural knowledge as professional knowledge, or knowledge concerning how to coach, and suggested that this was the primary focus of coach education. However, they acknowledged that coaches also need both interpersonal and intrapersonal knowledge that including knowing about interactions with

others (e.g., athletes) and knowing about interactions with themselves (e.g., reflection).

Alternatively, Nash and Collins (2006) considered coaching knowledge to be both explicit and tacit. Explicit knowledge was associated with developing athletic performance using the 'ologies' (e.g., physiology, psychology, sociology) and was thought to represent a science. Tacit knowledge was associated with intuitive or instinctive decision-making based on past experiences and often represented an art. Tacit knowledge was considered to be taken for granted whereby "coaches are unable to articulate why they make decisions, how they structure feedback, and the place of experience and knowledge within this process" (pp. 465-466).

Given that coaches require a wide range of coaching knowledge (Côté et al., 2007; Werthner & Trudel, 2009) and that each knowledge, or subject, may require a unique teaching method (Kolb, 1984) it appears there is a need to develop coach learning sources that are framed around specific learning objectives. These sources may include a mixture of learning frameworks (e.g., formal, informal or mediated learning) that are tailored to the coaches' needs. Based on my review this has not yet occurred. Instead, coach learning is largely composed solely of formal coach education. This may partially be explained by the fact that NGBs are responsible for developing quality coaches in accordance to coaching frameworks set out by the overarching governments (Piggott, 2012). Delivering standardized coach education courses then could be a quick and easy method to develop quality coaches. The problem here may not be that formal

education is ineffective but that it may not be effective for all learning objectives. Further research is needed to understand how coaches learn specific learning objectives. To this end, rather than generalizing coach learning, the aim of my study is to understand how coaches have learned a specific learning objective. The learning objective in question will depend on what knowledge is important to the respective coach's context, which in the case of my study would be the context of Canadian high performance athletics.

Coaching Context

Coaching is context-dependent. Each coaching context requires a distinct set of knowledge, skills, and competencies to be effective (Côté & Gilbert, 2009; Côté et al., 2007; Gilbert & Trudel, 2004; Lemyre, 2007; Lyle, 2002, 2007; Trudel and Gilbert 2006; Werthner & Trudel, 2006). The coaching contexts refer to "the unique setting in which coaches endeavor to improve athlete outcomes" (Côté & Gilbert, 2009, p. 8). It is influenced by not only a physical place but also the interaction of a number of factors, for example, the athlete's competitive level, the sport, and the culture.

Several classifications of athletes' competitive levels exist (e.g., Côté & Gilbert 2009; Lyle 2002, 2007; Trudel & Gilbert, 2006) that ultimately suggest that participation and performance athletes have different needs that subsequently influence the role of the coach (Côté et al., 2007). While participation athletes generally have a low focus on competition, performance athletes are highly competitive. In such competitive environments, coaches must be concerned with the intensive planning (e.g., Rynne & Mallett, 2012) of competition schedules and

training (Lyle, 2002). The unique contextual demands associated with the athletes' competitive level may explain some controversies in the literature; for example, why development coaches valued formal coach education (e.g., Erickson et al., 2008) but high-performance coaches did not (e.g., Irwin et al., 2004).

The coaching context and learning needs are further influenced by sport and culture. According to Denison, Mills, and Jones (2013), what is considered effective coaching for an individual sport will be different from what is considered effective coaching for a team sport. Accordingly, the unique differences between individual and team sports (e.g., Erickson, Côte, & Mallett, 2007), as well as the idiosyncrasies within specific sports (e.g., Gilbert et al., 2006) may have influenced the contextual demands and coaches' learning needs. Even coaches from similar high-performance context but from different sports indicated variable preferred topics to learn (Reade et al., 2008), methods of learning (Rynne & Mallet, 2012), and displayed idiosyncratic learning pathways (Werthner & Trudel, 2009). In this light, Rynne and Mallett (2012) claimed that results regarding how high performance coaches from a range of sports have learned could not be generalized to all high-performance coaches. The sporting context can also influence the availability and nature of the coach learning sources, which will ultimately influence how coaches learn. For instance, the availability of coach interactions was influenced by the competitiveness of the sport (e.g., Erickson et al., 2008; Lemyre et al., 2007). Additionally, the availability and also the nature of coach education, clinics, and mentoring

programs have been influenced by the sport's popularity (e.g., Gilbert et al., 2009). Furthermore, the cultural context would influence coach learning because NGBs in each country are unique they may offer unique coach learning opportunities (e.g., Irwin et al., 2004; Koh et al., 2011; Lemyre et al., 2007; Piggott, 2012; Trudel & Gilbert, 2006) and different cultures may have different coaching philosophies that can influence the learning process (Koh et al., 2011; Werthner & Trudel, 2009).

Despite the influence of context on coach learning, previous coach learning research has largely been decontextualized. Failing to recognize the different knowledge demands and coaching roles of each context lacks a quality of specification (Lyle, 2007). An apparent lack of contextualization in the coach learning research may partially explain why researchers have not reached an agreement about how coaches best learn. Werthner and Trudel (2006) proposed that "rather than continuing to search for differences between coaching contexts, it is becoming evident that it is more important to begin to understand the similarities and differences between coaches in a similar coaching context" (p. 208). Therefore, along with considering a specific learning objective (Kolb, 1984), contextual factors such as competitive level, the specific sport (Gilbert et al., 2006; Lyle 2007; Trudel & Gilbert, 2006; Vargas-Tonsing, 2007), and culture (Koh et al., 2011), should be considered to understand the coach learning process (Cushion, 2010).

Research Question

The aim of my research is to contextualize the coach learning literature to understand how high performance athletics coaches within Canada have learned. Specifically, I aim to understand how these coaches have learned how to plan their athletes' training. This is important because according to Cushion (2010): "While the 'principles of coaching' may remain the same, different contexts place different demands on the coach and athlete and, therefore, impact upon learning" (p. 169). Similarly, Kilgore (2001) argued there is no such thing as one kind of learner, one learning goal, one way to learn, nor one specific setting in which learning takes place. For coach education to become relevant to coaches' everyday practices, more sport specific learning programs need to be developed (Cassidy et al., 2009; Côté et al., 2009; Gilbert et al., 2006; Jones et al., 2004; Trudel & Gilbert, 2006; Werthner & Trudel, 2009). In the case of athletics, a sport based heavily on training and conditioning the body, this would mean creating learning programs that help coaches learn how to plan their athletes' training. This is especially evident in the context of high-performance athletics. To develop such programs in Canada, a comprehensive understanding of how Canadian high-performance athletics coaches currently learn to plan is needed.

Few studies have examined how high performance athletics coaches have learned, or moreover, how they have learned how to plan. Though Lynch and Mallett (2006) and Young et al. (2009) have examined how high performance athletics coaches have learned, there are limitations to their study. For one, they were not framed around specific learning objectives and competencies that were relevant to the athletics coaches' contexts and the actual practice of coaching,

such as planning. Secondly, these studies attempted to quantify coach development and learning by drawing conclusions based on the number of hours spent participating in each learning source. Cushion et al. (2010) argued that quantifying learning is problematic because learning is not linear, but complex. Moreover, as Lynch and Mallet (2006) noted as a limitation to their own study, the time spent in an activity does not indicate its influence on coach learning. These authors recommend that more in-depth questioning regarding coaches' learning experiences and the value of these experiences are needed. In my research, I will attempt to qualitatively explore how coaches have learned how to plan using interviews to gain a greater insight into their learning experiences.

Moreover, it should be noted that the intent of this study is not to advocate or critique a single learning framework or source but rather to discover what specific methods have facilitated and impaired Canadian high-performance athletics coaches' learning of planning. In this manner, I aim to better inform coach educators working in high performance athletics how to design and facilitate coach learning. Such an aim should hopefully advance coach learning of high performance athletics coaches in Canada. With this in mind, I intend to answer the following question, how do Canadian high-performance athletics coaches learn how to plan and implement their athletes' training? In the chapter that follows I will outline the research methods that I will utilize to answer this question.

Methodology

Qualitative Methodology

In this study I employed qualitative methodology to understand coach learning. Qualitative methodology is centered on the notion of a socially constructed world. Its aim is to understand a phenomenon from the meanings people bring to it from their experiences and how these meanings have been shaped within a particular social context (Markula & Silk, 2011). Knowing that both coaching and learning are socially situated activities (Cushion, 2010) qualitative methodology was an appropriate methodology to contextually explore coaches' learning experiences and understand the meanings they brought to learning and how they were influenced by their social world.

Qualitative methodology uses naturalistic, interpretative (Denzin & Lincoln, 2005, p. 3), and ideographic approaches to seek information about a phenomenon (Sparkes, 1992) that involve direct interactions with people or events in natural settings. They may include such methods as interviews, observation, or textual analysis. Furthermore, qualitative research designs are subjective, and begin with an open question that guides its flexible, nonlinear, design. Moreover, the design may evolve as the phenomenon is explored because the phases of this design can interact and occur reciprocally depending on the situations that arise. (Markula & Silk, 2011; Patton, 2002).

While these elements are characteristic to most qualitative research, some elements take precedence over others depending on the type of qualitative study (Creswell, 2012), which in turn, will vary with its purpose. Qualitative research

generally aims to map, critique and/or change conditions of the social world (Markula & Silk, 2011). Before a phenomenon can be critiqued or changed it must first be mapped. Mapping research is especially significant when there is limited knowledge on a topic. It aims to "provide a general overview or 'topography' of a behavior, phenomenon, practice or 'field'" (Markula & Silk, 2011, p. 8). In the case of coach learning, limited research has examined how high performance athletics coaches have learned how to coach. Moreover, research has neither examined how these coaches have learned to coach in the Canadian context, nor how they specifically learned to design and implement their athletes' training plans. To this end, the aim of my research was to map the unknown field of coach learning within the context of Canadian high performance athletics coaching.

Characteristics of qualitative research will also depend on its paradigmatic stance. Guba and Lincoln (1994) defined a paradigm as "the basic belief system or worldview that guides the investigator, not only in choice of methods but in ontologically and epistemologically fundamental ways." Each paradigm carries interrelated ontological, epistemological, and methodological assumptions that are influenced by one another and make up the paradigmatic parameters (Markula & Silk, 2011; Sparkes, 1992). Ontological assumptions are beliefs about the nature of reality and truth (Markula & Silk, 2011). Epistemological assumptions are the beliefs about the nature of the relationship between this reality (truth) and the knower (Guba & Lincoln, 1994). Methodological assumptions, on the other hand, relate to the ways, or methods, the reality or truth can be understood. (Markula &

Silk, 2011).

The paradigmatic stances that generally guide qualitative methodology carry the assumptions that there are one or more realities (ontology) and that these realities need to be understood subjectively (epistemology) using a variety of methods (methodology). Qualitative methodology however is multi-paradigmatic and the specific assumptions of the research will be shaped by the researcher's paradigmatic stance. The paradigmatic stance should be chosen based on its suitability to the research purpose (Markula & Silk, 2011). For my research, I adopted an interpretive paradigm. The interpretive paradigmatic parameters and the justifications for its suitability to my research will be addressed in the following section.

The Interpretive Paradigm

Markula and Silk (2011) suggested, "the interpretive paradigm is founded upon the premise that the social world is complex, that people, including researchers and their research participants, define their own meanings" (p. 31). The aim of interpretive research is to understand reality through individuals' experiences and the meaning they make of a phenomenon. While interpretive researchers believe that individuals create their own reality they acknowledge that this reality is influenced by the individuals' context. For this reason, my study was bounded by interpretive paradigmatic parameters to understand how coaches' learn in the context of Canadian high performance athletics. My ontological, epistemological and methodological parameters of the interpretive paradigm will be outlined in what follows.

The interpretative paradigm takes on a relativist ontology that assumes that social realities are individual products that are relative to context (Guba & Lincoln, 1984). In other words, while some elements of reality may be common to all individuals, certain elements are more likely than others within a particular context (Markula & Silk, 2011). With regards to learning, constructivist (or interpretive) learning theories suggest that learning is an individual process that occurs multiple ways depending on the social context (Cushion, 2010).

The epistemology of the interpretive paradigm is subjective and transactional. According to Markula and Silk (2011), advocates of a subjective epistemology challenge the objectivity claims of the positivist and post-positivist paradigms and take anti-positivist approaches. These advocates claim that objectivity is unnecessary and perhaps impossible in that even in positivist and post-positivist research the findings are influenced by the procedures and theories that guide the research. These advocates further argue that knowledge is subjective because it is produced through human interaction (Sparkes, 1992). During the research process within the interpretive paradigm, subjective knowledge is collaboratively created via researcher-participant interaction (Guba & Lincoln, 1994). This means that my actions, questions, and comments will shape participants' responses and vice versa. With this in mind, in taking on the role of a qualitative and interpretative researcher, I openly acknowledge that my background and situation—especially as a former athletics athlete and current coach—may subjectively influence and shape my research process and results (Markula & Silk, 2011).

Lastly, researchers using an interpretive paradigm attempt to subjectively uncover personal and variable realities via interactive research-participant methods (Guba & Lincoln, 1994). These methods are used to seek in-depth interpretations of individuals' meanings by exploring individuals' subjective experiences (Sparkes, 1992). In the interpretive paradigm, these experiences are believed to reveal human reality. Common qualitative methods of the interpretative paradigm include observation, participant- observation, textual analysis, narrative inquiry, and interviews (Markula & Silk, 2011). The methods used will depend on the research question (Patton, 2002). For my research I collected data using interviews, which will be outlined in the following section.

Data Collection

Interviews. Interview studies are common in qualitative research (Patton, 2002) and are well suited for uncovering knowledge from the interpretative stance (Markula & Silk, 2011). The interview is a structured conversation conducted with the purpose of answering the research question. Patton (2002) stated that, "qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable, and able to be made explicit" (p. 341). Interviews then serve to explore a phenomenon from the point of view of the participant and are commonly used to understand the meanings of participants' experiences (Kvale & Brinkman, 2009). They are especially useful when the research question cannot be answered from direct observation but can be answered through conversation (Markula & Silk, 2011; Patton, 2002). Appropriately, interviews were used in my

study to understand the coaches' unobservable feelings and past experiences of learning.

Interview format. Three types of interviews are generally recognized in qualitative research: structured interviews, semi-structured interviews, and unstructured interviews. For this study I conducted semi-structured interviews. Semi-structured interviews take place in formal settings and contain open-ended questions that lead to in-depth understanding of individuals' experiences (Markula & Silk, 2011; Patton, 2002). Semi-structured interviewers act as both a subjective leaders and active participants. They ask pre-prepared open-ended questions that guide the interview while allowing flexibility to further probe information about a topic. Open-ended questions also allow the interviewers to modify the discussion based on issues that arise during the interview. Though structured interviews also take place in formal settings, the structured interviewer directs the interview by asking systematically arranged, closed-ended questions that lead to objective yes or no answers (Markula & Silk, 2011) and minimize variation (Patton, 2002). The aim of my research is not to minimize the variation in responses but rather to uncover the unique perspective that each participant has to offer. Therefore, I used the more flexible and individual design of semi-structured interviews that also allowed me to explore topics that I did not anticipate before the interview (Patton, 2002).

Like semi-structured interviews, unstructured interviews involve open-ended questions but differ in that they have an even more flexible design. The unstructured interviewer takes on a subjective participant role and engages in

conversational open-ended questions. While this enables in-depth knowledge to be collected, the interviewer has little directional control of the questions. Additionally, the interviews are normally short and take place spontaneously in an informal setting. Due to their short and unidirectional nature, unstructured interviews are often combined with other methods to obtain adequate information in order to answer a research question (Markula & Silk, 2011). Alternatively, they occur in fieldwork where the researcher can be present for an extended time period to conduct many spontaneous interviews with the same person (Patton, 2002). For this reason, semi-structured interviews were better suited for my study given my limited time frame as I was able me to make the best use of the time available to my participants by directing the interview questions towards answering my research question. In conducting semi-structured interviews I was able to actively engage in a flexible conversation with my participants to seek meaning from their perspective while simultaneously directing the interview toward answering my research question (Kvale & Brinkman, 2009; Markula & Silk, 2011).

Interview guide. My semi-structured interview guide was prepared in advance of the interview and contained relevant themed categories identified by concepts found in the literature review (see Appendix A). The categories were arranged to ease the interviewee into the interview process (Markula & Silk, 2011). I first addressed familiar information regarding the coaches' coaching background before inquiring about his or her experiences of how they have learned to plan their athletes' training. Moreover, the categories contained both

open-ended and probing questions. This design allowed me to explore similar issues in each interview while having the freedom to adjust my questions to accommodate each coach's experiences and any unexpected phenomena that had occurred (Kvale & Brinkman, 2009; Patton, 2002).

Each interview was divided into three parts and lasted approximately 60-90 minutes in total. Part one included general questions about each coach's background and context. Though these questions did not directly relate to learning, they served to contextualize the coaches' responses regarding learning. Part two included questions concerning the coaches' knowledge and understanding of planning, including how they design and implement their athletes training. The intent of these questions was not to critique how coaches planned, but to relate what they learned about planning to what they know. Part three aimed to explore how the coaches' have developed or learned this knowledge and understanding. This design allowed me to analyze how coaches' learning experiences affected the development of their understandings of planning and implementing. It is important to note that I explored the concepts of designing and implementing separately. I considered designing to be the planning and scheduling of athletes training that occurs before practice, whereas implementing referred to applying those plans in practice.

Interview sample and setting. I conducted my semi-structured interviews with ten Competition Development (formerly Level III) Canadian athletics coaches in the fall and winter of 2012/13. The sample size was chosen because it was small enough to ensure that rich, in-depth information was collected, yet

large enough to draw meaningful conclusions from the data. The quality of the research was not based on the number of insights gathered, but the quality of the insights. This came from collecting a wealth of in-depth information from a small number of exemplary cases that enhanced the depth of understanding. Furthermore, qualitative research is a rigorous and time-consuming process (Creswell, 2012). Given the time frame of this study, the large amount of time required to collect and analyze in-depth interview data would have made it difficult to obtain such data from sample size larger than ten. A smaller sample size however, would not provide sufficient information to draw any legitimate conclusions from the interview data alone.

The participants were recruited using a purposeful sampling technique known as criterion based sampling. Purposeful sampling is used to seek information-rich participants who can help answer the research question. Criterion based sampling is a specific technique of purposeful sampling that is used to seek participants that meet predetermined criterion relevant to the research question (Patton, 2002). The participants in my study were chosen based on three criteria: they were Canadian coaches, they had experience coaching high-performance track and field athletes (athletes competing at the university, national or international level), and were certified Competition Development (formerly NCCP Level III) coaches. These criteria were chosen because Canadian high-performance coaches are context-specific to my research question and because Competition Development certification is required to coach high-performance track and field athletes in Canada. The latter criterion also ensures that coaches

have experience in a variety of learning contexts. The participants' demographics and their assigned pseudonyms can be found in the Table 1.

Table 1

Participant Demographics

Pseudonym	Coaching Certification	Educational Background	Years Coaching in Context	Level of Athlete
Morgan	NCI	Sport Science	15	Olympic
Trevor	NCCP 3	Physics	20	National
Robin	NCI	Sport Science	20	Olympic
Alex	NCCP 3	Sport Science/ Coaching	10	Olympic
Ian	NCI	Sport Science	20	Olympic
Sam	NCI	Physical Education	35	Olympic
Andrew	NCCP 3	Physical Education	30	National
David	NCCP 3	Education	10	National
Jordan	NCCP 3	Physical Education	15	National
Ben	NCCP 3	Sport Science	10	National

Notes: The NCI is Canada's National Certification Institution, which is the next highest level after the NCCP course. The years coaching in the context of high performance athletics are an estimate. Furthermore, the level of athlete is the highest that they have coached up until the point of the interview.

Pilot interview. Before conducting the official interview I performed a pilot, or practice, interview. The purpose of the pilot interviews was to evaluate the effectiveness of my interview guide as a tool to answer my research question as well as my interview skills. In this way, I was able to modify and refine my interview guide and improve my interview skills before conducting official interviews to ensure that I collected meaningful data (Markula & Silk, 2011).

Data transcription. The interview was digitally recorded to accurately capture my raw data (Patton, 2002). I then transcribed my data in a 'cleaned' fashion as opposed to transcribing 'in verbatim.' The latter entails transcribing words as well as 'utterances' being transcribed, however analyzing 'utterances'

will served no purpose in answering my research question and therefore was not be transcribed (Markula & Silk, 2011).

Data Analysis

Data analysis is more than just describing the data but interpreting its meanings. Though formal data analysis occurred after I collected the data, I informally analyzed my data during the interview, or data collection process, as ideas emerged from my open-ended questions. My ongoing analytical thoughts informed and directed subsequent interview questions to suit the emergent situation and helped to deepen the data collection process (Patton, 2002). After transcribing my interviews, I formally analyzed my data using a Braun and Clarke's (2006) technique of thematic analysis, which is "a method for identifying, analyzing and reporting patterns (themes) within data" (p. 4). While some believe thematic analysis is a tool used within qualitative analytic methods (e.g., Boyatzis, 1998), Braun and Clarke (2006) argue that it is an analytical method on its own.

Compared to other data analysis techniques, such as conversation analysis and interpretative phenomenological analysis (IPA), thematic analysis is flexible and not bounded by theory (Braun & Clarke, 2006; Howitt & Cramer, 2007). It can be used within, and can be shaped by, a range of theoretical studies. It can be used to analyze participants' experiences as well as how those experiences operate within society. The flexible design of thematic analysis was appropriate for mapping my research because I had the freedom to explore the possible theories that were underpinning coach learning from multiple perspectives.

Though thematic analysis has a flexible design, it also has guidelines. For my study, I followed the six-phase guidelines set out by Braun and Clarke (2006). The first phase was to familiarize myself with the data. This was a foundational step to insightful analysis and was necessary to adequately identify themes that reflected the data. This was started before the formal analysis while I personally conducted and transcribed the interviews (Howitt & Cramer, 2007). Afterwards, I repeatedly listened to and read the data in its entirety. During this time I actively looked for meanings and patterns and wrote any initial analytic thoughts and ideas (Braun & Clarke, 2006) based on my understanding of the area in relation to my literature review.

After becoming familiar with the data I began phase two: coding the data. Codes are "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998, p. 63). Coding involves searching the data for ideas relevant to the research question, labeling an idea with a code, and collating the codes to be later organized by themes (Braun & Clarke 2006). In taking a subjective instead of an objective stance, I did not systematically code the data in tremendous detail (i.e., counting words or phrases, or coding every line) (Howitt & Cramer, 2007). Alternatively, I manually coded extracts of the data that represent singular ideas, regardless of size.

In phase three, I identified potential themes and collated relevant coded extracts within the themes. A theme represents an important idea that is patterned in the data and is related to the research question. Depending on the data, themes

may be hierarchal and consist of main and sub-themes, and codes may be grouped into more than one theme. The paradigmatic parameters of my research influenced how I identified themes. Since this was a qualitative, rather than quantitative, study neither the numerical prevalence nor size (how many words or phrases it is made up) was considered to identify themes. Instead themes were identified based on their importance and relevance to my research question and literature review. Furthermore, because the area of my research was relatively unexplored I was not aware of all possible themes that could arise and therefore inductively identified themes as they appear in the data. To do so, I first described and organized the data and then interpreted it in relation to previous research (Braun & Clarke, 2006). Additionally, identified themes were not necessarily prevalent in all, or even any, of my interviews and even omitted themes in an interview can be informative. While probing questions were asked to identify missing information, they were not forced upon participants in attempts to find conclusions. Such forced analysis is contradictory to the naturalistic perspective of qualitative analysis. Moreover, findings were found in both patterns and uncertainties within the data (Patton, 2002).

In phase four of my thematic analysis I reviewed and refined my themes. Coded extracts were reviewed to ensure that they were grouped within appropriate themes and the patterns and meaning of these themes were reviewed to ensure that they accurately reflected the entire data set. The entire data was then re-read and refined to ascertain the appropriateness of the themes and to code any missed information from phase two (coding). I then defined the themes in phase five by

identifying the ideas or the 'essence' captured by the theme. This step consisted of both describing and interpreting the thematic data in terms of its meaning and relevance to my research question. In the final, and sixth phase I wrote-up a coherent and convincing account of the thematic data to capture its essence (Braun & Clarke, 2006).

Judgment Criteria

The quality of my research study was evaluated using judgment criteria that was specific to the interpretive paradigmatic orientation of my study and suited to my research purpose. Paradigmatic specific judgment criteria are used to assess the research's quality based on the respective paradigmatic beliefs. Each paradigm has a separate set of ontological, epistemological, and methodological beliefs concerning what is considered quality research. Judgment criteria should therefore be specific to the research's pragmatic orientation (Markula & Silk, 2011). Consequently, no one set of judgment criteria is suitable to all research. What is believed to be good quality research from one paradigmatic orientation may be considered poor quality research from another. Moreover, the quality of the research will depend on its purpose. Judgment criteria should then assess whether the research has accomplished what it intended to accomplish (Patton, 1990), which for my research was to qualitatively understand reality by examining participants' subjective experience. Morse et al. (2002) claimed that participants' experiences could not be captured or portrayed from an unbiased and neutral research position. I therefore acknowledge that my own subjective experiences will influence knowledge production. For these reasons, quantitative

or objective criteria such as validity (how well the research instruments measures what it is supposed to) and reliability (how the subjectivity of the research has been minimized) will not be suitable measures for my subjective and naturalistic qualitative study (Markula & Silk, 2011). Instead, I will judge the quality of my research using Lincoln and Guba's (1985) criteria for establishing qualitative trustworthiness.

Qualitative trustworthiness criteria are used to assess the appropriateness and quality of the research process (Markula & Silk, 2011). Markula and Silk (2011) linked qualitative trustworthiness to Sparkes' (2001) quasi-foundationalist judgment criteria which differs from, but is parallel to, foundationalist criteria, or quantitative trustworthiness. Qualitative trustworthiness criteria include credibility, transferability, dependability, and conformability. These criteria are parallel to quantitative trustworthiness criteria of internal validity, external validity, reliability, and objectivity (Markula & Silk, 2011). In what follows, I will detail the four criteria that was used to establish trustworthiness in my research.

Credibility reflects how accurately the results reflect reality (Shenton, 2004). I ensured credibility by collecting rich information from my interviews (Patton, 1990). To ensure this, I first established rapport with the participants and explained the anonymity of the study so that participants could speak openly about their experiences. During the interviews, I then asked open-ended and probing questions to gather in-depth information. I also employed informal member checking during the interview by paraphrasing and verifying the accuracy of participants' responses. The participants were then given the option to

read their transcripts in order to verify that the information was correct (Shenton, 2004).

The credibility procedures explained thus far are largely dependent on the skill of the researcher who also is the instrument of data collection (Patton, 1990). According to Patton (1990), "the quality of the information obtained during the interview is largely dependent on the interviewer" (p. 341). To improve these procedures I have performed a pilot interview to practice my interview skills and refine my interview questions. Furthermore, I performed peer-debriefing sessions with my research supervisor to gain alternative perspectives and to uncover any of my potential self-biases. I then presented the data as a thick description by detailing the findings and presenting the participants' voices. Additionally, my background in athletics and familiarity with both Canada's coach learning opportunities and planning concepts will largely facilitate my understandings of participants' responses which will add to the credibility of data collection and interpretation (Shenton, 2004).

Transferability is parallel to external validity. Though the latter signifies the generalizability of the findings across settings (Lincoln & Guba, 1985), generalizability is contradictory to the interpretive parameters and purpose of my research wherein reality is considered to be unique to the context, or setting, in question. Guba and Lincoln (1985) argued that a more appropriate set of criteria for naturalistic inquiry is transferability. Transferability questions whether sufficient details have been provided so that readers can appreciate the findings and determine if they can transfer them to other settings. I have facilitated

transferability by providing readers with a thick description (Markula & Silk, 2011) and contextual background of my findings (Shenton, 2004).

Dependability is parallel to reliability. Reliability refers to the extent that similar results could be obtained if the research was repeated in the identical setting, using the same methods and participants. Reliability is a problematic criterion for interpretive, qualitative research because subjective researchers acknowledge the inconsistent nature of reality (Shenton, 2004). Nonetheless, Lincoln and Guba (1985) advocated that dependability is an adequate criterion for establishing qualitative trustworthiness. They argued that demonstrating credibility will sufficiently indicate dependability because the latter is needed to establish the former. Accordingly, I will establish dependability by demonstrating credibility.

Lastly, conformability is similar to objectivity. Though the aim of my research was not to objectify findings, I attempted to reduce my biases to accurately present results that reflect the participants' experiences and meanings rather than my own ideas (Shenton, 2004, p. 72). To do so, I acknowledged my bias that I am a former athletics athlete and current coach and have predispositions and relatedness to the research topic.

Ethical Concerns

My study involved human participants and therefore required ethics approval. Ethical research conduct is one that respects participants' dignity in a manner that is free of harm. The principle of respect relates to the individual autonomy, or the 'right to individual self-governance' (Markula & Silk, 2011, p.

15). Individual autonomy is manifested in practices whereby participants have the freedom to make informed and voluntary decisions outside of controlling influences. Furthermore, ethical research conduct respects the individual's right to privacy by ensuring anonymity. It is also based on the principles of justice and inclusiveness and considers the benefits and harms of the research for the participants (Markula & Silk, 2011). For my study, I have conducted ethical research in accordance to the guidelines set out by the University of Alberta as outlined below (see Appendix B for ethics certification).

After receiving ethics approval from the Research Ethics Boards (REB), I contacted potential participants via email. They were provided with an information sheet (see Appendix C) detailing the purpose and procedure of the research, how to withdraw either themselves or certain information from the research, as well as the potential risks and benefits associated with participation in the study. Those who agreed to take part in the study were required to sign a written informed consent form (see Appendix D) before participation began. This demonstrated that participants had freely and voluntarily chosen to participate. Additionally, after the interviews had been transcribed the participants were offered to review their respective transcripts to confirm that the information provided was accurate. To assure anonymity, the participants were given pseudonyms and were told that information that may reveal their identity, such as their respective athletic club or athletes, were not revealed in the written research project. Furthermore, the data was to be held in safekeeping for five years following the research.

Results and Discussion

The aim of this study was to understand how coaches in the context of Canadian high-performance athletics have learned how to design and implement their athletes' training plans. Similar to previous coach-learning studies (e.g., Erickson et al., 2008; Irwin et al., 2004; Reade et al., 2008; Rynne & Mallett, 2012; Winchester et al., 2012; Wright et al., 2007), my preliminary findings identified that coaches learned in many ways including coach education, university education, conferences, resources, coaching experience, athletic experience, interaction with others, mentoring, and reflection. Further analysis of how coaches learned from these sources illustrated that learning to plan was highly complex: rather than existing in isolation, these learning sources co-existed as integrated ways of knowing that were shaped and mediated by one another. For this reason, these learning sources could not easily be grouped together into structural learning frameworks (e.g., Coomb & Amhed, 1974; Moon, 2004) or separated individually as discrete learning sources. To this end, while I agree with Werthner and Trudel (2006) that coach-learning research should move beyond merely identifying learning sources to understanding the learning process within these sources, rather than individually analyzing the learning process of each learning source that was identified in my research I have chosen to examine the overall learning process to understand the holistic complexity of how high-performance athletics coaches have learned how to plan their athletes' training. Overall, how coaches' learned how to plan was highly idiosyncratic and these idiosyncrasies were influenced by both individual and social factors. Accordingly,

I have organized my results into two major themes: (1) learning as an individual and (2) learning as an individual in society.

Learning as an Individual

Influence of previous dispositions.

Developing dispositions through learning sources. How coaches learned how to plan their athletes' training was largely influenced by their existing knowledge and understanding of planning. Coaches generally learned best when the incoming knowledge was greater than, or different from, what they already knew. This was particularly evident in formal education. For instance, Robin completed her NCCP education at the start of her coaching career and because it was her first and only source of planning knowledge at that time it largely influenced how she designed her athletes' training plans. This finding is consistent with Lemyre et al. (2007) and Wright et al. (2007) who found that inexperienced coaches valued formal education. In contrast, Andrew completed his formal university education before having coaching experience but did not learn from it because he "already had some understanding when [he] went to university" from his athletic experience, learning from resources, and talking with other coaches. David also completed his NCCP course at the beginning of his career and had some understanding of planning when he attended the course but, unlike Andrew, he valued the course because it elaborated on what he already knew. In particular, he learned about "patterns and evolutions" from his training plans when he was an athlete and then learned about the "the idea of periodization" associated with these patterns and evolutions in his NCCP course

and said that "really helped." Evidently, the effectiveness of formal education depended on how much planning knowledge and understanding the coach had at that particular time, regardless of his or her experience.

Moreover, the effectiveness of formal education depended not only on how much coaches learned before, but also on *what* they learned before. For instance, Jordan and Trevor both valued sport-specific planning concepts and were both taught these concepts in the NCCP. However, they had differing opinions about the course's effectiveness because they had differing understandings of planning when they attended the course. In particular, Jordan learned general planning concepts in university and then sport-specific planning concepts through the NCCP and therefore valued his NCCP training, stating, "if my former [university] education taught me about the body, my coaching education taught me about the skills needed to do my sport." In contrast, Trevor learned sport-specific planning concepts before attending the NCCP and felt that the course was not effective because "75% of what [he] knew after those courses [he] probably learned before." These results demonstrated that coaches learned best from formal education when the knowledge was not necessarily greater than, but different from what they already knew, as articulated by Ben who said, "I'm here for new experiences not just to regurgitate." However, formal education was not effective when the content differed so much that it contradicted the coaches' knowledge and understanding of planning. For example, when Alex attended his NCCP course he was also learning a new method of planning outside of the course and said that the content of the course "was very similar to the stuff [he]

was starting to critique." Consequently, Alex did not learn from his NCCP course because it conflicted with his own knowledge of planning at that time. According to Kolb (1984) "in many cases, resistance to new ideas stems from their conflict with old beliefs that are inconsistent with them" (p. 28).

These results demonstrated that the coaches were not merely empty vessels to be filled with new material (Cushion et al., 2003; Cushion, 2006, 2010) but entered the learning situation with a certain level of beliefs and conceptions about planning that impacted on their learning (Kolb, 1984). Rather than seamlessly accumulating new material, the coaches first compared it to their existing knowledge and understanding of planning (Moon, 2004). For instance, before assimilating a new idea Ben would consider, "How can I relate this to what I've seen in the past? How can I relate this to what I think other coaches are doing or what I've seen other coaches doing?" In this regard, these coaches endorsed Moon's (2004) constructive perspective of learning whereby knowledge is viewed as a "flexible network of ideas and feelings" derived from past learning experience and is known as the "cognitive structure" rather than an accumulation of ideas (p. 19). From this perspective, learning occurs via a process of accommodation where new material is compared to the learners' existing knowledge and modified accordingly to fit their cognitive structure (p. 19). In this sense, the coaches' existing knowledge served as a reference frame that guided their inclinations, interpretations, and responses to situations in the present. To this end, coaches attributed meaning to incoming knowledge by relating it to their existing knowledge so that what they learned was guided by what they already

knew (Moon, 2004).

It is not surprising then that the coaches' existing knowledge and understanding of planning especially influenced the effectiveness of formal education where coaches are thought to have little control over what they learn (Mallet et al., 2009; Nelson & Cushion, 2006). In traditional authoritarian-based coach education in particular, the coach educator delivers a pre-determined curriculum and therefore decides which material is essential for the coach to know (Cushion et al., 2003; Moon, 2004). Thus, there seems to be a paradox in traditional formal coach education whereby the coach educator decides which material *should* be meaningful for the coach to learn but is the coach that ultimately decides which material *is* meaningful. If the delivered material is not meaningful to the coach (as determined by their existing knowledge understanding of planning) he or she will not assimilate it. As Moon (2004) argued,

> The state of the cognitive structure guides the process of assimilation – in other words, what we learn is guided by what we already know. It is not guided by what the teacher thinks the learner knows – but by what the learner does know (or knows that she does not know) (p. 19).

Accordingly, coaches in this study did not assimilate material that they had already learned or that conflicted with what they knew likely because they did not consider it meaningful. Alex alluded to this in the above scenario when the material conflicted with his own understanding and said, "this is knowledge and this is interesting but I felt like I was just in a different place of what I was

learning at the time."

Developing dispositions through experience. With respect to the coaches' existing planning knowledge who participated in my study, the knowledge they derived from experience appeared to have the most influence on their reception of incoming knowledge. For instance, coaches compared what was taught in formal education to what they learned from experience and if there was conflict between the two, the latter prevailed over the former. This was best illustrated by Alex who said that he did not learn about planning from his university lectures because the material conflicted with what he was using, and "tied to" in his experience:

> I feel like I switched off in [the lecture] because it was basically questioning how I was trained as an athlete and so I was just switching off because it was not good, like I thought 'this guy doesn't know what he's talking about.

To further this point, Alex acknowledged that his ability to learn from the lecture was limited because he "was engrained with this way of thinking through being an athlete so it was difficult for [him] to see what [the instructor] was trying to get at." Alex's "engrained way of thinking" is representative of Bourdieu's (1990) concept of habitus, or long-standing, internalized dispositions derived from experience that "form a screen or filter through which all future expectations will pass" (Cushion et al., 2003, p. 218). Similar to what other coach-learning scholars have theorized (e.g., Cassidy et al., 2004; Cushion et al., 2003; Cushion, 2010; Cushion et al., 2010; Nelson et al., 2006) Alex ignored the knowledge delivered in his formal education because it conflicted with his inner dispositions, or habitus.

Moreover, in the same way that coaches compared the material from formal education to their knowledge derived from experience, coaches compared *any* incoming knowledge to their experiential knowledge and the latter usually took priority. For example, after comparing research to his own practical experience, if Trevor found a conflict between the two he said that his experiential knowledge would have the "final say": "If research tells me not to do something and I believe that I should and I have experience to prove the opposite [of the research], the research might not override my initial beliefs." According to Robin, "you make decisions based on what you think has worked in the past." Therefore, while the coach learning scholars mentioned in the previous paragraph (e.g., Cassidy et al., 2004; Cushion et al., 2003; Cushion, 2010; Cushion et al., 2010; Nelson et al., 2006) acknowledged that the coaches' knowledge derived from practical learning experiences claimed superiority over formal education, this study goes further to illustrate that these experiences claimed superiority over *any* learning source.

While practical experience certainly influenced coaches' understanding of planning, Robin, David, and Sam said that what they learned about planning initially (from formal education) continues to influence their coaching practices because, as Robin reasoned, "that's where you start from." Equally, Ben said that his plans were influenced by his initial mentorship because "you always go back to that major influence because they're always going to be that major influence to you." Therefore, though coaches' dispositions about planning derived from early coaching experience has been suggested to have a major influence on coach

learning (e.g., Cassidy et al., 2004; Cushion et al., 2003; Cushion, 2010; Cushion et al., 2010; Nelson et al., 2006), this study demonstrated that coaches' long-standing dispositions about planning derived from their initial learning experience, regardless of its nature, largely shaped their understanding of planning. Correspondingly, while Moon (2004) acknowledged that previous experience guides what the learner knows, she clarified that "all learning is learning from experience" (p. 21) whether it is mediated, unmediated or internal – sitting in a classroom and hearing an instructor's voice, is as much of a lived experience as coaching on the field.

Nonetheless, these results demonstrated that knowledge is "linked to an individual's history" (Cushion, 2010, p. 169) in that coaches make sense of new material by relating it to what they learned in past learning experiences, regardless of their nature. Given that no two coaches have the exact same experiences, Moon (2004) argued that, "the same idea can legitimately be meaningful to one learner and not to another" (p. 20). From this point of view, "learning can take place in many different ways with many diverse individuals or groups" (Werthner & Trudel, 2006, p. 201) depending on the coaches' past experiences.

Changing dispositions through experience. Evidently, coaches' long-standing, deep-rooted dispositions about planning had a major influence on how they learned how to plan. That being said, the coaches' dispositions were not fixed but changed as they learned new knowledge, particularly from practical experience. For instance, Trevor, a physicist, designed his initial training plans based on scientific facts and performance measurements until he realized over

time through experience "that numbers don't mean anything" because "people weren't reacting the way the research was telling [him] they would." As a result, Trevor adapted his perceptions about planning and now relies less on numbers and more on a "gut feeling" to adapt his training. This example illustrated that learning is less about accumulating fixed ideas (Kolb, 1984), and more about transforming conceptions (Moon, 2004). In other words, the cognitive structure is "neither complete nor absolute, and is ever evolving" under the influence of new learning situations so that it "represents what the learner knows in any one particular point in time" (Werthner & Trudel, 2006, p. 201). The dynamic nature of the cognitive structure adds another level of complexity to coach learning in that what knowledge a coach considers meaningful will change over time depending on the state of his or her cognitive structure.

Moreover, by learning to rely on a "gut feeling" Trevor not only adapted his practices but also modified his deep-rooted scientific values and beliefs, and was able to accept new ways of knowing that better suited his new cognitive structure. For example, he is now more willing to learn from the "gut feeling" of others:

> I used to not believe too much in the gut feelings of coaches. I coached more scientific initially so if you tell me 'oh I think that this and that', if the reasoning didn't make sense I would discard it completely. Now I don't necessarily accept it because I like questioning, I like answers for it, but I'm going to be more willing to keep it in mind.

Trevor appeared to have embodied his learning experience so that it not only

influenced his cognitions, but also his values and beliefs and himself as a whole (Hodkinson et al., 2008; Jarvis, 2012). In this sense, Trevor learned through a process of learning as becoming (Cushion, 2010; Hodkinson et al., 2008; Jarvis, 2006, 2007) whereby as he learned from experience he not only learned about planning but also altered his inner dispositions and became a changed person. This example concurs with Hokinson et al. (2008) who, in acknowledging habitus as central to the learner's identity, suggested that learning "can change and/or reinforce the habitus of the learner" (p. 41). In this regard, Moon (2004) suggested that in transforming conceptions, the learning is also "transforming oneself" (p. 19).

Moreover, Jarvis (2006) acknowledged that the self is not fixed but that we are constantly becoming ourselves as "we are always incorporating into our own biographies the outcomes of our new learning and thus creating a changed person" (Jarvis, 2006, ch. 6, para. 1). This partially explains the idiosyncrasies of coach learning in this study in that as coaches learn they are constantly adapting their inner dispositions that are used to construct meaning so that what they consider meaningful at one particular point in time may not be the same at another time (Callary et al., 2012).

Developing dispositions about preferred ways of learning through experience. Idiosyncrasies in coach learning can also be attributed to variations in preferred methods of learning (e.g., through lectures, experience, books, and so forth). Ian claimed that he learned best when he was "simply moving" and clarified, "I didn't have the attention span to sit down […] I mean sitting still my

brain gets slow." For this reason he has had difficulty learning from lectures in formal education and has learned more effectively from practical experience and interacting with others. Sam on the other hand, prefers to learn from lectures and valued his university education. Therefore, formal coach education is not necessarily ineffective, as has been previously suggested (e.g., Cushion 2010; Cushion et al., 2003; Nelson et al., 2006),
but it may not be suited to all learning types.

Interestingly, coaches' preferred method of learning appeared to be closely related to their personality, or identity. For instance, Sam prefers to learn from formal education because he is very structured in his life. Jordan explained that he is a scientific thinker and accordingly seeks scientific information and uses scientific techniques (e.g., cause and effect) to solve problems. Trevor also said that because he has a research degree in physics, physics is his 'bias' and he "applies scientific methods in what [he does]." For example, he learns from experience by experimental learning: "I have hypotheses, I test them, I'm willing to review those hypotheses based on the research that I do, let's say, in training." These are other examples of learning as becoming. Whereas in the previous example Trevor was becoming by learning, these examples represent learning by becoming. In other words, how these coaches learn was a result of the person they have become.

Furthermore, coaches' preferred learning methods of learning appeared to be closely related to how they initially learned how to plan. Andrew, Ian, and Morgan first learned about planning from their athletic experience; Sam first

learned from his formal education; and Ben first learned from others, and all now prefer to learn in the same way that they did initially. Just as the coaches' initial knowledge and understanding of *planning* appeared to influence their future inclinations about *what* they learned, it appeared that coaches' initial understanding of *learning* influenced future inclinations about *how* they learn. Given that the cognitive structure is composed not only of knowledge, but also feelings and beliefs developed through past experiences (Moon, 2004), it may be likely that it contains dispositions not only about planning knowledge but also of beliefs about learning.

In a related sense, David explained that his preferred method of learning (reflection) is partially attributed to a learning experience that was particularly meaningful. When he began coaching he was placed into a situation with "no support" and consequently "made mistakes." At that point, he began to reflect on the situation to learn what went wrong and so reflection is now a major source of how he learns. David claimed that this was a result of his past experience: "That's probably where some of the reflection started: 'what was I doing?' and really thinking about it." Andrew's practices were also largely influenced by a particularly meaningful experience and he explained "probably you had a similar thing – everyone does – where you take a mental picture and it stays with you for life." Likewise, Callary et al. (2012) found that how coaches learned was attributed to a particular meaningful experience in their past, or an episodic experience – one that happens in time as opposed to over time. These authors suggested that meaningful episodic experiences "may have a great impact on the

individual that may significantly change the way that he or she thinks, feels, and acts in subsequent experiences" (p. 3), including how they learn.

The coaches in the examples in the previous two paragraphs, again, embodied their learning experiences so that they adapted their learning preferences in a process of learning as becoming, or specifically, becoming by learning (Hodkinson et al., 2008). Though the coaches spoke of having a particular method that they best learn from it appeared that this preferred method was not inherent but was developed over time through experience as the coach was both learning by becoming and becoming by learning. This was reinforced by Cushion (2010) who stated, "the ways in which people are willing to learn will depend on their prior positions, experience and dispositions" (Cushion, 2010, p. 176). Moreover, coaches preferred ways of learning might change over time as the learner is constantly learning through becoming, and becoming through learning" (Hodkinson, et al., 2008, p. 41). This can been seen in the earlier example when Trevor gradually modified his method of learning from a "quantitative" to a "qualitative" approach as he learned through experience. Therefore, while learning scholars such as Kirton (1994) suggested that learning s are developed at an early stage of life and remain static throughout, a more realistic view may be that the coaches' learning styles are developmental in nature (Kolb, 1984) and may change in response to "experience and the demands of the situation" (Cassidy, 2004, p. 421).

Ability to learn. Coaches in this study acted in accordance with the findings of Coombs and Amhed (1974) and Jarvis (2007) and placed a high

importance on learning and believed that learning to plan is an ongoing process. Sam stated, "I'm a big believer that you can never stop learning." He explained, progressively, every time I've gone somewhere, I've added to [my plan]: I've learned something. It's been an ongoing learning process. And it's going to continue, I know that." Jordan supported this opinion and justified, "if I ever get to the point where everything is answered quickly then I don't think I'm thinking hard enough and I'm taking the easy way out." That being said, learning how to plan did not occur spontaneously rather coaches were proactive in their search for knowledge. For example, they deliberately attended coaching education events, developed a library of resources, attended coaches' practices, and contacted others for help. Ben affirmed that a dedication to learning and a proactive search for learning opportunities have been the most important factors involved in how he has learned how to plan:

> I learned from [the conference], I learned from the course, but it was the fact that I was 100% focused […] I go after things. If I see a learning opportunity I'm going to send an email, pick up a phone.

The coaches continued their active search for learning sources, for example, by taking the initiative to extract meaning from experiences, asking questions, or reflecting. However, the ability to learn from a given situation is not a skill that is developed naturally (e.g., Cote et al., 2007; Cushion, 2006; Cushion et al., 2003; Gilbert & Trudel, 2001; Knowles et al., 2001). Whether coaches learned from a particular situation, and how they learned, depended on if they were equipped with the individual tools necessary to do so.

Prior planning knowledge. Earlier results revealed that coaches' existing knowledge and understanding of planning could limit their ability to learn. While this may certainly be true, having previous planning knowledge also allowed coaches to engage more effectively with new planning knowledge. Coaches who had previous planning knowledge were able to transition from passively replicating their coaches' training plans to actively understanding them while learning from their athletic experience. Similar to the coaches of Lemyre's et al. (2007) study, those who began coaching with no other planning knowledge, learned from their athletic experience by spontaneously replicating their coaches' plans because this was their only source of planning knowledge at that time. According to Alex,

> When you first get into coaching you don't really know where to start so you start doing what was done for you. So basically I took the program that my coach gave to me and I looked at it and changed it so it fitted my athletes a little bit better and I'd do the same thing. That's where I started: 'OK this works for me' so I'll do the same thing.

However, after learning about planning from university, Alex was "active in trying to understand why [he] was doing certain things" by relating his training to his own understanding. Likewise, it was not until David gained his own planning knowledge from the NCCP that he was able to critically consider his coaches' training plans by relating them to his own knowledge:

> Then I was able to take a look at my own training: 'what did I like about my training? And 'what would I do differently?' […] And 'what would I

> adjust for an athlete like me. So if I meet an athlete like me, what am I going to do for an athlete like me?'

Similarly, though Ben first passively listened to coaches at his track discuss their training plans he said that "as I became more knowledgeable and as I became a coach, I started to ask questions."

These coaches were able to actively engage in their learning experience after having previously learned about planning because they could better understand and construct meaning out of the incoming knowledge by relating to their existing knowledge (Moon, 2004). In this way, having existing knowledge of planning allowed the coaches to transition from surface learning (passively replicating ideas) to deep learning (actively understanding and relating ideas) (Cassidy et al., 2009). Additionally, Ben, Jordan, and Ian revisited learning resources after learning more about planning in attempts to learn something different. With a broader knowledge and perspective of ideas, these coaches had a changed reference frame to base the incoming knowledge against, and therefore allowed them to construct "more or different meanings of the concept[s]" (Moon, 2004, p. 21) Evidently, "What [the coach] has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow" (Dewey, 1938, p. 44).

Moreover, having more than one perspective of planning helped coaches to develop an innovative plan that was suited to their contextual needs rather than following a template. Jordan explained that his plan is not "copied from anywhere" but that he "melt[s] resources together to come up with what works for

[him] me." Similarly, David has developed his plan from multiple resources and explained,

> I like to think that I've gotten enough background information to know that not one [model] is completely correct but yet all of them have strengths and weaknesses given certain periods and times.

Alternatively, David was given a planning template to follow in his coach education and still follows a similar design today: "we followed that and that's all we did, so the other models out there I don't know about." In this sense, David's NCCP training appeared to be a form of indoctrination and promotes one way of learning as correct over others (Cushion, 2010). Moreover, Jordan recognized that it's "very hard to become a coach who is truly innovative and problem solves for everything" and that this occurs through developing critical thinking skills.

Having knowledge about planning was also central to the coaches' ability to critically make decisions about accepting knowledge from other sources because it provided them with a reference frame to compare the knowledge against. For instance, Robin said, "I think I'm at the stage now where I can hear something or disagree with it. As you develop as a coach you listen to the rationale and if you buy it, well I'll try that." According to Jordan coaches need a sufficient amount of "knowledge and experience to be able to filter the crap from the good stuff." Having planning knowledge was also a tool for reflection. When Ben observed other coaches' practices he did not interact with the coaches but learned by comparing the coaches' decisions to his own planning knowledge that he was learning in university and then reflecting on what he would do in the

situation:

> Just thinking of some educational pieces I was doing in school, like sport psych, and how that related to the [training], and starting to play around in my mind on what would've worked, or trouble shoot alternate solutions.

This example represents Moon's (2004) internal learning, or "cognitive housekeeping" whereby Ben learned by rearranging his existing knowledge, or cognitive structure, to develop new meanings. However, if Ben did not have his own knowledge and understanding of planning he would not have had anything to compare the incoming knowledge against to construct meaning from it. Therefore, reflection may be limited by what learners know (Knowles et al., 2001).

Prior coaching experience. Coaches felt that having prior knowledge from practical experience was particularly helpful in understanding knowledge from other sources. Robin felt that having already experienced high performance planning allowed her to understand concepts delivered in the NCI because she could relate what she was learning to her experience. Along similar lines, Andrew claimed that having practical planning experience was necessary to fully understand planning theory and integrate it into practice:

> Any coach can take something out of [the conference] but the reality is, in order to take the most out of it you have to be able to practice it […] unless you immerse completely you can't get the bigger picture right. So back in the times when I was involved with the track and field program at the university you would have the opportunity every day to be with your athletes and you can make adjustments in your day to day operation.

Ian supported this opinion and indicated, "A lot of the education that I valued did not happen in the classroom but at the track, at the gym, at the field." He reasoned that while coaches "need a certain amount of theory, what [they] do is not in the classroom." Therefore, it is apparent that practical coaching helped coaches to better understand planning concepts and thereby bridge the theory-practice gap (Cushion, 2010).

Beyond planning knowledge. Coaches also used knowledge and understanding from areas other than planning to assist their ability to learn. This was particularly evident when coaches learned from research. For instance, Ben had difficulty learning from research because it was a "statistical nightmare" and indicated that learning about statistics in his university degree helped him learn from this research. He added, "if anyone tells you that you don't need a general knowledge in everything, they're lying." Similarly, Trevor suggested that learning about research in his university degree helped him to understand and learn from research by understanding its methods and critically acknowledging its limitations:

> I understand the results and the methods that are used and I also understand how to use those results. Because people tend to think of research as a bible but there are limits […] and I think that helps, like I'm able to discard certain things because of that.

However, consistent with the findings of Mallet et al. (2009), Trevor's ability to learn from research has been limited because he does not know where to access coaching research: "If I want to look for research I really need to look. It

takes me a long time to find the things I'm looking for." He speculated that he would be better able to access research if he had a coaching-related degree rather than a physics degree: "When I'm looking for something for physics I know where to look, where the data bases are, where to go to get the references, so it's a little easier." For this reason, he attends conferences to learn about new research because he is "exposed to things that [he's] not usually exposed to." He also said that he would benefit from having a 'toolbox' of resources where he can easily access them, such as a coaching website.

Additionally, some coaches indicated that though they support ongoing learning their ability to learn has been limited by a lack of time due to commitments outside of coaching such as work and family. Though Sam and Ben said they are able to give full attention to their ongoing learning because they have no outside responsibilities, Robin said she does not research regularly because "in my spare time I'm not a student of the sport. I coach and I do my job well and do take some home with me, but I have a life." A lack of time was also indicated to be a major limitation to further learning by coaches in other studies (Winchester et al., 2012). Furthermore, some coaches suggested that their lack of ability to learn on an ongoing basis was related to the NCCP. As Nelson et al. (2006) suggested, coaches felt that the short time frame and limited follow-up of the NCCP did not support ongoing learning. Andrew questioned, "How good is 'take the book', move away, and that's it, you're done?" Trevor further argued that his NCCP education has not supported his ability to access learning resources and argued, "If you have a pure NCCP training you don't get those references,

you don't get any tools that tell you that this is where you get information from."

Trust. Coaches only assimilated new knowledge if they had trust in that knowledge. Trust was established through critical consideration of the legitimacy of the knowledge. For instance, Sam and Trevor critically considered the methods and limitations of research before accepting the knowledge. Sam particularly considered unregulated Internet resources, such as *Google,* and reasoned, "I can publish something and put it on a website and people will think I know what I'm talking about. And some people do and some don't." Even after adopting a new idea Ben said that the idea must prove its success in his coaching practice before he can fully establish trust in the idea.

Gaining trust through experience. The training plans of the coaches in my study were clearly shaped by practices that have been successful in the past. In agreement with previous coach learning literature (Irwin et al., 2004; Occhino et al., 2012; Rynne & Mallet, 2012), most of the coaches' knowledge and understanding of planning was derived primarily through practical athletic or coaching experience. According to Andrew,

> Having personal experience does matter for many things. I had the benefit of being involved in the sport for many years as an athlete before getting into coaching and during that time [I learned from my] successes and failures.

Most all coaches echoed this opinion, and for this reason, they placed a significant amount of trust on knowledge learned through their successful practices and there was a general acceptance that this knowledge claimed superiority over any other

knowledge (as evident in *Developing dispositions about preferred ways of learning through experience)*.

Moreover, while coaches claimed to take an ongoing learning approach, further analysis revealed their learning was limited by successful practices. Particularly, coaches have designed their athletes' training plans similar to how they did at the start of their career based on what worked. For instance, David has been using the same design he developed during his NCCP course at the start of his career and said that it "hasn't evolved too much." Robin also follows a similar model that she learned initially because "it worked and there's been no reason to deviate and look into different models: I got lucky." The substantial trust that coaches placed on these successful practices often limited their ability to change and discover new ways of knowing that may be as, or more, successful. For example, Trevor said that he was hesitant to replace one of his methods with a new one because he "was so comfortable with what [he was] doing at the time – it was working. If your group is performing, why change?" However, after eventually incorporating the method he discovered that it was actually a more successful method than the last. Had Trevor followed his original thoughts and not changed his practice he would have never had the opportunity to discover a new successful practice.

Though the coaches' training plans have been largely shaped by their successful practices, their learning appeared to be shaped by their *un*successful practices. Many only took initiative to learn (e.g., contacted informal mentors or searched for resources) when they had a coaching problem. For instance, Ian

started researching injuries only when he began coaching a group of injured athletes. "That's when I started going to experts outside of coaching, just reading a lot of medical books, and rehab stuff, just people who were tapping into solutions for the body." In contrast, Sam chose to reflect on his practice even when he did not have an issue: "And not a single year, no matter how successful I was, will I not review what I've done and might change and add to it." Jordan also stated that his annual reflection was not triggered by a problem, what he chose to learn about afterwards was guided by problems that arose during his reflection process.

Evidently, these coaches were most likely to learn when there was a "sense of not knowing" that resulted from problems in their destabilized environment; a state referred to as disjuncture (Jarvis, 2012, p. 13). In this case, learning appeared to occur in cycles of disjuncture and harmony whereby the coaches only began to problematize and question their practices when they were unsuccessful, or in a state of unknowing (disjuncture), as a means to search for solutions and return to a successful state, or one of knowing (harmony) (Jarvis, 2007, 2012). Therefore, while experience does not necessarily lead to learning (Cushion et al., 2003), learning from experience may be more likely to occur when there are problems with coaches' practices because "conscious experience arises when we do not know" (Jarvis, 2012, p. 14).

Taken for granted practices. Though coaches may learn best through solving problems, they cannot learn from problems in their practice if they cannot recognize that the problems are occurring. This may happen when coaches take

their successful practices for granted and assume that there are no problems. According to David, "I've been coaching for a long time and I've been successful and you get regimented […] but it's hard to recognize your own mistakes." In actuality, there will always be disjuncture in the environment because the environment is constantly changing. In this sense, an environment free of disjuncture is a taken for grated one (Jarvis, 2007). Jordan argued this point and stated, "if I ever get to the point where everything is answered quickly, then I don't think I'm thinking hard enough and I'm taking the easy way out." However, coaches may be unaware of this disjuncture in their successful practices because disjuncture may be hidden as an unintended consequence of their practice. In this seemingly harmonious state, coaches must be willing to look for and recognize the unintended consequences of their practice. For instance, Alex said that he reflected on both the intended and the unintended consequences of his coaching practice: "O.K. this is happening, what might also be happening? O.K. do I still want to do this?"" However, he acknowledged that it might be difficult to recognize unintended consequences because they can become unnoticed during successful, taken for granted practices:

> I don't always know what the unintended consequences are going to be. You can think about them a lot but sometimes it's very tough to see them especially if you've always done something and it has good impact for you it's very difficult to see what the potential side effects could be of that.

In this taken for granted environment, coaches assumed that what worked in a particular past situation will work again for a similar present situation. For

example, Morgan adapts her training plan based on the athletes' progress by comparing athletes' training response to the present training to that of past training: "OK, what did we do last year at this time – what do we need to achieve?" She added that she has "been doing similar things for 14 years" and that designing her athletes' training plan was more important in the beginning of her career than later "because I've done it so much I can read the athletes and I know where they're at. […] It's all written up, and it's been planned." Many coaches in this study acted in a similar manner, and in doing so, assumed that their practice would stay the same between similar situations. However, because the environment is in constant flux (Jarvis, 2007) what worked in one situation may not work in another similar situation. This may not always be apparent if coaches are not searching for disjuncture in their taken for granted practice. According to Jarvis (2007) as learners (*sic* coach learners) resolve disjuncture in their environment over time they encounter less novel experiences and spend an increasing amount of time in taken-for-granted situations as they advance. In other words, "as life progresses the developing individuals become more stable and less likely to change radically in certain circumstances" (p. 6), and in turn they will have less motivation to learn.

Coaches' practices may also become taken for granted if they do not have the knowledge required to recognize the unintended consequences that are occurring in their practice. To elaborate on the previous example, coaches often judged the success of their practices by comparing performance-based measures to past situations. Morgan reasoned, "we're in a sport where it's really easy to

determine if things are working. Are you faster? Are you throwing farther? Are you jumping higher? That's the beauty of the sport". However, time and distance are superficial measures that cannot determine the state of underlying factors that influence the performance such as physical, mental, emotional, psycho-social, and so forth. While the performance may appear unchanged, there could be problems associated with these factors that are not influencing the performance at that point in time but if left unnoticed, could manifest at a later time, such as developing an injury. Alternatively, these problems could be hidden by other factors that may be compensating for the issue, but that may over time create more issues; or that could improve performance even more if solved. However, this will go unnoticed if coaches do not have the knowledge to perceive the issue as a problem. In other words, they cannot observe what they do not know and are therefore limited to what they know.

Evidently, as Moon (2004) stated, learning involves more than just "relating and balancing existing knowledge and new material of learning" (p. 19) but also depends on learners' trust in the material and their willingness to lean. She acknowledged that unless learners trust the knowledge they are not willing to fully accommodate their cognitive structure to assimilate the new material. Accordingly, she claimed that "an unwilling learner, or [one] who may have little trust in the material of teaching, may either not pay attention or may use other areas of their cognitive structure to construct arguments that reject the new material of learning (e.g., 'I know this already')" (p. 20). In relation to this study, coaches argued against knowledge if it was not consistent with their successful

practices, claiming, "if your group is performing, why change?" According to Rynne and colleagues (2006), "while the availability of learning opportunities is important in assisting a coach's development, the willingness of a coach to engage in learning plays a greater role in determining his or her learning path.

Contextualized practices. In line with these results, coaches were more likely to trust material if it benefited their coaching practice. To determine its benefit coaches considered both its purpose and its relevance to their context. For instance, before assimilating an idea into his training plan Sam considers its purpose by questioning, "why is it good?" and "why is it being done?" In support of this idea, Ian reasoned, "if we don't know why we're doing something, even if it's 100% correct then we shouldn't be doing it." Robin added that even if she understood the purpose of an idea she would only incorporate if it were relevant to her context, for example, if it fit in her training plan and suited her athletes' needs and abilities. For instance, though a conference presenter critiqued a drill that she used in her practice and suggested an alternative she did not accept his suggestion because his purpose did not suit her training plan. She justified, "I understand why he doesn't like them, but there's a reason why I do like them, but I understand that his focus is different than mine."

As another example, Ben was required to design a week's training plan during his NCCP course for an athlete in his overall sporting context (event and competition level). However, he did not feel that the activity was helpful because it was not contextualized to his *specific* coaching context. In other words, he was planning for an ideal situation without considering the specific needs of his

athletes or the limitations of his practice environment (e.g., facility availability, training days, and weather). According to Ben, "it's one thing to plan in theory but then to put it in place with the restrictions is another thing." These results were consistent with Moon (2004) who claimed, "when interpreting or representing meaning, the learner will try to pull out the meaning relevant to the context" (p. 23). Moreover, as was illustrated above, coaches were more likely to assimilate and search for knowledge that was relevant to their contextual needs, or coaching problems. Therefore, the topic that a coach chooses to learn about will be related to his/her contextual needs (Werthner & Trudel, 2006), so that idiosyncrasies within coach learning are likely to arise given the variations in coaching needs and problems across coaches.

Furthermore, Ben's thoughts confirm the thinking of other scholars who have suggested that such formal education methods were decontextualized and oversimplified (Cassidy et al., 2004; Cushion, 2010; Cushion et al., 2003; Nelson et al., 2006). For this reason, nearly all the coaches in my study preferred to learn from practical methods, or as David described, methods that involved "an element that you could actually put [the plan] into place." Andrew explained that practical methods are helpful because they are "applicable to what [the coaches] are doing." He added that as an alternative, he has learned best from other sources when the information was practical and could be directly applied to his practice: "you tend to gravitate more towards the lecturers who give you specific information – what works, what doesn't work."

Tacit knowledge. Moreover, taken for granted practices often appeared to

be a product of tacit knowledge or knowledge that "can be abstract and unarticulated, the type of knowledge which is routinely used and taken for granted" (Nash & Collins, 2006, p. 466). One such taken for granted practice that was particularly evident in this study was implementation. There was a general consensus amongst the coaches of this study that they were flexible when implementing their training plans and that they made on site decisions to adapt their training plans to their athletes' response by looking for "definite signs" such as body angles, ground contact time, center of gravity, or body language. When asked how they learned how to do this most were confused and replied, "I don't know," "I think it's obvious," or "No one teaches you that, that's the *art* of coaching."

In fact, these coaches considered coaching to be both a 'science' and an 'art.' Similar to Nash and Collins (2006) they considered the science to be designing their athletes' training plans, a practice often involved with developing performances by integrating sport science knowledge (or the 'ologies'), and the art to be implementing, a practice involving intuitive decision making. While they could clearly speak to how they have learned the science of coaching, or designing their training plans, they were unsure as to how they have learned the art, or implementing those training plans. In other words, while designing their training plans was considered explicit knowledge, implementing their training plans was considered tacit knowledge. This was ironic given that coaches considered the art to be more important than the science. Morgan argued, "I did my NCCP course but that's maybe the science behind some of it and that's not a

big part of coaching." Likewise, David said that coaching education does not teach the "art" of coaching: "They kind of touch on it and then it's gone. And it's like that ends up being *the* part […] I think that's something that needs to be touched on."

A deeper analysis of how coaches learned to implement their training plans revealed that it was in fact not necessarily tacit knowledge that coaches inherently 'know,' but knowledge that was derived over time from such things as experience. For instance, after further probing into how coaches learned to be flexible when implementing their training plans, David replied, "oh wow, that's a lot of trial and error, that's a lot of mistakes." Similarly, as demonstrated earlier in this chapter, Trevor learned from trial and error that he should be flexible when implementing his plan rather than delivering a rigid plan: "When you start, you plan more on hard facts and realize you can't." Evidently, coaches did not just inherently 'know' that they should adapt their training plans, but learned this from experiencing problems, or disjuncture, in their practice. This is concerning given that if coaches' are not taught this important skill they will be left to learn how to make decisions and implement through 'chance' which as demonstrated earlier, may be difficult if the disjuncture is hidden as unintended consequences of the coaches practice.

Similarly, coaches learned *how* to adapt their athletes' training plans through experience. Though many coaches had difficulty articulating how they learned how to adapt their athletes' training plans, Trevor was able to clearly speak to the subject. At first he said that he adapted his athletes' training plans

based on a "gut feeling." However, it appeared that Trevor's decisions were not merely based on 'intuition' but were made by comparing his athletes' training responses to their response to similar training responses in past situations. To this end, he clarified that his "gut feeling" was not actually tacit, but "an educated gut feeling in the sense that you have experience that gives you the gut feeling." Correspondingly, he claimed, "it's impossible to have a gut feeling if you don't have experience to back it up."

Nash and Collins (2006) also recognized that coaches make decision based on a intuition, or a "gut feeling," that was considered an art and represented tacit knowledge (p. 465). Like Trevor, they suggested that most coaches actually develop this knowledge by "having dealt with similar situations in the past and recalling solutions to enable an apparently intuitive remedy" (Nash & Collins, 2006, p. 471). Similarly, while Morgan first said that she "think[s] it's obvious" to look these *definite* signs from her athletes' to adapt their training plans after a deeper reflection, she later acknowledged that "you start to learn this about a kid" through experience. According to Nash and Collins (2006), "certain distinctive cues appear to link current situations to past experiences, which may explain the coach's seemingly instinctive decision making" (p. 471).

Drawing from Bourdieu's (1997) work on improvisation, it appears that the coaches' intuitive decisions were both conscious and unconscious and therefore appeared to be second nature. However, these results also demonstrated that coaches' intuition, or apparent tacit knowledge, is actually a result of internalized dispositions (habitus) acquired over time through experience

beginning as an athlete. In this way, coaches' practices may have appeared to be tacit because "through their habitus, coaches' behaviors and actions are often the expression of tacit beliefs that are so taken for granted that they cannot be recognized or verbalized"(Cushion et al., p. 223). Therefore, "Many coach's actions appear instinctive but are actually based on a complex interaction of knowledge and memory of similar situations, honed by years of experience and reflection" (Nash & Collins, 2006, p. 472). In this way, the coaches' past experiential knowledge then "grants meaning to the action and events experienced without need for reference to a deductive and casual framework" (Nash & Collins, 2006, p. 471). To this end just as coaches' practices became increasingly more taken for granted as they developed experience, Nash and Collins suggested, "As coaches develop expertise, the process appears to become less well-defined, perhaps because these coaches are not aware of the reasons behind their decision making" (p. 470). Accordingly, recognizing unintended consequences become increasingly more difficult if the coach does are not even fully aware of the knowledge supporting their intended consequences. Moreover, given that a large portion of coaches' knowledge is tacit adds another level of complexity and ambiguity to coaches' dispositions about planning, their ability to learn, and their trust in knowledge.

Summary. In this section I illustrated the individual factors associated with how coaches in this study have learned how to plan. In particular, I discussed how coaches' previous dispositions about planning, their ability to learn, and their trust in the knowledge contributed to the idiosyncrasies of learning and how these

factors were in turn influenced by tacit knowledge. In the following section I will present those same topics in a parallel structure from a social perspective. In doing so, I aim to demonstrate the integration of the individual and the social factors that impacted upon the coaches' learning. Where applicable, the same examples about social learning will be used as the ones that were used in this section about individual learning in hope to further illustrate the overlapping influence of individual and social aspects of learning.

Learning as an Individual in Society

Influence of previous dispositions.

Developing dispositions through learning sources with others. Similar to previous findings (e.g., Reade et al., 2008; Rynne & Mallett, 2012; Occhino et al., 2012; Werthner & Trudel, 2006; Winchester et al., 2012), other people were a significant source of knowledge for the coaches in this study to learn about planning. Coaches learned directly about planning from discussions with, and observations of, others. These others included, coaching colleagues, coaches in their practice environment, coaches outside of their coaching environment, their personal coaches, mentors, other athletes, sport scientists, as well as coaches from other sports. Along with learning about planning from others, how coaches learned about planning from other learning sources was often mediated by other individuals. Interacting with others was a major source of learning within formal education and conferences and was a preferred source to learning from lectures. Therefore, given that coaches construct meaning out of incoming knowledge based on their existing knowledge, or dispositions (Moon, 2004; Jarvis, 2007) and

that they have learned this knowledge from others, what they consider meaningful may be influenced by meanings constructed by others.

While others did not always contribute directly to coaches' knowledge and understanding of planning, they often facilitated the coaches' learning process from other sources. For example, coaches received recommendations for specific resources and assistance for understanding those resources from other coaches. Given that a lack of awareness of, access to, and ability to understand learning resources are factors that could potentially limit coaches' ability to learn from them (Mallet et al., 2009), others were an important mediator for learning from resources. Moreover, while learning from resources has been considered to be self-directed (Wright et al., 2007), it appeared that which resources coaches learned from and how they understood them was actually directed by others.

Furthermore, along with having their own knowledge base (as discussed in the previous section), other coaches were helpful in teaching coaches how to critically think about their practices and make decisions by way of question-based discussions. For instance, David approached his informal mentors with problems from his coaching practice, and rather than providing him with solutions, they asked him questions that guided him to critically think about his practice and develop his own solutions. Just as Bloom et al. (1998) suggested that mentors may facilitate individual thinking and insight by guiding coaches through their dilemmas, David indicated that, "it was *those* conversations that really got [him] thinking." Jordan also supported question-based mentorships as an ideal way to develop critical thinking skills and argued, "if you give [coaches] the answers

they don't learn." From a constructivist perspective, problem solving with others while engaging in contextual dilemmas is central to the learning process (Cushion, 2006, 2010).

Furthermore, David indicated that the critical thinking skills that he learned from others are central to his critical reflection process. Considering that reflective skills do not develop naturally (Knowles et al., 2001), other people, such as mentors, may be essential to facilitate the reflection process (Irwin et al., 2004) by helping coaches analyze and construct meaning from their practices (Cushion, 2006). Similar to 'self-directed' learning from resources, learning by reflection had not been considered a mediated learning source (Werthner & Trudel, 2006) but it appears that both how coaches reflect, and what they reflect on, was influenced by others. This is consistent with the arguments of Gilbert and Trudel (2001) and Knowles et al. (2001) who stated that reflection is not an individual activity but a social one.

Developing dispositions through experience with others. In the beginning of this chapter I established that coaches' dispositions about planning have been largely derived from practical coaching experience. In this sub-section I will demonstrate that these dispositions have been shaped by the coaches' social involvement in their community. To do so, I will present an in-depth analysis of one coach's experiences and provide a thorough account of how coaches both develop and change their dispositions through experience with others.

In *Dispositions developed through coaching experience* I discussed how Alex's deep-rooted dispositions about planning were derived from his practical

athletic experience. In this case, Alex ignored the knowledge presented in his university lectures because they conflicted with his experiential knowledge that he was "engrained with." Alex later indicated that his engrained way of thinking not only stemmed from his attachment to his practice, but also to his athletics community. He acknowledged that in his former environment,

> There's this dominant way for planning that's very old school right, and I didn't even know that there was any other way to plan before I [left] because I couldn't think of any other way, I didn't know how to, I didn't have the opportunity to. I was in this society, in this culture, where this is the way and that's it.

Alex's understanding of planning that he gained from experience was influenced, and also limited, by the dominant way of knowing about planning in his social network. Therefore, when he judged the legitimacy of the content of his university lectures based on his previous knowledge, in actuality, he judged the content in reference to the norms of his social environment. Similar to the NGB's of Piggott's (2012) study, Alex's social network operated in a closed circle social system where the normative knowledge was taken for granted as coaches within the circle were unlikely to reject it for fear of being considering abnormal, or wrong. They were also unlikely to accept ideas and criticism from those located outside of the circle. In such a system, "the value of an activity is assessed in reference to [its] central body of knowledge" (Piggott, 2012, p. 539).

This example clearly demonstrates that while the meaning attributed to the learning material is ultimately a choice of the individual coach (Moon, 2004), the

individual's interpretation of the meaning is based on a social construction of meaning, or how knowledge is used and managed in the community (Lave & Wegner, 1991). In other words, though coaches develop dispositions through their own experience, they are refined by interactions with their social environment and internalized as taken for granted practices of the culture (Cushion et al., 2003). Therefore, what coaches learn in social situations becomes integrated into their biography (Jarvis, 2006) so that the habitus becomes a "social made body" (Bourdieu, 1992, p. 127) that is influenced by the taken for granted practices of their environment. This means that even though coaches emphasized the importance of critically considering taken-for-granted notions of learning by prioritizing their own experiential knowledge, this knowledge is actually rooted within the norms of their social, historical, and cultural context (Cushion, 2011). Their inner beliefs and dispositions are then consciously, or subconsciously derived from the taken for granted practice of their social surroundings (Cushion et al., 2003).

Changing dispositions through experience with others. Continuing with the same example, it was not until Alex left his environment that he was able to consider, and adopt, new ways of knowing. He explained, "moving to a different place where I could engage with and be in a different culture […] enabled me to engage with different knowledge, because it's like, 'OK now I can think differently." Significantly, after moving Alex was not only able to consider new ways of knowing but also to change his practices. This was important given that in his previous environment he was unwilling to assimilate new knowledge that

conflicted with his own experience, let alone adopt them into his training plans. Alex learned this new way of planning by practically engaging with the knowledge and discussing daily with his coaching colleagues. In other words, Alex learned through engaging in a Community of Practice (Lave & Wegner, 1991), or a group of individuals with similar mindsets that share ideas, information and resources to accumulate and transform knowledge (Cushion, 2006, 2011; Nelson et al., 2006).

Furthermore, by changing environment and learning this perspective of planning, Alex was able to modify his internal frame of reference used to construct meaning out of incoming knowledge. Previously, Alex ignored the content in his university lectures because it conflicted with his planning practices at that time. After relocating and adopting new planning practices, he attended an NCCP course and the instructor delivered planning practices that were similar to Alex's old practices. However, even though this knowledge was related to what he previously knew, he did not assimilate it because it no longer suited his way of knowing (as demonstrated earlier in *Developing dispositions through experience)*. Alex modified his frame of reference that he used to compare incoming knowledge when he moved environments and changed his dispositions about planning. While previous examples demonstrated that coaches could change their inner dispositions, or habitus, by learning as becoming through experience, this example illustrates that coaches can change their dispositions by learning as becoming a member of the community. This occurs on an ongoing basis given that "the CoP we belong to changes over time and has the capacity to alter the

course of our lives" (Occhinio et al., 2012, p. 2).

Though Alex was able to move away from the norms of his previous environment when he relocated, but he then adopted the norms, or the dominant ways of knowing and practices about planning, of his new environment. Evidently, while engaging in a CoP may be an effective learning tool for assimilating new ways of knowing, it may also limit a coach's ability to conceptualize other ways of knowing by reinforcing social norms and legitimizing certain knowledge over others (Nelson et al., 2012; Stoszkowki & Collins, 2012).

Along similar lines, other coaches illustrated that in changing environments, or who they interacted with, they were able to expand their knowledge of planning. For instance, though Robin said she learned a great deal from her previous mentor, and coaching colleague, she was able to expand on her planning knowledge by moving away from her mentor. She explained,

> If I was to continue coaching with her, I think because she was always my idol and role model, I may not have developed as much as a coach as if I didn't leave because I wasinfluenced by her in my decision-making.

Likewise, Ben recognized that his coaching network was limiting his ability to expand his planning knowledge and has consequently expanded his coaching network:

> I branch out to whom I communicate with now. Not to come across that I've learned as much as I can from [my original network], but I go bigger, get new views points, you know, take advantage of new opportunities.

David even said that his NCCP experience was limited because his instructor was

his previous coach as an athlete and he felt that he would have benefited from learning from a different instructor to gain another perspective. Learning from one coach, such as a mentor, may restrict the learner's knowledge to that of the mentor's (Merriam, 1983; Werthner & Trudel, 2006). Similar to learning through a subculture, this could serve to reproduce social norms and lead to assimilation or exclusion (Cushion, 2006). While these coaches did not necessarily change environments like Alex did, they were able to learn more ways of knowing by changing whom they interacted with. These results demonstrate that the process of learning through socialization is not confined to the boundaries of a physical environment but occurs through cultures or histories (Hodkinson et al., 2008).

Developing dispositions about learning preferred learning methods socially. Coaches may have also developed their preferred method of learning through a process of socialization. This was evident by the disparities between how coaches preferred to learn and how they suggested coaches should learn. In particular, Sam asserted that conferences are "an incredible opportunity for people to learn and interact because they both go hand in hand" but also asserted that coaches should learn through attending lectures. Interestingly, while most coaches critiqued lecture learning and preferred to learn from other methods (e.g., experience, through others, books, etc.) when given the opportunity to design an ideal coach learning system most suggested that lecturing was a necessary component. For instance, David said, "I think you have no choice, there has to be an element of [lecturing]." It is likely that coaches have been socialized into thinking that lecturing is the most effective way of learning due to its

predominance in the coach education system. This may be exacerbated by the fact that lecture learning may have been the only type of organized learning that coaches have been exposed to, not only in coach education, but throughout their public education as well. Therefore, lecturing may have been the only type of formal education that the coaches knew rather than what they preferred. Jordan, who is a public school teacher supported this opinion and claimed, "there's probably a lot of people out there that don't understand what their preferred learning style is." However, as argued earlier, "learning styles" may not actually be an inherent feature of an individual, but one that is learned over time through learning as becoming. Given that learning as becoming is also a social process, it is possible that developing a way of learning is also a social process (this topic will be continued at the end of this section in *Taken for granted practices*).

Ability to learn. While the previous section demonstrated that the coaches in my study required individual tools to actively engage in learning situations, it appears that their ability to learn was also influenced by other people in their environment. As discussed in the beginning of this section, other coaches not only contributed to the coaches' knowledge about planning, but also enhanced their ability to learn from resources, critical thinking, and reflection.

Where coaches coached. Coach learning was greatly influenced by whether a coach had the opportunity to interact with others while he/she was coaching. Those who coached in proximity to other coaches were more likely to learn from others. Additionally, how they learned from others depended on the type of social network they were a part of. Coaches who co-coached, including

Ian, Alex, and Robin, mutually engaged to work towards a common purpose (e.g., coaching the same team) and shared a culture that contributed to their identity. As such, they openly discussed their athletes' training plans with the other coaches on a daily basis and collaborated to share information. According to Robin, "when you're two coaches in an office together you collaborate a lot." Due to the nature of their relationships, these coaches met Wegner's (1998) criteria for the existence of a Community of Practice (CoP): mutual engagement (e.g., collaboration), joint enterprise (e.g., a common purpose), and a shared repertoire (e.g., culture).

Those who coached in the same location as other coaches but not directly with them (e.g., David, Andrew, and Ben) also learned from interacting with other coaches, but these interactions were less frequent and of a different nature than those between colleagues. For instance, rather than collaborating with other coaches to design mutual training plans, David questioned them about their training plans, observed them implement those plans, or asked them for advice on his own plans. These interactions could not be considered a CoP because there was no mutual engagement or joint enterprise. Instead these coaches interacted in an Informal Knowledge Network (IKN), where they had a shared understanding but interacted through dynamic, unstructured relationships "to collect and pass information on" (Allee, 2000, p. 8). Coaches who worked in proximity to other coaches, either in a CoP or IKN, also received recommendations for specific resources and assistance for understanding those resources from other coaches in their environment, which, as suggested earlier, could enhance coaches' ability to learn from learning resources. These findings are consistent with Cushion (2010)

who stated, "learning is not something that happens but is, instead, shaped by the environment, culture and tools in the immediate situation" (p. 168).

Those who did not coach in proximity to other high performance coaches were less likely to learn from other coaches simply due to a lack of opportunity. This was exemplified by Andrew and Ben who relocated from environments where they had many opportunities to interact with others coaches to ones where there were less of these opportunities. Andrew was immersed in a high performance athletics environment while competing internationally and attending a sport school. He explained, "back in the days you were emerged, I mean you would talk to [coaches] everyday: before or after a session. You look for that because you are in that environment." However, after moving, Andrew felt that his ability to learn had been restricted due to a lack of high performance coaches in the area to interact with: "Sharing was a big thing back then, but right now where I am I feel isolated, there's no coaches to share with." Likewise, Ben felt limited by the lack of opportunities to discuss with other coaches and for coaches to question, and advise, him on his plans:

> Even though I thought about [my plan] and I'm confident about it, to have someone go, 'why are you doing that drill?' you know, and just have another coach say 'lets go for a drink tonight and go over some stuff.' I really miss having that availability.

Both Andrew and Ben have modified how they learn from others as a result of their relocation. Ben expanded his network of coaches to contact coaches outside of his environment via phone, email, or conferences. Both have also

sought out opportunities to observe or interact with high performance coaches in their area from other sports. Ben attended a multi-sport high performance planning clinic and, even though the coaches were from other sports, he learned about planning by listening to them discuss their training plans. He explained, "I'm in a bubble. Hearing that and getting out was helpful." Additionally, similar to high performance football coaches in a previous study (Occhino et al., 2012) Andrew learned about planning by observing high performance coaches from other sports in his area. Importantly, even though Ben and Andrew did not have the opportunity to interact with high performance coaches in their immediate environment, they actively searched for ways to interact with other coaches. As Andrew claimed, "I'm always open to learning new things and I talk to different people and keep my eyes and ears open." Therefore, while the coaches' environment may certainly influence how they learn (Lave & Wegner, 1991), the learner must also take responsibility for his/her own learning.

Who coaches coached with. Evidently, coaches who worked in proximity to other coaches were more likely to learn from others. However, whether the coaches interacted with coaches in their environment depended on who the coaches in the environment were. Specifically, it was also dependent on the other coach's willingness to share and interact. Though Jordan had the opportunity to interact with others in his immediate surroundings, he did not learn from them because the culture of his environment was competitive and did not promote sharing. Jordan had the potential to engage in a CoP, but his network lacked an engagement towards a common purpose, or a joint enterprise, and therefore could

not be considered a CoP. The competitive nature of the environment also inhibited regular interactions and the formation of a CoP within the environment of high performance hockey (Lemyre et al., 2007) and football (Occhino et al., 2012) coaches. Similarly, while Morgan acknowledged that, "cooperation between elite coaches is really important" she claimed that coaches in the same event might be less likely to share their training plans because of the competitive nature. Clearly, lack of willingness to share amongst coaches clearly restricted coaches' ability to learn, and therefore, "engagement with a community may not lead inevitably to learning" (Cushion, 2010, p. 169).

Consequently, coaches modified how they learned if they could not learn from others in their surroundings. For Jordan, the coaches in his environment are "friendly enough, it's not like they don't talk, it's just they're not good mentors." For this reason, Jordan expanded his network of coaches to contact others across the country that "are more than willing to give [him] some advice." He considers these coaches to be informal mentors whom he has developed respect and trust for over time and now actively seeks advice from. Similarly, while coaches considered their personal coach to be a mentor and learned from their athletic experience through discussions with their coach, if their coach was not willing to teach them about planning they were more likely to learn from their athletic experience by observing or replicating their coach. For instance, Robin's coach did not discuss her training plans with her so Robin learned by replicating just parts of the plan she was aware of: "the actual practice plan, not the overall program plan because I wasn't aware of, say what does this year look like".

Trust. In the previous section concerning *Trust* in *Learning as an Individual*, I acknowledged that coaches learned best when they trusted the material and that this occurred when the material coincided with their coaching practices. In this section I will argue that coaches' trust in material was not only dependent on the content of the material itself, but also on who was delivering the material.

Gaining trust through experts. Similar to high performance coaches in other studies (Occhino et al., 2012) coaches in this study were more likely to learn from expert coaches. Trevor stated that he prefers to listen to "experts with credibility" because,

> it's like any reference, if you take a reference from a person who's renowned in your field, or has results, it has more weight than if you take a reference from someone that never did it. Like if I have a pure researcher that never coached an athlete and tells me you should do this for your coaching the odds that I'll believe it easily… you have to have a really great compelling argument.

This opinion was supported by other coaches who were more likely to take a new idea if it was presented by an experienced coach because they have had proven success with it. Andrew said, "so I tend to trust and believe you take more, for me, from people who have done the experience," while Ben stated, "experience speaks for itself."

For this reason, in support of Piggott's (2012) findings, Ian suggested that the effectiveness of formal education "depended on who taught the course."

While coaches in Piggott's (2012) study judged the effectiveness of the teacher based on the quality of his or her teaching style, Ian judged the effectiveness of the teacher based on his or her expertise. He said that he did not learn from his NCCP course because his instructor was not an expert. Overall, he learns most effectively from expert coaches and consequently prefers to learn from conferences where the speakers are experts in their field. Additionally, Ben indicated that the effectiveness of coach education depended on who was attending the course. Ben attended both the new and old NCCP courses and, though he preferred the methods of the new NCCP course, he learned more about planning during the former because there were more successful and experienced coaches in attendance. Even though the coaches were from multiple sports, he said, "when there were good coaches it was great to hear what they were doing – that was huge learning." Moreover, both Ian and Andrew indicated that they learn from expert coaches regardless of their sport. Ian asserted that coaches should "learn from everybody" but it was clear that he actually meant everybody who is an expert.

Taken for granted practices. Learning from experts may be problematic because it can reinforce taken-for-granted practices established by broader social structures and institutions. According to Foucault (1980), knowledge itself is discourse and carries with it the beliefs and values, of those in power. In this sense, knowledge may act to establish power relations between the coach and experts and, in turn, legitimize certain knowledge over others in an act of indoctrination (Cushion, 2010). In the social context of high performance athletics

the views of experts have become the dominant way of knowing about planning and are regarded as normal, while other ways may be considered 'wrong.' Those in positions of power can thereby establish a "hidden curriculum" composed of taken-for-granted practices that are founded on power relations rather than truth (Cushion, 2010, p. 177).

These power relations have impacted which knowledge coaches considered to be legitimate and also how they learn. For instance, because of the prevailing power differentials and the associated emphasis on success, Morgan said that as a female coach she never gained respect from her male counterparts until her athletes performed well. Interestingly, Morgan now places a large emphasis on learning through successful practices, which may be a product of having to gain respect through experience:

> That was tough, gaining the respect of fellow coaches, and I think, you know, now people have seen what I've done. And it hasn't been just been one or two athletes, it's been several athletes so you know it's not a fluke.

While Morgan did not necessarily learn about planning from this experience, she embodied the episodic experience (Callary et al., 2012; Jarvis, 2007) and transformed her attitudes and belief about how to act and learn in a society of high performance coaching through a process of learning through becoming (Hodkinson et al., 2008).

Morgan's episodic experience not only represents the effects of unequal power relations between genders in the culture of high performance athletics, it also represents the effects of prevailing power relations associated with expertise.

In particular, Morgan learned that she should trust and learn from her successful practices because that was the dominant discourse perpetuated in her environment. Therefore, the fact that most coaches place a significant amount of trust in their successful practices may also be a result of the dominant discourse of society that emphasizes successful practices, or more so a 'correct way' of planning. In other words, coaches have been socialized into thinking that they should act and learn in this way. In turn, this dominant discourse perpetuated by experts that there is a 'correct way of knowing' is reinforced by the emphasis that the coaches themselves place on learning from successful coaches, which reinforces the power differentials associated with expertise, resulting in a spiral effect. In this respect, "we learn about power from the way we play our social role and the way that others seek to influence our understanding and our behaviour" (Jarvis, 2007, p. 12). These results demonstrate the influence that experts have over learning in that both "the technical aspects of coaching and the coaching *culture* are often acquired through observing and listening to more experienced coaches" (Cushion et al., 2003, p. 218, emphasis added).

To this end, Cushion (2010) proposed that, "what (and how) [coaches] learn is not purely a technical exercise but involves a complex set of interests at work" (p. 174). This can be problematic because learning from taken for granted successful practices has limitations (see *Trust* in *Learning as an Individual*), and because the learner is socialized into believing how he/she should act and learn in society rather than in a manner that is tailored to his/her needs.

Decontextualized practices. Sam advised that coaches should be critical

when learning from expert/successful coaches, including coaching education instructors and conference presenters, because even experts can present "wrong information" or "lie to you." Additionally, he argued that successful coaches are not always more knowledgeable but could have been just "lucky with the talent." However, most coaches did not take a similar stance against uncritically learning from experts. Ian said that as an athlete he passively accepted knowledge from expert coaches: "I didn't necessarily understand why, but I just knew that that's what they did." This is problematic because in such a system coaches become disempowered and are more likely to uncritically comply with the taken for granted practices employed and encouraged by experts rather than methods that are suited to their contextual needs. For instance, Robin has designed her training plans according to the standards set out by her NGB but said that if she was not required to submit her plan "she would still do the planning but it wouldn't be as … well I'd still do it... but I was going to say that it wouldn't be as perfect." Even Robin's hesitation in this quote to articulate that the NGB's practices did not suit her needs demonstrates the imposed power of the NGB. Ironically, while coaches placed a significant amount of trust in their successful practices and therefore preferred to learn from contextual learning methods, in placing importance on learning from successful practices of other coaches, these coaches are actually moving towards *de*contextualized learning methods.

That being said, Robin has been hesitant to comply with the advice given to her by her NGB because they did not suit her ways of knowing. Accordingly, though Robin accepted the advice, she said she only slightly revised her plans,

thereby displaying a form of "impression management" (Cushion, 2010, p. 171) to satisfy those in higher power. Similarly, although Trevor is more likely to learn from experts he indicated,

> I won't take for granted something that another coach tells me [...] You could be an expert on field X and you tell me 'that thing happens that way', and I'll say 'why' and if it doesn't make sense to me than I won't accept it. So I'll need proof.

His decision to accept the knowledge was ultimately dependent on his trust in the knowledge based on his own experience. Thus while the social world undoubtedly influenced how coaches made sense of knowledge (Lave & Wegner, 1991), it is important to recognize the agency of the learner (Hodkison et al., 2008) in that the meaningfulness of new material is ultimately attributed by the learner (Moon, 2004).

Additionally, under the theme, *Learning as an Individual*, I demonstrated that coaches learn through the individual process of resolving disjunctures in their own practice because they placed a significant amount of trust in their successful practices. However, even this may be a social process in that what coaches perceive as a problem (disjuncture) is influenced by the knowledge of their context (Denison, 2010) and when "disjunctures are resolved, the answers are social constructs, and so immediately learning is influenced by the social context within which it occurs" (Jarvis, 2012, p. 15). In this respect, coaches taken for granted knowledge and practices may actually be shaped by taken for granted knowledge of their social world (Jarvis, 2012), or by those in power (e.g., the

experts coaches) whose views have become dominant as the 'correct' way of knowing (Cushion, 2010). Therefore, the meaning that the learner makes out of a disjuncture, and carries with him/her to future learning experiences is actually a social meaning (Jarvis, 2012) so that "[learners] always carry within [them] the culture that [they] have learned and our learning and our taken-for-grandness is always grounded in that internalized culture" (Jarvis, 2007, p. 12) In this sense, "there exists a degree of anit-intellectualism in sport that makes it difficult for coaches to consider new ideas or approaches, especially ones that challenge a taken-for-granted practice" (Denison, 2010 p. 466).

Moreover, given that the coaches perceived problems are socially constructed problems and the answers to these problems are socially accepted answers that are mediated by societal norms rather than what is true for the coaches' own contextual needs, learning from experience in a social world that is inflicted with power differentials may again be considered *de*contextualized. Furthermore, it is apparent that power is always prevailing in the coaches' context and not just through formal education or resources. However, the coaches in my study did not acknowledge the prevailing influence of power or experts and therefore were not likely to recognize that influence of power and on how they learn and make decisions of power. Evidently, power may affect coaches in covert or invisible ways that results in unconscious dispositions about planning that are influenced by social norms.

Furthermore, in this respect, as the coach and other coaches in their social world learn and change so too does the normative knowledge of that world

(Jarvis, 2012). In this respect, what is considered the 'correct way' of knowing is also changing as the social norm changes so that what is 'true' becomes relative to the state of the social world. As a result, the learner will constantly be subjected to new perceived problems and disjunctures and will learn again to develop new taken for granted practices out of new socially accepted answers since the environment is constantly changing (Jarvis, 2010). To, this end, what is considered taken for granted, and therefore, what is also considered meaningful to the coach, at any one point in time becomes relative to the state of the social world (Jarvis, 2012).

Tacit knowledge. Earlier I demonstrated that taken for granted principles established from the coaches' practical experience, such implementation, were founded on tacit knowledge. Given that such taken for granted principles are socially constructed, it seems that coaches' tacit knowledge developed from experience may be also socially constructed. Whereas in the previous section on *Tacit knowledge* I demonstrated how coaches' decision making process concerning implementation was based on 'tacit' knowledge and developed through experience, in this section I will demonstrate that this apparent tacit knowledge was also developed through other coaches.

Many coaches in this study adapted their current training session and subsequent training sessions by reflecting on the athletes' training responses by in comparison to past responses by considering what worked or did not work, why the outcome resulted, and how to adapt their plans accordingly. David first considered this reflection to be a taken-for-granted skill and claimed, "No one's

teaching you that – that's the art of coaching." Yet, after further analyzing his learning he realized that he developed this skill through the same question-based discussions with his informal mentors that taught him how to critically think about his practice (see *Developing dispositions through experience with others)*. These mentors taught him how to reflect by guiding him to develop solutions to his coaching problems by asking him questions that encouraged him to think critically about his practice (e.g., "why did you think that happened? What were you doing differently for these people?"). He acknowledged, "maybe that's [how I learned the art] – with those mentorships we got into the art of coaching as much as anything." Therefore, his seemingly unconscious taken-for-granted knowledge about implementation was actually derived from problem solving with others in his coaching environment.

Coaches also learned how to implement from observing other coaches' practices. For instance, Sam learned how to detect errors in an athlete's technique — and to adapt his plan accordingly – by observing his mentor. Specifically, he said, "I stood by him and noticed things that he helped me to notice because I wouldn't have noticed them myself." Additionally, while Morgan said she learned to judge her athletes' responses based on her own experience, she later acknowledged that she learned this from her coach: "He was a good judge of what I could handle and I feel like I'm a good judge of what [my athletes] can handle as well." Therefore, along with learning from their own experience, coaches became familiar with the task of implementing through a prolonged informal apprenticeship that began as an athlete (Cushion et al., 2003). Using intuition to

implement athletes' training plans may then be a type of "regulated improvisation" (Bourdieu, 1977, p. 79) that is unconsciously shaped by the hidden curriculum coaching community and the broader social structures (Cushion et al., 2003). In this way, intuitive dispositions to act are consciously or unconsciously acquired over time through social memory as a result of existing within the broader coaching community and absorbing social norms and actions (Cushion et al., 2003).

Summary. In this section I demonstrated that coaches' knowledge was not only influenced by individual factors but also from social factors. The coaches' dispositions about planning, their ability to learn, their trust in knowledge, and also their tacit knowledge about implementation were all mediated by others and further contributed to the idiosyncrasies within coach learning. The individual and social factors that influenced how the coaches' in this study have learned how to plan are shown in Figure 1. In the final chapter, I will conclude my thesis by presenting a summary of my results as well as provide some implications and future directions.

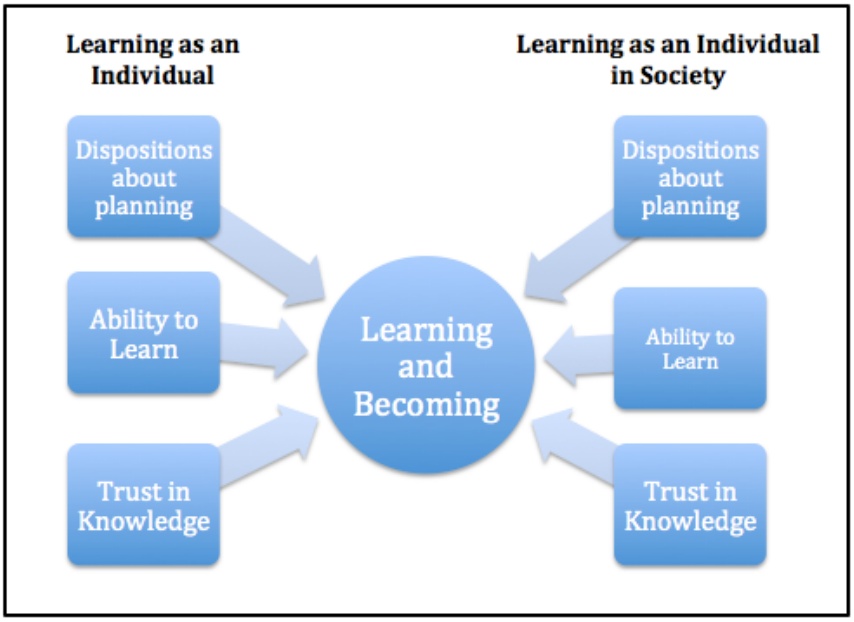

Figure 1: Coach learning framework. This figure represents the individual and social factors that impacted how the coaches' in this study have learned how to plan.

Conclusion

The aim of this study was to contextualize the coach learning literature to understand how coaches in the context of high-performance Canadian athletics have learned how to plan their athletes' training. These results demonstrated that learning how to plan in high performance athletics was highly idiosyncratic. While others have previously demonstrated idiosyncrasies within coach learning (e.g., Callary et al., 2012; Werthner & Trudel, 2006, 2009) the significance of these findings was that coach learning was idiosyncratic even though the coaches were from similar sporting, competitive, and cultural contexts. Evidently, as Cushion et al. (2003, p. 178) argued, "In sport, contexts can be as varied as the sportspeople who inhabit them." How, and what, the coaches in my study learned depended on both the individual and social factors that contributed to their unique learning experiences.

How coaches learned about planning in my study was largely dependent on their dispositions towards planning. The coaches' entered any give learning source with a framework composed of pre-existing beliefs and feelings about planning derived from their past learning experiences. This framework was used to attribute meaning to, and make sense of incoming knowledge and therefore impacted upon their learning (Cushion 2010; Dewey, 1938; Kolb, 1984; Moon, 2004; Stoszkowski & Collins, 2012). Given that no two coaches are likely to have the same experiences, "the same idea can legitimately be meaningful to one [coach] and not to another" (Moon, 2004, p. 20). Moreover, this meaning will change over time as the coach is continuously learning and becoming a changed

person as they experience the world (Jarvis, 2006, 2007, 2010, 2012). To add to this complexity, the coaches' dispositions are not just personally developed but are influenced by the dominant ways of knowing, or norms, that prevail within their social situation so that what the learner considers meaningful is partially a social constructed meaning (Lave & Wegner, 1991; Moon, 2004). Social constructed meanings are also in constant flux as both the individual coach as well as the others making up his or her social context are continuously learning and contributing to a changed set of norms (Jarvis, 2012). In this regard, what coaches consider meaningful will change over time depending on both the state of their cognitive structure (Callary et al., 2012) and the state of the social networks that they currently, and have previously, interacted with (Hodkinson et al, 2008; Jarvis, 2012). Rather than separating the learner or the situation, and examining learning from one isolated moment in time, "we need to understand learning at any one time as part of a lengthy on-going process, where the past life history of the individual and the past history of the situation strongly influence that current learning" (Hodkinson et al., 2008, p. 28).

How the coaches in my study learned about planning also depended on their ability to learn, which was again influenced by both individual and social factors. Individually, coaches were more likely to effectively engage in their learning if they had existing planning knowledge and experience of their own that they could use to make sense out of incoming knowledge (Kolb, 1984; Moon, 2004). This allowed them to engage in deep learning by critically understanding, and questioning, incoming knowledge instead of surface learning which consists

of passive acceptance, or replication (Cassidy, 2009). Their ability to learn was further influenced by their ability to understand and locate learning resources, as well as their availability of time. Socially, the coaches' ability to learn was often enhanced by others who not only taught them about planning through various interactions but also assisted their ability to learn from resources, critical thinking, and reflection. Therefore, the learners' practices and tools involved in how they made sense of material were developed through a social process (Lave & Wenger, 1991). However, the coaches' opportunities to learn from others depended on whether they had access to others in their environment, the nature of the relationships within their network, as well as if the other coaches in their environment were willing to share and collaborate.

Even if the incoming knowledge complemented the coaches' existing knowledge (Moon, 2004), and if they had the ability to learn effectively (Rynne et al., 2006), the coaches in my study were still not willing to assimilate new knowledge into their practices unless they trusted that knowledge. Trustworthiness of new material was primarily established on the bases of successful coaching practices. They had the most trust in their own successful practices, in contextualized learning methods, and methods that provided specific answers of 'what works.' They also has established trust in the successful practices of others, and searched for socially accepted answers. This trust appeared to be a product of a dominant discourse of 'truth' or a 'correct way' of planning that not only prevailed through coach education but in any social situation whereby a dominant, or normative, way of thinking was established

through various power relations. Consequently, their learning was mediated by coaching problems as a means to resolve any disjunctures they were experiencing by searching for the correct, or more appropriately termed, socially accepted answer. This resulted in taken for granted practices that were influenced by individually (and socially) developed conscious (and subconscious) dispositions about planning that led to tacit knowledge. Evidently, along with the individual and situational history, learning was linked to the history of the broader social world as "power inequalities and relations are central to activity within any social setting, and learning is no exception to this" (Hodkinson et al., 2008, p. 32).

Clearly, coach learning was both individually and socially mediated and it was the integration of these two influences that resulted in idiosyncrasies within the coaches' learning. In agreement with Hodkinson et al. (2008), I propose that learning should be examined from both perspectives to gain a complete and holistic view of learning and that the dualistic controversy between individual and socio-cultural learning theories is perhaps an impossible and unnecessary debate. I am not suggesting that learning should be examined from an empiricism view of learning that is associated with cognitive learning theories where knowledge is represented by fixed ideas and learning is measured by outcomes (Kolb, 1984). In contrast, my results demonstrated quite the opposite is the case: coaches' ideas were transient and learning outcomes were often subconscious. Therefore as Hodkinson et al. (2008) suggested, "there is no reason why individual learning cannot be addressed from within a broadly situated or socio-cultural perspective" (p. 30). While the social world had an obvious influence over how the coaches in

my study have learned how to plan, "it is the person who learns" (Jarvis, 2012, p. 12) and decides what meaning to attribute to knowledge (Moon, 2004) and therefore the agency of the individual should not be over looked when recognizing the broader social influence (Hodkinson et al., 2008). Lastly, learning cannot separate from the mind and the body. Not only is it the whole person who learns but "it is the *changed* person who is the outcome of the learning" (p. 12, italics added). That being said, the learner changes and 'becomes' as he or she learns and exists in the social world (Jarvis, 2012). In this way, there is no clear separation between the influence of the person and the social situation.

My results clearly demonstrated that there was no one way that the coaches in my study have learned how to plan. Idiosyncrasies resulted from three levels: individual, situational, and social. Furthermore, coach learning was largely influenced by a dominant discourse within the coaching culture of a 'truth' or a 'correct way' of knowing. Coach educators should consider these findings when advancing coach education. In what follows I will discuss some possible implications for developing theoretically informed coach learning systems.

Implications

Coach education. To effectively enhance coach education systems for athletics coaches, coach educators need to be more aware of how coaches learn. To begin, they must realize that each coach arrives at any learning situation with his or her own values and beliefs (Kolb, 1984) about planning that will likely influence how he or she receives new knowledge (Cushion, 2010; Dewey, 1938; Jarvis, 2012; Moon 2004). If the curriculum is not meaningful to the coach –

either because it is not new knowledge, it conflicts with their existing knowledge, it is not relevant to their context, or it is beyond what they already know so that they cannot extract meaning from it – he or she will be hesitant to assimilate it into his or her existing practices. Moreover, coach educators should be made aware that each coach has different conceptions and beliefs about planning and therefore, "Meaningfulness is a subjective and individual judgment made by the learner" (Callary et al., 2012, p. 17) in that what one coach finds important may be different than another. Rather than delivering a pre-determined curriculum, "The role of an effective course conductor is to be aware of who they are teaching and how to make the material useful and challenging" (Werthner & Trudel, 2006, p. 204). An effective means of doing so would be to implement a coach education system that is coach-centered.

Coach-centered learning is derived from Carl Rogers' (1951, 1969, 1977) person-centered learning and is as an alternative approach to the autocratic, directive, and prescriptive 'traditional' approaches of coach education. Coach-centered learning is learning that is tailored to coaches' learning needs of both *what* they need to learn and *how* best to learn it. In such a system, the coach learner is actively engaged in his or her learning while the educator's role is to facilitate the learning environment rather than dictate it (Nelson et al., 2012). According to Rogers (1969), educators' responsibilities include (a) to provide an atmosphere that is conducive to learning, (b) to identify the broader purpose of learning, (c) to guide coaches to seek there own purposes, (d) to make learning resources available to the learner, (e) to be an adaptable resource for the coach,

and (f) to adapt to the response and progress of the coaches (Rogers, 1969). One method of identifying the learner's needs is to begin a course with an open discussion that is initiated with an open-ended question by the coach educator but guided by the coaches who share what they know, or do not know. The coach educator can then facilitate learning accordingly. This is supported by Kolb (1984) who stated, "If the education process begins by bringing out the learner's beliefs and theories, examining and testing them, and then integrating the new, more refined ideas into the person's belief systems, the learning process will be facilitated" (p. 28).

Coach educators should also tailor the course to how the coach best learns. It may be difficult to determine coaches' preferred learning method given that this is not fixed but is learned through becoming, and because coaches are often unaware of how they best learn given their limited exposures to delivery methods (e.g., primarily lecture learning). Coach educators could therefore deliver material through multiple methods (e.g., lectures, discussions, practical coaching situations, or researching) in hopes of targeting all coaches' needs or to simply expose them to other ways of learning. Lyle (2002) also supported this opinion and suggested that coach "education and training depends on a mix of formal and informal provision" (pp. 275-276). However, this mix of learning methods is difficult to achieve in the current weekend style NCCP education system given the short time frame of the course. The NCCP could consider lengthening their program to include multiple learning situations. For example, one suggestion from the coaches in my study was to alternate terms of classroom learning and practical

experience. Alternatively, NGB's could look to offer certification from multiple learning situations including classroom education, mentorship programs, conferences, online learning, learning from reflective journals, and so on. Coaches could be given the option to attend either learning situation and attain certification based on a point system of completion.

However, caution should be taken when implementing coach-centered learning because coaches may not always know what they don't know, and sometimes they may develop concepts that are limiting or harmful. In this case, the coach educator's role is to offer new ways of knowing, and help coaches critically consider their beliefs through facilitation rather than direction. They should also recognize that coach-centered learning may not be suited to all learners – some learners may not wish to accept the freedom or responsibility of their learning (Rogers, 1969). In this way, "to impose [coach-centered learning] on learners can be just as rigid and oppressive as more authoritarian approaches, and could arguably lead to an ideology of 'person-centeredness" (Nelson et al., 2012, p. 10).

Beyond coach education. A goal of coach educators should also be to support ongoing learning by facilitating coaches' ability to learn beyond the course**.** Some of the coaches in my study discussed that they felt they were limited in their ability to learn because they did not know where or how to access new learning resources that could teach them about planning. This could be resolved simply by providing coaches with a toolbox of resources (rather than solutions) by offering online learning resources similar to what the Canadian Athletics

Coaching Centre (www.athleticscoaching.ca) has done. Additionally, as my results showed, other coaches were essential in sharing information and assisting the learning process, but some coaches may have limited opportunities to interact with other coaches in their environment. Accordingly, coach educators could initiate these opportunities by providing coaches with contacts of other coaches in their area or across the country.

To avoid the possibility of limiting the coach to just one other coach's perspective (Cushion, 2006; Merriam, 1983; Werthner & Trudel, 2006) coach educators should encourage coaches to gain multiple perspectives and provide them with opportunities to do so, for example, by providing them with group interactions such as online forums, or face-to-face meetings if possible. However, it is important to recognize that while social networks can be effective learning tools they could also restrict coaches to one dominant way of knowing so that they may uncritically legitimatize this way of knowing as the 'truth' and assume other ways as deviant or 'wrong' (Jones et al., 2009; Nelson et al., 2012; Stoszkowski & Collins, 2012). For example, one of the coaches in my study, Alex, was clearly effected in a powerful way by the coaches in his immediate surrounding so much so that he abandoned almost completely his previously held assumptions about planning. For Alex this was a positive, and an advance in his understanding of planning, however without the self-awareness to be continually problematizing what he knows and what he does, Alex's new understanding of planning could become a fixed way of coaching not a new learning experience. Accordingly, coaches could be provided with multiple online networks, or be

encouraged to attend practices outside of their environment with the hope of gaining different perspectives about planning and to thereby recognize the possible variability, and subjectivity, of truth across coaching cultures. At the same time, they should also be informed of this subjectivity and be encouraged to develop their own ways of knowing out of these multiple perspectives that is best suited for their context.

However, even if learning opportunities are made available, learning may not necessarily occur spontaneously, and the skills to learn may not develop naturally (e.g., Cote et al., 2007; Cushion, 2006; Cushion et al., 2003; Gilbert & Trudel, 2001; Knowles et al., 2001). Therefore, along with teaching coaches content and competencies, coach educators should also teach coaches how to learn so that they can engage in lifelong learning, such as how to understand resources, or how to effectively reflect, or how to learn from experience. Learning how to learn is particularly important given that the coaches' daily training environments are always changing (Cassidy et al., 2004) and delivering specific knowledge may only be appropriate in an environment that is constant (Rogers, 1951). According to Rogers (1951), "The only man [or woman] that is educated is the man [or woman] who has realized that no knowledge is secure, that only the process of *seeking* knowledge finds basis for security" (p. 104 italics original).

One way that coach educators could support coaches' ongoing learning could be to teach coaches that learning often occurs through the experience of a disjuncture. While coaches' practices may appear to become harmonious over time as they solve coaching problems, Jarvis (2006, 2007) noted that there will

always be disjuncture as the environment is in constant flux. However disjuncture may be hidden as unintended consequences of the coaches' practice and coaches will not be able to recognize a disjuncture if they are unaware of what those potential consequences might be. To this end, while learning through experience from contextualized problems arising in the coaches' environment has received large support in the coaching literature (Cassidy et al., 2004; Cushion 2006; Cushion 2010; Cushion et al., 2003; Nelson et al., 2006) this method will be ineffective unless coaches can recognize problems to begin with. In other words, they need to be able to set the problem before they can solve it (Gilbert & Trudel, 2001).

The coaches' ability to recognize unintended consequences and to set problems may be limited by what they know and what they perceive to be a problem. This in turn will be limited by taken for granted practices (Denison, 2010) and the dominant ways of knowing within their environment and therefore, their innovative thinking and reflection may be limited in environments where there are limited views of knowing (Schön, 1983). Coach educators then should encourage coaches to consider new ways of knowing that may be beyond, or even conflicting with, their existing knowledge and beliefs in order to recognize disjunctures in their practices because "to be inventive, a coach will likely need to be critical of past mentors, cherished memories or indeed his or her own sense of self and identity as a coach" (Denison, 2010, p. 466). Moreover, rather than merely identifying problems and providing solutions, Demers and Woodburn (2006) claimed that "allowing for instances wherein coaches must first identify

and define problems is an important part of the learning process" (p. 170) and suggested that this could be accomplished by working with a mentor to identify problems arising in the field.

Furthermore, a coach's ability to recognize a disjuncture in his or her experience may be limited by his or her willingness to search for it. As a consequence of the prevailing discourse in the belief in 'coaching truths', coaching can easily become centered on "impression management" to appear as a "confident and knowledgeable expert" in order to gain social acceptance (Nelson et al., 2012, p. 9) rather than acknowledging and learning from problems. In this sense, coaches may find comfort in what is known and are unwilling to search for disjunctures in their taken-for-granted, harmonious state for fear of the unknown because this goes against the dominant discourse of being the expert in their coaching culture. This may be a reason why the coaches in my study continually mentioned that they preferred to learn from instructors who gave them answers, or why they felt that lecturing was a necessary component of coach education despite preferring other ways of learning. Coaches should be informed that "there is no such thing as permanent coaching knowledge only truth claims made by so-called experts concerning, what to know, what to believe and what to do" (Denison, 2010, p. 467). They should also be made aware that mistakes are unavoidable (Stoszkowski & Collins, 2012) and their associated disjuncture is necessary to learn and develop as a coach. Therefore, they should be encouraged to "seek out and experience perspectives which disagree or cause dissonance with their current opinions and habitus" (Stoszkowski & Collins, 2012, p. 8). In other

words, they should constantly problematize their taken for granted practice and look for the unintended consequences in order to advance their knowledge and understanding of coaching.

According to Côte and Gilbert (2009), a key factor for effective coaching is "introspection, review, and revision of one's practice" (p. 311). In spite of this idea, formal education has had little consideration for self-reflection and openness to learning (intrapersonal knowledge) (Côte & Gilbert, 2009) yet formal education could play an important role in guiding this reflection and helping coaches to problematize their taken for granted practices. Coach educators should encourage coaches to develop a critical awareness of their both their own inner beliefs (and where they have originated) and the dominant beliefs of their social context, in order to make conscious and informed decisions about their knowledge selection and have more autonomy over their learning (Stoszkowski & Collins, 2012). Moon (2004) suggested that learners can explore their meaning and beliefs through reflection by questioning: 'how does this new idea/or experience relate to what I thought I knew?" (p. 19). Nash and Collins (2006) also suggested that reflection is a great way to explore coaches' tacit knowledge. To do so, coaches need to first learn how to reflect as well as what to reflect on because they may not be aware of their inner beliefs or the social norms that guide and inform their practice. Coach educators may play an important role in this regard by making these beliefs explicit and raising awareness of how they may have informed their knowledge and practice (Stoszkowski & Collins, 2012). However, educators may not be aware of these beliefs given the extensive and variable history of the coach

and their situation. This could be taught through question-based discussions that encourage them to problematize their own beliefs. Additionally, as demonstrated in this study, these question-based discussions may also be an effective method for teaching lifelong critical thinking skills. Stoszkowski and Collins (2012) suggested that another option is to initiate debates amongst coaches concerning taken for granted practices.

Moreover, the taken for granted practices of the coaches in my study often reflected tacit knowledge, particularly knowing *to* implement, and knowing *how* to implement their training plans. If viewed in this light, one is led to assume that coaching "is instinctive and does not need to be learned" (Nash & Collins, 2006, p. 466) and that "good coaches are born and not made" (Cushion et al., 2003, p. 216). Indeed while expert coaches have been considered to be "more flexible and are more able to adapt to situations" this is not an inherent skill but one that is learned over time (Nash & Collins, 2006, p. 466). The coaches in this study learned how to adapt and implement their athletes' training plans through experience by recognizing disjunctures in their practices, and from observing other coaches. Coach educators should look to address this gap and teach coaches how to implement, otherwise, one can only hope that coaches will discover this taken for granted, yet crucial, skill by chance.

Developing the coach. Additionally, when considering the objectives of coach education it would also be beneficial if coach educators considered, "what type of learners do we want to play a part in developing?" and accordingly, "what are the implications of these decisions for [coaching] and [coach] education?"

(Nelson et al., 2012, p. 2). For instance, the authoritarian and indoctrinating approaches of traditional formal education that deliver one way of knowing and are driven by assessment are not conducive to developing innovative coaches who are able to apply knowledge, value, and judgments, and problematize taken for granted practices (Cassidy et al., 2004; Cushion, 2010; Cushion et al., 2003; Nelson et al., 2006). Instead, coaches become submissive and compliant to normative ways of knowing about planning through the existing power differentials in traditional coach education: "The teacher is the possessor of knowledge, the student the recipient" and likewise "the teacher is the possessor or power, and the student the one who obeys" (Nelson et al., 2012, p. 12).

In this sense, coach educators direct what knowledge is important to know which then encourages just one way of knowing. As a consequence, coaches become docile, a condition defined as a "hold by another over others' bodies, not only so that they may do what one wishes, but so that they may operate as one wishes, with the techniques, the speed and the efficiency that one determines" (Foucault, 1995, p. 138). In other words, rather than acting in a manner that is best suited to their practice, the coach become mindless and obedient, and subordinates him or herself to the direction of the coach educator (Nelson et al., 2012) and therefore will not likely be able to problematize taken for granted ways of knowing, nor develop, or consider, new ways of knowing. Accordingly, Rogers (1951) argued, "If the aim of education is to produce well-informed technicians who will be completely amenable to carrying out all orders of constituted authority without questioning, then the methods we are describing are highly

inappropriate" (p. 387). In this light, though certification techniques may be productive as they assure the 'competence' of the practitioner (Lyle, 2002, p. 275), they also have unproductive effects that raise a debate as to whether these methods actually assure the development of competent coaches, or moreover, what it means to be a competent coach.

In this study, this power was not only apparent within the boundaries of coach education but prevailed within the social context of the coaches' environments as they were constantly subjected to dominant ways of knowing in their surrounding and were normalized to act in a socially acceptable manner. This idea can be explored through Foucault's (1995) understanding of the panopticon, by which due to its structure alone, individuals are constantly under watch by those around them, either overtly or covertly. It is this surveillance that governs coaches to patrol themselves to become normalized and act, and know, in dominant ways that are legitimized through power to gain social acceptance. Moreover, the power of the panopticon is that because of its often covert surveillance, it makes no difference *who* is in control of power, but rather it is *how* power is exercised that causes coaches to survey themselves and become normalized. In this manner, power "passes through apparatuses and institutions, without exactly being localized in them" (Foucault, 1978, p. 96).

Alternatively, if we want to develop coaches who are able to be innovative thinkers, to adapt to contextual needs, to problematize taken-for-granted coaching practices, to critically examine the dominant ways of knowing, and to take ownership of their practices, then traditional authoritarian and indoctrinating

education that promotes one way of knowing does not seem appropriate. As Nash & Collins (2006) notes, "Any effective education system should be based on knowledge and understanding rather than mimicry." Rather, these goals appear to align more suitably with those of a coach-centered approach where the role of the educator is to be a learner participant that acknowledges that his or her view is merely one way of knowing (Rogers, 1969) and the "student [*sic* coaches] retains his [or her] own power and the control over him [or her self and] shares in the responsible choices and decisions" (Rogers, 1977, p. 74). Rogers (1951) proposed that the foundational goals of person- (*sic* coach-) centered learning are to develop individuals,

> who are able to take self-initiated actions and to be responsible for those actions; who are capable of intelligent choice and self-direction; who are critical learners, able to evaluate the contributions made by others; who, even more importantly, are able to adapt flexibly and intelligently to new problem situations; who have internalized an adaptive mode of approach to problems, utilizing all pertinent experience freely and creatively; who are able to cooperate effectively with others in these various activities; who work, not for the approval of others, but in terms of their own socialized purpose (pp. 387-388).

Therefore, we must first consider the goals of coach education, or what type of coach we wish to develop before advancing coach education.

Implementing a coach-centered education philosophy that does not focus on assessment and specific goals may be difficult in a coaching culture that relies

on 'knowing' and 'truths.' In this sense, coach centered education "can often be seen to run contrary to the dominant ideologies [*sic* discourse] within coaching and coach education" (Nelson et al., 2012, p. 6). Coach educators may also be hesitant to see the coach learner as a holder of power because the educators have been socialized through dominant coach education practices to believe that demonstrating knowledge and experience is necessary to gain the respect of coaches (Nelson et al., 2012). They should recognize that truth is relative to the coaches' practices. Instead of assessing coaches on what they learned, coaches could be assessed on the quality, or process of their learning. Additionally, there should be a greater focus on assessing their coaching competencies that extend beyond their technical (e.g., designing or implementing) abilities to include their ability to identify problems in their practice (problem set), to reflect and resolve those problems (problem solving), to adapt to unpredictable situations and to problematize taken-for-granted ways of knowing.

Moreover, to advance coach education coach educators need to challenge taken for granted ways of knowing about teaching. According to Nelson et al. (2012, p. 2), coach education has been developed along serendipitous lines based on 'folk pedagogies' concerning 'the best way' to educate, or on what teaching methods have worked in the past. Similar to coaches then, coach educators may have long-standing beliefs and dispositions about learning and teaching that may have been influenced by the dominant ways of knowing about teaching and could potentially limit their ability to advance their teaching styles. In keeping with the idea of challenging traditional ways of knowing, coach educators should be

encouraged to critically examine their beliefs about teaching and their origins and reflect on how these practices correspond to how coaches best learn and how they may be advancing, or restricting, coach learning. Furthermore, they should consider how their practices are influencing the type of coach they are developing. In this light, in order to advance coach education and develop more effective coaches perhaps we first need to advance coach educator training to develop more effective instructors.

Future Directions

In this study I have presented a holistic overview of how high-performance athletics coaches have learned how to plan their athletes' training to demonstrate the complexities within coach learning associated with individual, situational, and broader social perspectives. As a future direction, researchers could explore how learning within specific learning methods best occurs in order to advance those particular methods. For instance, researchers could explore the specific learning methods that are used in the current coach education system and examine their effectiveness as well as their impact on the nature of coaches' practices. Further research is also needed to understand how reflection best occurs and how to teach it, or similarly, how coaches can effectively learn from experience once they have identified problems in their practice.

Notwithstanding, in researching particular learning methods, researchers should acknowledge not only the role of the coach but also the influence of the immediate, and the broader, social structures. Moreover, while I have alluded to the existing power relations within this study that impact on learning, a deeper

analysis of the specific ideological and political factors influencing coaches' knowledge and learning is needed. This idea was supported by Nelson et al. (2012) who argued, "in critically understanding coaching and coach education, it is important to demonstrate the ideological dimensions of ideas routinely embedded and 'enshrined' in programs and privileged in professional discourse" (p. 11). I believe that taking on a sociological approach to examine coach learning will provide a deeper understanding of the learning process.

Furthermore, we need to consider the types of coaches we wish to develop in order to design a coach education system that can reach these desired ends. Though there has been plenty of work exploring what is effective coaching (e.g., Cote et al., 2007; Cote & Gilbert, 2009; Lyle, 2002), these have largely come from a positivist, or technocratic lens with a focus on the technical skills coaches need to design and implement their athletes' training. As a result, less concern has been given to the "complex power relations that make understanding how to implement one's plan just as important" (Denison et al., 2013). A broader critical examination through a wider pragmatic perspective (e.g., including a post-structuralist or post-modernist lens) of what it means to be an effective coach in our post-modern society and therefore someone who can problematize taken for granted practices (Tinning, 1997) is needed to address this issue.

Additionally, coach-learning research has been commonly conducted using interview studies with multiple coaches (e.g., Callary et al., 2012; Irwin et al., 2004; Occhino et al., 2012; Rynne & Mallet, 2012; Werthner & Trudel, 2009). While these studies are undoubtedly important, given the idiosyncratic nature of

coach learning, it could be beneficial to examine coach learning through a case study approach to gain an in-depth understanding of how the coach has come to know how to plan. Furthermore, it would also be interesting to examine research through on-site methods in which the researcher can observe what, when, and how, the coach is learning, such as participation-observation, or ethnographic studies. This would be particularly important considering that much of a coach's knowledge is tacit, or subconscious, and is difficult to articulate through interviews. However, observation alone may have limitations because learning is not solely measured through behavior (Kolb, 1984) and observation provides little "insight as to why these behaviors occurred" (Nash & Collins, 2006, p. 467). Observation could be paired with other techniques such as interviews or discussion groups to explore the coaches' thought process. Furthermore, it would be useful to explore this thought process during the coaches practice as because coaches are most likely to recall tacit knowledge when they are using it in experience (Nash & Collins, 2006)

In conclusion, after conducting this study I have come to realize not only the importance and complexities of coach learning but also of the research process and its potential impact in both academia and the practical coaching world. It is my hope that the results of this study will not only advance coach education but also raise awareness in individual coaches about how they can potentially advance their development. Furthermore, researching and problematizing how coaches' have come to know about their planning practices has encouraged me to problematize the origins of my own coaching practices and become more aware

of the social influence that may prevail within it. The circumstances of this research were also unique in that in researching about learning I was able to reflect on my results in reference to my own learning throughout the research process, which has allowed me to develop as a researcher. In this sense, not only did I learn about research and learning, like the coaches of my study, I too embodied my learning process to become and grow as a whole person.

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Appendix A
Interview Guide

Introduction

1) Introduce my self as the primary researcher of this study and thank the participant for her assistance in the study.

2) Title, Purpose and Significance of the interview:

Title: Learning How to Plan in High Performance Athletics

The purpose of this interview is to understand how high-performance Canadian athletics coaches learn how to design and implement their training plans.

The results from this study will be used to enhance coach learning in Canada as they will provide a better understanding of how to design future coach learning opportunities'.

3) Format:

I expect the interview to last approximately 60-90 minutes in total.

It will be divided in three parts. Part 1 will include general questions about your coaching background and context. Part 2 will include questions about your knowledge and understanding of planning. Part 3 will address how you have developed, or learned about, this knowledge and understanding of how to design and implement your training plans. This will include such things as the learning methods you have taken and the impact of these methods on your learning.

4) Data recording

The data will be audio-recorded to facilitate data collection. It will be used to transcribe and analyze the data. Once the data is transcribed you will receive a copy of the transcript to verify the accuracy of our conversation and to clarify any information.

5) Confidentiality

The information you provide will remain completely anonymous. Your name and any personal identifiers will not appear in any written reports. If I have your permission, I may use quotations with attached pseudonyms. The only persons to access the data will be myself (the primary researcher) and my supervisor, Dr. Jim Denison. The audio-recording will be secured on a password protected computer and the data will kept in a secure locked office that only myself and my supervisor have access to. The data will be kept for 5 years, after which they will be destroyed.

6) You are reminded that your participation in this study is completely voluntary. You may decline answering any questions and may withdrawal data or yourself from the study by communicating orally or in writing with my supervisor or myself. This can be done up to one month following the interviews.

7) If you have any questions about the study, please do not hesitate to let me know. If I have your permission I will continue with the interview.

Part 1 – Coaching Background and Context

1) Could you tell me about your coaching background?
[Probes: How long? How did you begin? What events and level, age of athletes have you coached?]

2) Could you describe the athletes you currently coach?
[Probes: How many athletes? What are their chronological and training ages? Events? Competitive level? How long have you coached them.]

3) Could you briefly describe your current coaching environment?
[Probes: Types of training facilities available? Frequency of training? Proximity to other coaches/athletes?]

Part 2: Knowledge and understanding of designing and implementing training plans
-Designing plans = scheduling of training
-Implementing plans = applying the plan in practice

4) In your opinion, what is planning?

5) How important is planning to your athletes' training?

6) How do you currently plan your athletes training? Do you implement your training plans exactly as planned? What factors, if any, influence how you implement those training plans? (e.g., weather, athlete fatigue, athlete fitness level).

7) Have you always planned this way? Why did you change?

Part 3 – Learning How to Plan and Implement Training

1) Could you describe the learning opportunities that have contributed to your understanding of how to **design** training plans? In what ways have these learning opportunities contributed to your understanding (see specific probes)? What areas of planning did you learn about? How have they influenced your current planning methods?

Specific probes according to source:
i) NCCP/ coach education:
Describe the design of the learning source (e.g., new NCCP, single sport, single event, competency based)? How much time was devoted to planning?

Describe the methods used (e.g., lectures, open questions?) In what way did the educator contribute (or not) to your learning?
Did you have other learning opportunities while taking these courses such as interacting with other coaches? Practical Application?

ii) Coaching clinics:
Similar probes as NCCP/coach education.
What was its design? Availability?

iii) Self-directed learning (books, journals, magazines, videos, online resources): How have you gained awareness of, and access to resources? Why did you use it/did anyone encourage you to see out information?

iv) Experience: (e.g., as an athlete, assistant coach or head coach)
How did you learn from experience (e.g., replicate, observations, discussions, trial and error)? Has what you've learned from experience had an impact on knowledge you gain from other learning sources?

v) Interactions with others (e.g., coaches, athletes, co-workers, friends or family) What was the nature of the interactions? Who were they with? How often did they occur? What did you talk about?
How influential has your coaching community been on how you design or implement your training plans?

iv) Reflection:
Describe your reflection process. Do you use reflection tools? When do you reflect (in-, on-, or retrospectively-on, practice?) what triggers it? How did you learn to reflect? Did you use reflection in other learning sources?

v) Informal and Formal Mentoring:
How did you gain access to mentoring? What was the nature of relationship? Who was it with? How much did the mentor direct the learning?

3) Could you describe the learning opportunities that have contributed to your understanding of **implementing training plans**? In what ways have these learning opportunities contributed to your understanding (see specific probes above)? How have they influenced how you currently implement your training plans?

4) In your opinion, which learning opportunity contributed the **most** to your understanding of how to design and/or implement your athletes' training plans? What was the specific learning method that helped? Why?

5) In your opinion, which learning opportunity contributed the **least** to your

understanding of how to design and/or implement your athletes' training plans? Why do you feel it didn't help? How did it differ than those opportunities that did contribute to your learning?

6) Have you had any other learning opportunities that did not contribute to your understanding of designing and/or implementing your training plans? Why did you feel they did not contribute to your understanding?

7) Are you aware of other sources that could contribute? What would be ideal?

8) In what ways do you think coach education in Canada could be improved to better teach coaches how to design and implement their athletes training plans?

Conclusion

Is there any other information that you feel is relevant to this study that you would like to share?

Thank you for your time and assistance in this study. Your contribution is invaluable. Once the data is transcribed I will send you a copy of your interview transcript to verify the accuracy of our conversation. You are reminded that your information will remain anonymous and that you are free to withdrawal yourself or any of your data up to one month from now without consequences.

Appendix B
Ethics Approval

UNIVERSITY OF ALBERTA

RESEARCH ETHICS OFFICE

308 Campus Tower
Edmonton, AB, Canada T6G 1K8
Tel: 780.492.0459
Fax: 780.492.9429
www.reo.ualberta.ca

Notification of Approval

Date:	October 18, 2012
Study ID:	Pro00033622
Principal Investigator:	Jennifer Brown
Study Supervisor:	James Denison
Study Title:	Learning to Plan in High Performance Athletics
Approval Expiry Date:	October 17, 2013

Approved Consent Form:	Approval Date	Approved Document
	10/18/2012	Informed Consent Form

Sponsor/Funding Agency:	EFF Support for the Advancement of Scholarship	5869

Thank you for submitting the above study to the Research Ethics Board 1 . Your application has been reviewed and approved on behalf of the committee.

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Sincerely,

Dr. William Dunn

Chair, Research Ethics Board 1

Appendix C
Information Letter

UNIVERSITY OF ALBERTA

Faculty of Physical Education and Recreation

E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

Dear Participant:

I would like to invite you to participate in my research study titled "Learning to Plan in High Performance Athletics". The purpose of this study is to understand how high performance Canadian athletics coaches learn how to design and implement their athletes' training plans

You will be asked to participate in an interview that will take about 60-90 minutes. The interview will be digitally recorded so that information from your interview can be written accurately into a research paper suitable for publication in a sport science or coach education journal. Information you provide will be general in nature regarding learning and planning, as I am not interested in any personal details of you or your athletes. Therefore, the risk to you or your athletes for participating in this study is minimal if none at all. In addition, the interview material will be kept in a locked file cabinet that only myself and my supervisor will have access.

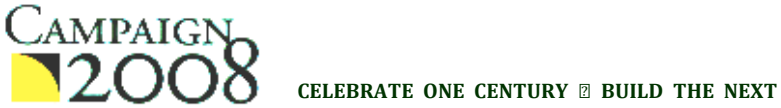
Your participation in this study is entirely voluntary. However, some of the benefits from participating could include an opportunity to reflect on your coaching practices and to help advance coach education in athletics. In addition, if at any time you feel uncomfortable about answering a question you can chose not to do so and we will move immediately to a different question. You can also ask to have the digital recorder switched off at any time during the interview. You can also withdraw from the study up to one month after your interview by contacting me via e-mail or phone, and all of the information you provided will be destroyed. Further, all interview material will be kept for a period of 5 years post-publication after which it will be destroyed. Finally, there is a possibility that I might ask you for a follow-up interview, which you would be free to agree to or not.

If you have any questions concerning the study, please feel free to ask at any point. You are also free to contact me at (780) 803-5240 if you have questions at a later time. The plan for this study has been reviewed for its adherence to ethical guidelines and approved by Research Ethics Board 1 at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

Thank you for your participation in this project.

Sincerely,

Jennifer Brown, BSc
Graduate Student
Faculty of Physical Education and Recreation
University of Alberta



Appendix D
Informed Consent Form

Title of Project: Learning How to Plan in High Performance Athletics

Principal Investigator: Jennifer Brown, Graduate Student
Affiliation and phone number: Physical Education and Recreation, University of Alberta, (780) 803-2540

Investigator's Supervisor: Dr. Jim Denison, University of Alberta, (780) 492-6824

I have been clearly explained the purpose of this study and all my questions about it have been satisfactorily answered. In addition, I agree that:

- information I give will only be used for completion of and publications resulting from this study.
- this study is anonymous and I will not be identifiable in any way.
- I have the right to withdraw any of my statements. I am also free to withdraw from the interview.
- the interview tapes and the transcripts will be stored in a lockable cabinet. Therefore, only the principal researcher will have access to them.
- I can request to see the interview transcripts to make changes. I can also request to see any publications resulting from this research.

I agree to take part in this study:

_____
Signature of Research Participant

_____
Date

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

_____
Signature of Interviewer

_____
Date