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Sources of knowledge acquisition: perspectives of the high school teacher/coach

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(Received 21 August 2008; final version received 9 June 2009)

Background: Research on coach development and knowledge acquisition has traditionally focused on those working at either university or Olympic levels. Despite the large body of research using these participants, there are relatively few empirical studies on the knowledge development of high school coaches, in particular, physical education teachers/coaches. This is unfortunate since it is equally important to examine aspects of high school coaches’ knowledge and how these coaches acquired their knowledge given the impact a high school coach may have on young athletes’ development and overall sport experience.

Purpose: To investigate sources of knowledge acquisition of Canadian high school team sport coaches.

Participants and setting: Six high school team sport coaches from the same school board, residing in a major urban Canadian city, participated in this study. Each participant was teaching full-time physical education and coaching at least two different sports and a minimum of two teams. Coaches represented a variety of team sports.

Research design: A qualitative research design using a semi-structured open-ended interview format was employed in the current study. Key questions were based on Côté, Salomela, Trudel, Baria and Russell’s Coaching Model from 1995 and related coaching science literature.

Data collection: Two physical education consultants and a university physical education professor identified candidates for the current study. Participants were contacted by email or telephone, informed of the nature of the study and asked to participate. Following this, each participant was asked to complete a consent form in accordance with the university ethics policy, as well as a demographic questionnaire. The coaches were interviewed individually for a period of time varying from one to two hours at a mutually convenient location.

Data analysis: The main objective of the data analysis was to create a system of emerging categories that adequately described the sources of knowledge acquisition of high school team sport coaches. Three categories emerged with an inductive analysis of the data.

Findings: Results revealed that while each coach’s journey was unique, their knowledge acquisition was similar in many ways. Initially, their formal education provided them with training in sport sciences and physical education pedagogy, as well as practical coaching experiences. Their knowledge base was further developed once they began working in high school, interacting with more experienced coaches, and acquiring additional information through coaching clinics, books, and the internet.

Conclusions: Given that knowledge was acquired from a variety of sources, it can be concluded that high school coaches learn from a combination of formal training.

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informal learning opportunities, and practical experiences to prepare them to work in their domain.

**Keywords:** coaching; high school; physical education teacher

Participation in youth and high school sport in the United States of America has grown significantly since the 1980s (Clark 2000; De Knop et al. 1996), with as many 7 million students participating in high school athletics programs in the 2004–05 school year (National Federation of State High School Associations [NFHS] 2005). Further to this, there are 3.5 million coaches in the United States, of which 800,000 coach at the high school level (NFHS 2005). A recent Canadian estimate found that approximately 51% of youth participated in organized sport (Sport Canada 2008), with an estimated 1.7 million amateur adult coaches countrywide (Sport Canada 1998). Given these figures, it is not surprising there is a large body of literature examining the high school coach. However, most of this research has focused on high school coach characteristics (e.g. Cox and Noble 1989; Dodds et al. 1991). Moreover, much of the North American research on coaches in this context is limited to the United States (Gilbert and Trudel 2004).

In the United States and Canada, high school sport has historically been coached by physical education teachers who coached sport as an extracurricular activity (Spencer 1999). High school coaches generally have followed a traditional career path. Nearly all of them have college degrees (Capel, Sisley, and Desertain 1987; Gillentine and Hunt 2000), with the most common field of specialization being physical education (Cox and Noble 1989; Hardin 2000). Additionally, most received some formal coach education, either in the form of a clinic, college course, or coaching program (Capel et al. 1987; Gilbert and Trudel 2004; Trudel and Gilbert 2005). Numerous coach education programs have been developed and implemented to raise coaching competence by increasing coaches’ knowledge and confidence in their abilities (Douge and Hastie 1993). Two such programs are the National Coaching Certification Program (NCCP) in Canada (www.coach.ca) and the UK Coaching Certificate (www.sportscoachuk.org). Although coach education programs seem to be valued by coaches (Gould et al. 1990), they are only one source of knowledge acquisition and learning.

Coaches have repeatedly cited their day-to-day coaching activities and their interactions with others in the sport context as major sources of knowledge acquisition (Trudel and Gilbert 2006). More specifically, the acquisition of coaching knowledge through competitive sport experiences (Cregan, Bloom, and Reid 2007; Hardin 2000; Shinke, Bloom, and Salmela 1995), interactions with other coaches (Carter and Bloom 2009; Gilbert and Trudel 2001; Gould et al. 1990) and mentoring (Bloom et al. 1998) have been identified as sources coaches used to develop coaching and sport-specific knowledge. Although valuable to the study of coach development, it is important to note that all of the aforementioned studies were based on coaches at university or Olympic levels. There are relatively few empirical studies on the knowledge development of high school coaches, in particular, physical education teachers/coaches. This is unfortunate since it is equally important to examine aspects of high school coaches’ knowledge and how these coaches acquired their knowledge, given the impact a high school coach may have on young athletes’ overall sport experience (Humphries 1991).

To date, research on both youth and high school sport have suggested the coach can either positively or negatively influence both an athletes’ psychosocial characteristics and desire to continue involvement in sport (Biddle 1993; Brustad, Babkes, and Smith 2001;
Humphries 1991; Linder, Johns, and Butcher 1991; Scanlan and Lewthwaite 1988; Smith and Smoll 1990; Weiss, Smith, and Theeboom 1996). For example, Humphries (1991) found the principle reason for quitting high school sport was that it ceased to be fun. This generally resulted from lack of playing time and/or a coach’s overemphasis on winning. Similarly, in a review of literature, Linder, Johns, and Butcher (1991) reported that drop-out rates in sports throughout the elementary and high school years were related to displeasure with the sporting atmosphere, particularly with the functions of the coach (e.g. not enough playing time, inadequate individual attention, etc.).

Cassidy, Jones, and Potrac (2009) described a hierarchical framework for understanding coaching knowledge that categorized content knowledge into three categories. **Subject-matter content knowledge** was defined as accessible activity-specific knowledge that the coach possesses which includes all aspects of the sport (e.g. rules of the activity, skills, tactics, strategies, etc.). **Pedagogical content knowledge** referred to coaches’ ability to communicate sport-specific content that was understandable and individualized (Cassidy, Jones, and Potrac 2009; Metzler 2005; Shulman 1986). For example, a coach knows when, why, and how to adopt a particular coaching method best suited to each athlete’s specific needs (Cassidy, Jones, and Potrac 2009). **Curriculum content knowledge** included an awareness of available coaching resources and practices (e.g. accessing the most recent sport-specific coaching manuals to match their athletes’ needs). Cassidy, Jones, and Potrac (2009) suggested that coaches need to gain deeper forms of content knowledge, which they further subdivided into three subsets: declarative knowledge, procedural knowledge, and conditional knowledge. **Declarative knowledge** was defined as information the coach can verbalize or write. **Procedural knowledge** was defined as knowledge that coaches implement before, during, or after training or game sessions. **Conditional knowledge** referred to the rationale (why) and temporal (when) information that guides a coach’s decision during games and practices. Cassidy, Jones, and Potrac’s (2009) framework highlights the wide range of knowledge a coach should develop and possess to excel in their profession.

In order to identify the knowledge and skills coaches need to develop, it is important to understand how this knowledge is used in the coaching process. Empirically based research on elite coaches’ knowledge has been conceptualized using Côté et al.’s (1995) Coaching Model (CM). The CM is a theoretical framework that allows connections to be established between the accumulated knowledge on how and why coaches think and function. The CM was used as the main conceptual framework in the current study to provide an understanding of the structure of coaching knowledge and the development of knowledge related to the coaching process.

Since the early 1990s there has been a growing body of research that has utilized qualitative research techniques to investigate the cognitive dimensions of coaching (Gilbert and Trude 2004). In particular, interviews have been identified as one of the most powerful tools to understand human beings (Fontana and Frey 1994) as they help gain insight into participants’ knowledge and experience in a specific domain (Gubrium and Holstein 2002) and can permit the researcher to initiate a topic for discussion while allowing the interviewee to answer freely with relatively few restrictions (Rubin and Rubin 1995). The utilization of this format in the current study allowed coaches to openly share information on the development of their coaching knowledge. This information sheds light on a previously overlooked aspect of coach development by understanding how high school coaches acquired their knowledge, an important topic given the tremendous impact on young athletes’ development and overall sport experience (cf. Cassidy, Jones, and Potrac 2004).
Methods

Participants

Six high school team sport coaches from the same school board, residing in a major urban Canadian city, participated in this study. Two physical education consultants and a university physical education pedagogy professor identified possible candidates for the current study. Aside from the inclusion criteria listed in the next paragraph, these individuals were asked to identify people who have consistently received favorable teaching reviews, who were regularly viewed positively by their peers, and who have shown commitment to their field as evidenced by attendance and presentations at conferences and workshops. Participants were contacted by email or telephone, informed of the nature of the study and asked to participate. Following this, each participant was asked to complete a consent form in accordance with the university ethics policy, as well as a demographic questionnaire. The coaches were interviewed individually for a period of time varying from one to two hours at a mutually convenient location.

Participants were purposely chosen to fit a number of similar criteria. Each participant was teaching full-time physical education and coaching at least two different sports and a minimum of two teams. Coaches represented a variety of team sports, including basketball, soccer, and rugby from Bantam, Midget, and Juvenile levels (ages 13–20). Participants each had accumulated between five and 15 years of high school head coaching experience. Furthermore, each coach had completed a minimum Level 1 and maximum Level 3 (out of 5) coaching certification through the Coaching Association of Canada (CAC). Finally, each participant graduated from a concurrent (as opposed to a consecutive) physical education teacher education (PETE) program between 1990 and 2001. Consecutive PETE programs dominate the Canadian training program (Downey and Bloom 2004). They vary in length from eight to 24 months following completion of a bachelor’s degree, which may or may not be related to physical education. Concurrent or integrated degrees blend skill activity courses, theory courses, and yearly teaching field experiences with other academic pursuits throughout a four-year period. Students in concurrent PETE programs, as in the other teacher education programs, must successfully complete a minimum of 700 hours of supervised teaching in schools (called field experiences), approximately 20 weeks spread throughout the four years. Part of their supervised high school field experiences often includes helping to coach some of the teams. Table 1 provides a detailed summary of the six participants’ history and accomplishments prior to the commencement of this study.

Instrument

An interview guide consisting of four sections was created specifically for this study. The guide was created by the research team and a faculty member with knowledge and experience in coaching psychology and qualitative research methods, including interviews. Introductory questions were designed to initiate the discussion and to preface the main topic of study (e.g. How did you first get involved in coaching?). These questions were designed to enable us to gain insight into their background and experiences in sport. Key questions were based on Côté et al.’s (1995) Coaching Model (CM) and related coaching science literature (e.g. Schinke, Bloom, and Salmela 1995; Vallée and Bloom 2005). The CM is a theoretical framework that suggests coaches construct a mental model of their athletes’ and teams’ potential. This mental model is influenced by three peripheral components: the coach’s personal characteristics, the athlete’s personal characteristics, and the contextual factors. Coaches integrate these three components to determine which of the primary components of organization, training, and competition must be enhanced as the coach strives to develop the
athlete and the team. Overall, the CM is an incorporation of the peripheral and primary components which allow the coach to achieve the ultimate goal of developing the athlete and the team. In the current study, the CM was used as the main conceptual framework to provide an understanding of the structure of coaching knowledge and the development of knowledge related to the coaching process. Each of the key questions in the current study had two parts. The first part examined the participant’s knowledge on an aspect of coaching (e.g. How do you structure a practice?). The second part of each question was designed to gather information on how this particular aspect of coaching knowledge was developed (e.g. How did you learn to do this? How did you develop this philosophy?). Summary questions were included to tie together the topic of the study and validate previous responses (e.g. In your opinion, what are the key factors in helping you acquire knowledge to become a head coach at the high school level?). Finally, two concluding questions were developed to give the participant the opportunity to add any additional information or relate any concerns.

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

Data analysis

The main objective of the data analysis was to create a system of emerging categories that adequately described the sources of knowledge acquisition of high school team sport

Table 1  Background and accomplishments of each coach.

<table>
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<tr>
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<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
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<tr>
<td>University</td>
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<td>Semi-</td>
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<td></td>
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<td></td>
<td>Professional</td>
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<tr>
<td>Highest level of athletic achievement</td>
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<td></td>
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<td></td>
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<tr>
<td>Number of years coaching</td>
<td>3 = Y</td>
<td>2 = Y</td>
<td>5 = Y</td>
<td>6 = Y</td>
<td>15 = Y</td>
<td>5 = Y</td>
</tr>
<tr>
<td></td>
<td>5 = H</td>
<td>15 = H</td>
<td>15 = H</td>
<td>15 = H</td>
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<td></td>
<td>4 = UA</td>
<td>4 = UA</td>
<td></td>
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<tr>
<td>Total head coaching experience</td>
<td>8</td>
<td>17</td>
<td>20</td>
<td>21</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Number of years teaching full-time</td>
<td>5</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Highest level of coaching certification (1-5)*</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Number of league championships as a high school head coach</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes: Y, youth; H, high school; UA, university assistant coach.
*The Coaching Association of Canada has recently undergone changes to meet emerging coaching challenges. The new NCCP model is divided into three streams, each with its own coaching requirements: community sport, competition, and instruction (see www.coach.ca/eng/certification/nccp_for_coaches/nccp_model.pdf).
coaches. The categories emerged with an inductive analysis of the data, which followed the guidelines proposed by Côté, Salmela, and Russell (1995). The interviews were analyzed line-by-line and divided into 518 pieces of information, known as meaning units (MU). MUs are separate pieces of text comprised of words, sentences, or entire paragraphs that convey the same idea or related topic (Tesch 1990). NVivo™ 7.0, a computer program designed specifically for qualitative data collection was used to create a computerized index system through which all these MUs were easily retrieved. Each MU received a name or a tag based on its content. Similar MUs received the same tag. A total of 50 tags emerged from the data. Following this, similar tags were compared and then combined into larger groupings, called properties. Each property was also named or tagged according to the common features shared by these MUs (Côté, Salmela, and Russell 1995). Finally, the last level of classification consisted of grouping similar properties into higher-level divisions, called categories. This step was similar to the previous one except it was done at a higher and more abstract level of analysis with higher levels of interest (Côté, Salmela, and Russell 1995).

**Trustworthiness**

Establishing trustworthiness is an essential component of qualitative research (Lincoln and Guba 1985). It ensures the research process is conducted properly and the findings are worthy and credible. Different techniques were utilized in this study to establish trustworthiness, such as training in qualitative methods, prolonged engagement, member checks, and peer review.

The researcher was trained in the methods of qualitative research, as outlined by several respected scholarly sources (Lincoln and Guba 1985; Patton 2002; Rubin and Rubin 1995; Sparkes 1998). In addition, two pilot interviews were conducted to allow the researcher to practice and enhance interview skills and validate the effectiveness of the interview guide (Maxwell 1996). Prolonged engagement involves the investment of time by the researcher to become familiar with the culture and vocabulary of the participant, as well as build trust with them (Lincoln and Guba 1985). In this study, the researcher had graduated from a concurrent PETE program, coached at the youth level, and had a Level 1 coaching certification in basketball, volleyball, and soccer through the CAC.

Peer review involves a neutral party examining the data analysis to ensure its credibility (Côté, Salmela, and Russell 1995). The peer review process took place independently of the principal researcher. A peer assistant examined a random sample of 25% of the MUs and matched them under the tags he or she felt was the most appropriate. A reliability rate of 91% was reached for this phase of data analysis. The peer assistant then classified all tags into properties. A 96% rate of reliability was achieved. At the next stage, the seven properties were grouped into categories by the peer reviewer with a reliability rate of 100%.

According to Lincoln and Guba (1985), member checks are the most crucial technique for establishing credibility. Member checks occur when the findings are tested by the participants of the study to ensure the information provided is correct. In this study, three different forms of member checks were used. The first occurred at the end of each interview during a debriefing session. At this point, the participants were given the opportunity to add or alter any answer or idea communicated during the interview. The second check consisted of sending the participant a full verbatim transcript of the interview. At this time, the participant had the opportunity to clarify, add, or eliminate any comments from the interview. The final check consisted of sending the participants a summary of the main findings generated from the participants’ comments (Lincoln and Guba 1985). At this point, the participant was asked to state any concerns, questions, or comments with regard to the findings.
Results
The data for this article is part of a larger database on the knowledge and career progression of Canadian high school coaches. The total number of MUs from the interviews was 518 of which 200 or 38.6% related to coach’s knowledge. The focus of this article is on the data contained within a category, called sources of knowledge acquisition. Three properties emerged within this category: sport participation and resources (39%), educational background (33%), and learning from others (28%).

Sport participation and resources
Information in this property encompassed the knowledge and skills coaches acquired through their athletic and coaching experiences prior to working in high school. It also involved the acquisition of knowledge from various resources such as books, the internet, and coaching clinics.

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

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

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

All six coaches competed at university level or higher as athletes. Many stated their athletic careers played a role in their acquisition of coaching knowledge. In particular, coaches sensed that their athletic experiences improved their leadership and psychological skills and provided them with a general understanding of the technical, tactical, and physical aspects of their sport:

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

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

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

One of the biggest things that impacted my coaching was learning from my mistakes. As a younger coach I didn’t mind making mistakes and it is the same philosophy that I tell my athletes. It is okay to make a mistake, just learn from it. I think that is what helped me grow as a coach because I would try a lot of things that were probably off the wall at the time. But I was able to try a lot of things and it made me the coach that I am. (C5)
Others source of knowledge acquisition included books and the internet. In particular, four coaches believed these two sources helped them acquire new training ideas to improve their practices, and particularly the drills they used:

When I was coaching at the beginning I was just left to my own devices. I had to find somebody to help me so I started checking on the internet, which thank goodness was there, because it was a huge resource. I would also look things up in books. (C5)

Sometimes I’ll want to refresh and I’ll go to the internet looking for specifics, like for a break-out pattern, or I’ll have a basketball book and I’ll flip through it. In one of the best books they interviewed a whole bunch of highly successful coaches either in professional or college sport. John Wooden was in there. He spoke about his philosophy and how he dealt with players. (C3)

Another source of knowledge acquisition was coaching clinics. All six coaches attended clinics but their opinions regarding the effectiveness of them as learning tools were mixed. These differences are illustrated by the following quotations:

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

Playing university football and having had good coaches, I knew everything presented at those clinics. I think those clinics are for coaches who have their son or daughter playing on the team, to give them a starting point. It’s not really, I think, for the phys-ed graduate. The level two is comparable to what I learned at the University level [as far as knowledge]. Level three was more about practices, philosophies, and psychology, so that was good. (C4)

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

I tell people that teaching is something I just do around here. I am the athletic director of the school and a coach. I spend more time doing athletic director stuff and coaching than I do teaching. (C2)

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

There are some people who start coaching and it becomes a task. If it is something that you’re willing to do for free and that you won’t give up, then you’re good. It’s something that I look forward to doing at the end of my day. I usually say, “Okay, I had a crappy day teaching today but at least I get to stay and coach”. As opposed to, “I had a crappy day teaching and now I’ve got to stay and coach”. (C1)

Additionally, all six coaches alluded to their responsibility of coaching more than one team a year. Interestingly, four coaches felt their teaching load afforded them the time to coach, while two felt their teaching prevented them from devoting more time to coaching:
My teaching load was quite good this year but sometimes if we have an away game, I would miss a class or two because of travel. Being in phys-ed I have enough time to manage both. But when I was teaching science and phys-ed, I was running all over the place. It was hard going from the classroom and getting to the field on time. But being in phys-ed I find the transition a lot easier. (C6)

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

**Educational background**

Information in this property describes coaches’ teacher training in physical education, including the courses and experiences related to the development of their coaching knowledge. More specifically, coaches discussed their reasons for entering the physical education profession, as well as the courses and experiences that shaped their coaching knowledge.

All six coaches graduated from a concurrent PETE program. Not surprisingly, coaches had different reasons for entering the program. Three of the coaches entered the PETE program to pursue both teaching and coaching, while two were interested in pursuing athletic careers at the university level, and one coach was motivated to become a coach rather than a teacher:

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

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

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

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

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

All six coaches discussed the skills courses that were a mandatory part of their concurrent PETE program. Their opinions were mixed about their value and importance, although they all felt they were necessary for acquiring a wide variety of skills knowledge. Three coaches felt they learned important information about fundamentals and practices, while
three others felt the skills courses were interesting, but ultimately did little to advance their knowledge of that particular sport:

Some of the drills and skills I use to run my practices came from the basketball I and II courses I took at university. (C1)

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

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

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

Many participants alluded to the value and importance of the coaching opportunities that arose during their high school teaching field experiences. More specifically, five out of the six coaches specifically mentioned that these coaching opportunities allowed them to gain valuable coaching knowledge and experience as they worked alongside their supervising teachers, while also networking with other coaches at various competitions:

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

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

All six coaches reported receiving a Level 1 coaching certification in a number of team sports upon graduating from their PETE programs. Their opinions were mixed regarding the effectiveness of this certification as a learning tool. Two coaches believed acquiring coaching certification outside the program could have been more beneficial, while others regretted not taking advantage of more clinics while they were enrolled in the program:

With some skills courses it was a given that we would receive our Level 1 certification. I think it would have been more beneficial if we were aware of the coaching certification out there. I regret not getting more coaching certification at the time. (C6)

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

While all six coaches felt their undergraduate training helped them acquire coaching knowledge, three coaches believed a coaching course preparing future teachers/coaches for the different challenges of coaching high school sport would have been beneficial for their development:

I think my phys-ed program would have been even better if they had a course on the theory of coaching, something similar to the NCCP. It would have been helpful to have background information to take on the role of the high school coach. (C2)

Learning from others

Aside from their university training, there was consistency amongst the coaches regarding other sources of knowledge acquisition. This property included information and skills coaches’ gained through observations and interactions with various sport-related people. One key element included talking with and observing other coaches, beginning with their youth and elite sport experiences:

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

After becoming high school coaches, most of our participants felt that observing and speaking with other high school coaches allowed them to acquire valuable coaching knowledge. Three coaches spoke about attending other teams’ practices and games. In particular, these participants observed other coaches’ behavior with the aim of acquiring valuable information on how they carried out their coaching tasks:

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

I am often in my office during the practices of other basketball teams and I would see a drill that a coach would do with their team and try it the following practice. I have also watched what they do before a game and what visiting team’s coaches do during a game. So I would use drills that they were doing, although I might just adjust it slightly. (C6)

Additionally, coaches discussed openly sharing information and learning from other coaches’ on staff in their schools. More specifically, all of them consulted other coaches about aspects of training, as shown in the following quote:

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

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

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

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

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

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

Finally, coaches agreed that the process of learning was ongoing and did not end once they had established themselves:

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

Discussion

Overall, the findings suggest that coaches initially used similar means to acquire knowledge and this knowledge was further enhanced through a combination of formal training, practical experiences, and informal learning opportunities. Their formal education provided them with training in sport sciences and physical education pedagogy, as well as practical coaching experiences through their high school field placements. Their knowledge base was further developed through informal learning opportunities that began when they were working in high school. These included interacting with more experienced coaches and acquiring additional information through coaching clinics, books, and the internet.

Participants in the current study accumulated hours of elite athletic experience in a number of different sports, including competing at university level or higher. This pre-coaching experience seems to be typical of the development of most elite sport coaches (e.g. Bloom et al. 1998; Cregan, Bloom, and Reid 2007; Gilbert, Côté, and Mallett 2006; Saury and Durand 1998). For example, Gilbert, Côté, and Mallett (2006) found that
successful high school and elite sport coaches accumulated, on average, over 4600 hours as athletes. Similarly, Hardin (2000) found that expert high school coaches drew heavily on their athletic experience to demonstrate drills which were important for gaining player respect. Contrary to these findings, a recent empirical study found that expert university coaches developed coaching knowledge and achieved success without drawing upon expert athletic experience (Carter and Bloom 2009). The current findings appear to highlight the importance of athletic experience as one of the many sources of knowledge acquisition.

All coaches attributed their knowledge acquisition and teaching skills to their university classes and experiences. Specifically, knowledge and teaching skills were acquired through their pedagogy, psychology, and skills courses, as well as their high school field experiences. This contributes to existing literature (e.g. Douge and Hastie 1993; Jones, Housner, and Kornsman 1995; Lyle 1998) which has interpreted the role of the coach as being synonymous with that of the teacher. For example, Lyle (1998) postulated that the theoretical basis for exploring coaching effectiveness was dependent on research in teacher behavior due to the vast similarities between the two professions. As such, the current findings support the notion that expert coaches require effective pedagogical skills to be successful.

Results of the current study also revealed participants’ perceptions of their roles as teacher and coach. Specifically, coaches highlighted that while they were employed as teachers, they identified more with their role as a coach, including devoting more time to coaching than to teaching. These findings support previous research (e.g. Dodds et al. 1991; Macdonald 1999) which has suggested that high school physical education teachers preferred their coaching role to their teaching role.

Interestingly, while our participants felt their university skills and theory courses were beneficial, the most knowledge they gained about coaching came from their high school field experiences. Our participants were drawn to the ‘doing’ or practical components of teaching and coaching (e.g. procedural knowledge) as opposed to the theoretical or content knowledge (e.g. subject matter content knowledge). Since links between performance and different types of knowledge contribute substantially to the development of expertise (Wall, Reid, and Harvey 2007) physical educators/coaches should combine both practical teaching/coaching experiences with integrated coursework (Bell 1997).

Regarding the role of others, results showed that coaches learned from observing and talking to other coaches. This supports previous research which has revealed the importance of informal and unmediated learning sources, including interacting with coaches, watching other teams’ practices, and mentoring (e.g. Bloom et al. 1998; Gilbert and Trudel 2001; Sage 1989; Werthner and Trudel 2006). For example, Sage’s (1989) research with high school coaches in the United States found that coaching skills and knowledge were learned through constant observation of and listening to more experienced coaches. Similarly, Bloom and colleagues (1998) found that mentoring by more experienced coaches allowed younger coaches to acquire knowledge and helped shape their coaching philosophies and beliefs. In the current study, participants interacted and observed coaches in a practical context; however, only two reported having mentor coaches. It is reasonable to suggest that assuming the role of assistant before becoming head coach is not as common at the high school level, and therefore the current participants did not have the same access to mentor coaches as elite level coaches. In light of this evidence and previous research which has recommended the implementation of formal mentoring programs to improve coach development (e.g. Bloom et al. 1998; Saury and Durand 1998), it would be worthwhile to further investigate the role and impact of a formal and/or informal mentorship program on high school coaches’ development.
Coaches also openly exchanged information and learned from other coaches on staff in their school. Regardless of coaching experience or sport being coached, all coaches consulted other coaches about aspects of training and player development. These findings support previous research (Gilbert and Trudel 2001; Lemyre, Trudel, and Durand-Bush 2007) which has suggested that "communities of practice" (Lave and Wenger 1991) or interactions among the coaching staff can provide important learning situations in which they discuss coaching issues and develop, experiment with, and evaluate strategies to resolve these issues. The community of practice framework has recently been examined in studies with youth sport coaches (e.g. Culver and Trudel 2006; Trudel and Gilbert 2004). In particular, Trudel and Gilbert (2004) suggested that the hockey subculture in Canada limits the emergence of a community of practice because youth hockey coaches tend to see each other as enemies instead of colleagues working together to create a safe and fun learning environment. An important distinction to note is that coaches in the current study all worked together as coaches and teachers and arguably were afforded the time and space to exchange information and ideas during lunch hours or breaks. Furthermore, these coaches were not competing against each other and therefore did not see the exchange of knowledge as a threat to the success of their teams. Overall, the current findings provide a new and unique understanding of the community of practice, particularly for high school coaches.

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

Conclusions

Aside from the knowledge acquisition of high school coaches/teachers, the current results suggest that coach education programs should include supervised field experiences in a variety of contexts to enable coaches to learn and grow in a safe and controlled environment. As well, having access to knowledgeable and respected coaching peers may direct program developers to organize group meetings or coaching pods as a valuable source of coaching knowledge. This is in accordance with previous research (e.g. Bloom et al. 1998; Cushion, Armour, and Jones 2003; Gilbert and Trudel 2005) which has suggested that formal coach education programs fail to provide adequate practical experience and mentoring opportunities for aspiring coaches.

Furthermore, the current results underscore the value and importance of concurrent PETE programs in the acquisition of coaching knowledge. In particular, the current results illustrate the diverse learning situations that contributed to high school coaches' acquisition of knowledge, including pedagogy, psychology, and skills courses, practical experiences, and reflecting on those experiences. Moreover, each learning situation seems to have played a unique role in the development of the coach.
There are a number of future directions research could take based on the current results. For instance, replicating the study with a larger sample of male and female coaches would allow for any gender differences in coach development to emerge. As an extension of this study, further research could investigate the differences in developmental paths between coaches with different levels of training and experience. More specifically, comparing the knowledge acquisition of high school coaches, without formal physical education teacher training, with those who have received this training and experience. Likewise, given the growth and development of coach education programs in countries like Canada and the UK, it may be interesting to compare the differences between those who have obtained coaching certification compared with those who have not. Finally, it would also be interesting to include high school coaches with a consecutive physical education degree to enhance the understanding of the role of PETE programs in the development of coaching knowledge in Canada and abroad.

References


