Title: Coach, learning and coach education: a Portuguese expert coaches' perspective.

Abstract

The aim of this study was to analyse Portuguese expert coaches' conceptions of learning sources that promote long-term coach development and the extent to which these sources are currently present in coach education programmes. Six expert coaches were individually interviewed, using a semi-structured format and the interviews were analysed using QSR *N6 Nudist* software. The results highlighted the participants' awareness of the uniqueness of coach education, emphasising the importance of reflecting and engaging with a variety of learning experiences. Findings also revealed dissatisfaction with the current dominant education framework in Portugal, which remains excessively didactic and classroom-orientated. In contrast, the participants externalized a constructivist approach for coach education assuming the need for theoretical knowledge to be framed in practical contexts, where they have the opportunity to share and reflect their own and others' experiences to develop learning. Such a position echoes Sfard's *acquisition* and *participation learning metaphors*.

Introduction

Recent research has highlighted that coaches' learning is developed by "ongoing interactions with specific individuals within practical coaching contexts" (Cushion, Armour, & Jones, 2003, p. 217). In this sense, interactive experience has been identified as one of the principal knowledge sources of neophyte and experienced coaches (Cushion, Armour, & Jones, 2006). Despite this, however, many academic and professional coach education programmes continue to be predominantly taught along didactic lines and delivered within a classroom-based, teacher-led curriculum (Jones, Morgan, & Harris, 2012; Mesquita, Isidro & Rosado, 2010). The main goal in such programmes seems to consist of conveying concepts and theories, rather than focusing on the practical and contextual issues in coaching (Erickson, Côté, & Fraser-Thomas, 2007). Although useful in imparting information, such programmes are deemed by many as being 'fine in theory' but divorced from the thorny reality of practice (Jones, 2007). Perhaps then, it can be argued that coach education has been dedicated to imposing a set of rigid coaching models and ideals upon those whose 'day to day' challenges are always context-bound and, therefore, unique. As a consequence, coaches attribute less importance to coach education courses, than their day-by-day practical experiences, which are deeply dependent on the context (Cushion, Armour & Jones, 2003; Erickson, Bruner, MacDonald, & Côté, 2008; Jones, Armour, & Potrac, 2004).

Indeed, the evidence increasingly suggests that the process of becoming an expert coach is influenced much more by interactive, situational coaching experiences, observations of peers and knowledge sharing with other coaches, than professional preparation programs (Jones et al., 2004; Lemyre & Trudel, 2004). Since coaching is a complex, social encounter (Jones et al., 2004) it supports the essential role played by

interaction amongst coaches in promoting long-term coaching development. This could in some ways explain the perceived weak impact of many coach education programmes where coaches participate mostly as individuals (Culver & Trudel, 2006). During these courses, cooperation and interaction are often neglected and coaches are expected to accomplish a precise number of credits, or hours attained, by sitting in a classroom context, or coaching in isolation on a practice field (Culver & Trudel, 2006). It is therefore assumed that coaches' learning occurs as an individual process (Culver & Trudel, 2006). These features demonstrate the dominance of a rationalistic approach to current coach education, which means that coaches are not encouraged to actively reflect and link the taught content to their own coaching reality, or to share their experiences with other coaches.

The acknowledgment that coaches learn in numerous ways and through different knowledge sources, suggests the need for an amended conceptual framework in order to better understand the learning process (Mesquita et al., 2010). Although located originally within the field of education, the work of Sfard (1998) has much to offer in this context. Sfard distinguished two core learning metaphors; that is, two basic ways of understanding how we learn: the *acquisition learning metaphor* and the *participation learning metaphor* (for further information see also Lave & Wenger, 1991; McCormick & Murphy, 2000). Traditionally, coach education programmes have been mainly focused on the *acquisition metaphor*, as experts deliver and transfer information to students who are then expected to acquire the concepts, apply them in their own setting, and/or share them with others (Erickson, et al., 2008; Sfard, 1998; Trudel & Gilbert, 2006). It is, however, important to recognize that coach education programmes are progressively and slowly moving towards applying the *participation learning metaphor*

(Sfard, 1998). According to this, the learning process occurs during everyday practice and by interaction with other people (Trudel & Gilbert, 2006; Wright, Trudel, & Culver, 2007), i.e., through active engagement with the coaching context (Erickson, et al., 2008; Trudel & Gilbert, 2006). Here, the role of communities of practice (CoPs) is emphasized, as learning is considered to be a process of participating in multiple cultural practices and shared learning activities, rather than a process of individual knowledge development. The establishment of CoPs has been suggested as a means of maximising coaches' experiential learning (Culver & Trudel, 2006) which, in turn, plays an important role in (re)producing coaching, as it enables a "process of being active in the *practices* of social communities, and constructing *identities* within these communities" (Wenger, 1998, p. 4).

The concept of mentoring is closely linked to CoPs and involves support, guidance and facilitation. Normally, it also entails a more experienced and knowledgeable person leading the process of knowledge-sharing between all the participants (Cushion & Denstone, 2011). This sharing experience contributes to the community's knowledge advance, as the mentor facilitates the access to different sources of knowledge, enables full participation in given tasks, and encourages participants' interaction and discussion (Cushion et al., 2006).

Mentoring is often considered as an efficient and effective way for novice coaches to learn about their role. Indeed, on-going interactions in the practical coaching context, as well as observations and discussions with more experienced coaches are important sources of knowledge and apprenticeship for these coaches (Cushion et al., 2003; Gilbert & Trudel, 2001; Jones; Harris & Miles, 2009). To achieve this, the curriculum of certification courses should not be limited to classroom-based lectures but also

include practical experiences, supervised by expert coaches who should develop a mentor's role (Mesquita et al., 2010). Here, the mentor should assume the role of facilitator encouraging coaches to consider different methods, giving them space to make mistakes, and enabling discussion and reflection towards learning; in other words, prompting their professional and personal development (Robert, 2000, cited by Jones, Harris, & Miles, 2009). This facet is often considered to be 'formal mentoring' as it constitutes "a formalised process, whereby, a more knowledgeable and experienced person actuates a supportive role of overseeing and encouraging reflection and learning within a less experienced and knowledgeable person, so as to facilitate that person's career and personal development" (Roberts, 2000, p. 162). Informal mentoring, on the other hand, takes place when this process is based on the natural pairing of two individuals, founded on some form of mutual empathy and reliance, usually introduced by the protégé (Marshall, 2001; Busen & Engebretson, 1999).

The recognition of *acquisition and participation metaphors'* contribution towards becoming an expert coach has been a recent theme of discussion in the coaching literature (Cushion et al., 2010). However, the boundaries between Sfard's two learning metaphors are not totally clear, revealing an intricate relationship between them, suggesting that, 'we can live neither, with or without either of them' (Sfard, 1998, p. 10). Furthermore, the theoretical perspective to study how coaches learn to coach, as suggested by Werthner and Trudel (2006), echoes the significance of the coach's 'cognitive structure', as a process of changing conceptions rather than accumulating knowledge (Moon, 2004). This cognitive structure changes and rebuilds under the influence of *mediated, unmediated* and *internal* learning situations; those learning sources that occur as a direct consequence of the instruction conveyed by more capable others (*acquisition*

metaphor), as well as the learning that emerges within everyday practice and from inter-action with others (*participation metaphor*). While in *mediated* situations learning is assisted directly by another person, in *unmediated* situations it is the learner that take the responsibility to decide what to learn. Finally, during *internal* learning situations the learner engages into a process of reflection about the new information, reconsidering the pre-existing ideas (Werthner & Trudel, 2006).

As Schön (1983, 1987) argued, the process of reflection is vital, as knowledge is constructed through experimenting with new, and modifying existing information with-in a context of critical reflection. Gilbert, Côté and Mallett (2006) and Gilbert and Trudel (2001), while inquiring how coaches learn, suggested that the process of reflec-tion is essential in terms of exploring how theoretical knowledge and previous experi-ence is transformed into craft coaching, which arises within everyday coaching practice (Gould, Giannani, Krane & Hodge, 1990; Salmela, 1996). This rationale echoes a con-structivist approach where learners construct their own knowledge connected to their prior experience and knowledge, embedded in meaningful contexts (Mahoney, 2002; Sawyer, 2006). However, a reflective process is assumed to occur only when coaches intentionally subject their own beliefs about coaching to a critical analysis and take re-sponsibility for their actions. As Jones and Turner (2006, p. 183) stated: "The aim of coach education should be the development of a 'quality of mind' among practitioners through habits of reflection and problem-solving". The use of problematic scenarios supported by tutor questioning, echoing many facets of problem-based learning, install in neophyte coaches critical ways of thinking that transfer to practical situations.

In an attempt to foster coaching knowledge and expertise, there has been a con-siderable growth in the importance attached to coach education in many Western coun-

tries (Erickson et al., 2008; Gilbert & Trudel, 1999; Lyle, 2002). Programmes such as the United Kingdom Coach Certification, the National Officiating Accreditation Scheme in Australia, or the National Coaching Certification Program in Canada, amongst others, are increasingly conceding more consideration to 'experiential learning' as an essential learning source, echoing the importance of the *participation metaphor* in coach development (Cushion et al., 2010). These courses are delineated to provide information and practical experience, and consequently promote expertise in the sport coaching setting. However, feedback obtained from coaches has indicated that these courses are too simplistic and disregarding of the complex nature of sports coaching (Cushion et al., 2006; Lyle, 2002).

In countries such as Portugal, where coach education has not been systematically organised and, in some sports, is not compulsory, the examination of expert coaches' conceptions about learning sources acquires an additional significance. Indeed, the current programmes' curricula, built along traditional and rationalistic lines, have been centred on teacher-led and prescriptive pedagogical methods, focused mainly on sport-specific technical concerns. Unfortunately, this has been at the expense of supervised field experiences, as well as social and philosophical considerations (Mesquita et al., 2010).

The purpose of this study therefore, is to examine Portuguese expert coaches' perceptions regarding, firstly, the learning sources perceived as important to promote long-term coach development, and, secondly, to what extent these should be implemented in the Portuguese coach education curriculum. Furthermore, this work no only intends to offer guidelines for developing coach education in Portugal, but also to pro-

vide information that prompts comparisons and further discussions with qualitative work developed in other countries.

Methods

Participants

The participants consisted of six Portuguese top-level sport coaches (1 woman and 5 men), from different sports: volleyball (n=1), gymnastics (n=1), swimming (n=1), handball (n=1) and basketball (n=2). The coaches were selected to participate in this study according to purposeful sampling, which consists of choosing the most useful respondents, depending on their particular qualities, towards addressing the research's aims (Patton, 2002). Hence, the coaches were selected by peer identification and according to Abraham, Collins and Martindale's (2006) criteria of expert coaches: (a) renowned as being expert coaches; (b) recognised as using critical thinking approaches (Strean, Senecal, Howlett, & Burgess, 1997); (c) active in the role of tutors in coach education courses; and (d) previously or currently working with both developmental and elite athletes. The peers used to identify and select the expert coaches were three sport scientists, three technical directors from the specific sports' federations and three coaches of development and elite national squads.

The participants' ages ranged from 42 to 63 years (M=51.2; SD=10.7) and all possessed a high level coach degree, and a variety of continuing coach education courses undertaken throughout their career. Additionally, all six the coaches were Sport and Physical Education graduates and two of them possessed a PhD in Sport Pedagogy. Their coaching experience ranged from 10 to 40 years (M=21.17; SD=14.81), during which all the participants coached youth and adult national squads (male and female).

Finally, the participants were all course tutors in educational programmes for both teachers (M=3 years of experience; SD=2 years) and sport coaches (M=18.5 years of experience; SD=11 years) and two of them also taught on international coach education courses.

Data collection

A semi-structured interview was used in order to access the participants' beliefs, perceptions and personal experiences. Although the interview guide identified key themes to be addressed, any new topics which emerged from the interviewees' responses and considered to be relevant to this study, were further explored (Côté & Sedgwick, 2003). The interview guide was divided into two main phases. The first part consisted of specific questions related to demographic data (experience as a player and/or coach, coach certification level, etc.), while the second part focused on the learning sources perceived to enhance skilfulness throughout the coach's career, including: i) teaching strategies promoted in coach education programmes (for instance, didactic methods versus experiential learning); ii) importance of supervised field practice during vocational training; iii) role played by individual and interactive learning and their respective contribution to coach development; iv) interactive learning context and form; v) roles played by coaches within learning groups (i.e. roles of expert coaches and neophyte coaches); vi) and, finally, topics and issues discussed in the coaches' learning groups.

Efforts were made to ensure that the questions were presented in a similar sequence to all the participants, but in some cases its order varied, as questions were built on the participants' responses in order to encourage them to share their ideas (Irwin,

Hanton, & Kerwin, 2004). Moreover, detail-orientated probes, prompts and follow-up questions were used in order to obtain further clarification of responses (Patton, 2002).

The interview guide was accessed beforehand by a panel of three *experts* who all possessed a PhD degree in Sport Pedagogy and had experience in performing interviews. Their suggestions led to an improvement of the questions' appropriateness. Finally, a pilot study was applied with three participant coaches, who were perceived to possess similar characteristics to the ones to be studied. These coaches were then asked to provide feedback about the script's pertinence, the interview process, and whether they felt they were being led to a given response. Again, some improvements were made to the interview guide as a result.

The interviews were then performed, individually, at a place and time convenient for the coaches. Each interview lasted between 60 and 90 minutes and was recorded using a portable digital audio recorder.

The coaches' participation was based on their agreement to participate in the study. Written informed consent was obtained in accordance with the University of Porto's code of ethics. All the participants were informed about the purpose of the study, who was conducting it, why it was being undertaken and how it was to be disseminated; guarantying, confidentiality and anonymity.

Data analysis

The content of the interviews was firstly listened to in order to ensure familiarity with the material recorded. The collected data was then transcribed *verbatim* into transcripts of 8 to 15 single-spaced pages. Subsequently, qualitative data analysis was performed by applying inductive methods, assisted by the use of the QSR *N6 Nudist* data

analysis software. The analysis began by a coding phase (i.e. creating specific meaning units that contained one idea, or piece of information) undertaken until no more themes emerged from the data (Tesch, 1990). The following phase consisted of grouping units of information with similar meanings into more comprehensive categories (Côté & Sedgwick, 2003), which allowed organisation and interpretation of the unstructured data. The content of these categories was then subjected to a "fine-grained" search for commonalities and uniqueness according to the meanings by which they were catego-rized (Tesch, 1990). Throughout this process then, raw data themes were identified and built upon into themes and categories (Glaser & Strauss, 1967). Finally these were in-terpreted using deductive techniques (recommended by Patton, 2002; Scanlan, Ravizza, & Stein, 1989), based on the precepts of Sfard's (1998) learning metaphors and learning situations (*mediated, unmediated* and *internal*) (Moon, 2004; Werthner & Trudel, 2006). In order to guarantee coaches' anonymity and to distinguish their opinions, all the participants were provided with fictitious names (Afonso, Bernardo, César, Pedro, Raul and Rita).

Results

Overview

The participants demonstrated a comprehensive view of learning in coach educa-tion, highlighting a wide range of learning sources necessary for improving coaching skills throughout their careers. This seemed to be a general sentiment, as the need to consider a diversity of learning sources that occurred within *mediated, unmediated* and *internal* situations emerged from all expert coaches' interviews. Importantly, the *inter-nal* learning situations were placed at the heart of the process of building the coach's

cognitive structures, with the participants emphasising the value of individual reflective processes which utilised emergent experiences from both *mediated* and *unmediated* learning situations (Figure 1).

[Insert Figure 1 here]

The interviews also highlighted the coaches' awareness of the uniqueness of their coaching contexts, emphasising the importance of interpretation, reflection and social engagement within a variety of learning situations. Subsequently, they voiced a certain amount of dissatisfaction with the dominant coach education framework utilised in Portugal; a very didactic and classroom-orientated framework detached from the coaching reality. Instead, coaches stated the need to connect the basic and more theoretical knowledge (a position which resonates with Sfard's *acquisition metaphor*) conveyed within the classroom-based curriculum, with the real life problems that only emerge from everyday practice (echoing the Sfard's *participation metaphor*), whilst progressing from *mediated* to *unmediated* learning situations.

The importance attributed to the *vocational training* as obligatory in the certification courses, demonstrated the particular value given to the experiential learning, i.e., that which occurs by actively engaging with everyday practice. Here, the participants highlighted the value of supervised practice under a formal mentoring process guided by an expert coach, where questioning, observing, sharing and reflecting on their own and others' experiences are essential pedagogical strategies to promote reflective practice.

Furthermore, the need for coaches to be able to choose what to learn and how to learn (i.e. *unmediated* learning situations) in order to be an autonomous, was pointed out by the participants as crucial in achieving sustainable craft knowledge. Here, the principal sources elected were informal mentoring, observing other coaches, collaborating with expert coaches and doing 'home-work' (readings books and magazines, watching videos, using the internet). This highlights the importance for coaches of updating their knowledge according to their individual needs, as well as sharing experiences and attaining guidance from 'more capable others'.

Interestingly, coaches seemed to particularly value the learning that occurs from the interaction amongst other coaches within working groups, which is a key feature of 'communities of practice' (Wenger, 1998). This extended from *mediated* learning situations, which took place mainly within vocational training, to *unmediated* learning situations, which were located in the coaching workplace and illustrated the coaches' awareness of the social and pedagogical facets of coaching through their acknowledgement of the power of learning by interacting with other coaches.

1. **Coaching Certification courses.**

   1.1. Classroom-based curriculum

   Coaches ascribed importance to coach certification programmes, considering them to be at the core of the process of building their coaching knowledge. This is because formal education is still the basis and primary source of learning and is particularly beneficial for those coaches without a coaching background. Raúl stated that: "*They* [the certification courses] *are very important due to the structure of knowledge provided and because of the exchange of experiences that occur*". In this sense, Rita added that:

"*Their usefulness is related to the basic principles and issues of the specific sport … essential to support a great athlete's development throughout their career*". Furthermore, Bernardo and César pointed out the value of the certification programmes as associated with the documentation provided for and about reflection:

> *The course documentation is very useful as it helps support our decisions in our coaching practice. Sometimes, in the beginning, we don't recognize the value of this documentation because it is hard to link the theoretical support to the practical situations… but, as we get more experienced, we are capable of realizing the value of this knowledge to support our thoughts and decisions.*

In general, the interviewed coaches criticized the Portuguese coach education programmes' disregard for the application of the principles and concepts within practical learning situations and for attributing greater importance to the formal and explicit teaching which takes place in classroom setting. As such, Bernardo stated: "*So far, courses have been too prescriptive and too abstract; information is delivered in a decontextualized way*". Similarly, Pedro believed that: "*This teaching method discourages coaches, because it is detached from practice and does not allow the active participation of the participants*". Afonso went further by suggesting that: "*Coaches learn in a passive way. They have to memorize the contents and, as a result, do not develop skills to be autonomous in order to get the information that actually matters to a particular situation*". In suggesting a possible solution to this problem, Rita added:

> *The instructors need to explain the content and then switch to a more practical explanation…it will allow the coaches to notice their meanings and what kind of difficulties and limitations can arise when applying them.*

1.2. Vocational Training

The vocational training (where experiential learning takes place) was emphasized by the participants as a vital source of learning in order to promote the coaches' learning. However, it was a generalized opinion among the participants that there is a precarious importance given to 'learning by doing' in the Portuguese coach education courses. They felt that there were some good practical experiences occurring, but only in an isolated manner and mainly related with technical issues. This sentiment is supported by Pedro:

In the Portuguese coach education courses, the importance ascribed to learning within real world sport contexts is almost nonexistent, and when it is promoted is only related with technical issues, whereas the personal perspectives of coaches are not considered".

Bernardo commented further:

A strong limitation is the absence of vocational training within the certification courses…just by applying the knowledge acquired to the coaching context, coaches can actually understand its value, its usefulness and the ways it should be applied, allowing them to build their own coaching philosophy.

Supervised field practices

In order to optimize the vocational training experiences, several pedagogical strategies were emphasised taking into consideration the different phases of coach education. The value of the supervised field practice during the apprenticeship was pointed out as an opportunity for coaches to reflect upon their own activity, supported by someone who is able to help them interpret the ambiguities and difficulties of the coaching

practice. According to Pedro: "*The most important aspect is that supervised field experiences provide some orientation to novice coaches giving them the basic tools for building their own style of coaching*". Afonso added:

Supervised field experiences are extremely important as by being assisted, beginner coaches might recognise and interpret the problematic situations and start developing some appropriate strategies. It provides a space for coaches to make mistakes, to analyse them and to learn from them.

However, Raúl, Rita, César, Pedro and Bernardo stated that although supervised field experiences are essential, especially in the early levels of coach education, they are only effective when properly structured, linking theoretical and practical knowledge in a meaningful way for beginning coaches. For Raúl: "*These experiences allow for the linking of theoretical concepts to practice and for applying them to real coaching problems. Coaches have to be able to transfer what they have learned in the lectures to their coaching practice*". Further, in Rita's opinion: "*Supervised field experiences are about learning how to do it*", and the presence of more experienced coaches "*Will allow the novice ones to take the first steps in their coaching career, understanding their own evolution and difficulties*" (César).

The participants also argued that expert coaches' involvement in coach education should be formalized: "*Coaches with great experience and knowledge within the sportive community should be involved in the coach education, performing supervision practices for the beginner coaches*" (Rita). Raul added:

Learning requires some guidance in real coaching practice; however to be supervised by someone that is not indeed an experienced and successful coach can

lead to misunderstanding… more than it can lead to replication, as only experi-

enced coaches can give freedom for beginner coaches to be themselves, to ex-

plore their potential in the best way and recognise their major difficulties.

Formal mentoring

Formal mentoring was mentioned as a process that should take place within supervised field experiences promoting learning through reflection and interpretation. César believes that the mentoring process is developed through the:

Presence of someone more experience which will help the less experienced

coaches. Thus, the role of the mentor is to help coaches to expand their coaching

horizons and to develop their own coaching philosophy of training and competi-

tion.

Bernardo added: "*When the tutor provides certain elements for analysis from a particular problematic situation it will allow coaches to think in different ways about what they have seen or heard*". So, through a reflective process new dilemmas are generated, presenting rich opportunities for learning. In Afonso words: "*Coaches must learn to reflect about their own practice, to work with and be guided by more experienced coaches in order to better manage the problems that arise from the practice*".

Within the mentoring process, it was suggested by the expert coaches that questioning is an essential pedagogical tool for beginner coaches, endowing them with the ability to think about the best solutions and options for a given situation. In the words of Afonso:

At this point, it is very important to guide beginner coaches to apply problem-

solving strategies into their practice, helping them to analyse and interpret what

they do and how they do it, as well as the meaning of the results obtained…. for

it is very important to make them questions their experiences. This process offers

them freedom to interpret and make decisions without fear of making mistakes.

Bernardo explained further that:

Questions should have a particular meaning related to their own coaching

problems. This will allow them to recognize the problematic situations and, con-

sequently, to find better solutions according to the specific issues within a par-

ticular moment. Beyond this, coaches need to reflect about their practices at

some distance from the moment when the events took place.

The absence of reflection about coaching activity in a personal and social way prevailed in Bernardo's voice: *"However, in Portuguese coaching education courses, reflection, when existing, is not systematic and only related with technical issues, whilst the personal perspectives of coaches are not considered"* Rita added to this:

This is really not good as to be a coach requires much more than to have profi-

ciency in the sport specific knowledge. Beyond this, it is to generate in the ath-

letes the wish to be the best they can be and to manage the conflicts around

players and other collaborators amongst other things".

2. Courses outside the formal system

The participants recognised the importance of courses outside of formal coach education, where specific issues are considered in order to meet one's particular coaching needs. In this sense, searching for new knowledge to solve specific problems that emerge from everyday coaching activity was highlighted by participants as significant

to building a more individual and specific coach education pathway throughout their coaching career. In Raúl's words: "*It's important to attend specific courses/workshops/clinics chosen by the coach according to the coach's needs throughout his or her career and the problems that emerge from practice*". Cesar added: *"It's only in these courses that specific matters such as strength training or tactical training are addressed in depth, updating the coach's knowledge and responding to the problems that he or she has to deal with"*. Raúl agreed and highlighted its importance by affirming that: "*These kinds of courses (workshops, thematic clinics etc.) are very important because coaches have to be everyday learners, looking at the reasons for their doubts and questions, and deepening their knowledge*". Bernando agreed: *"Coaches must to be aware of their needs and have the motivation to search for what really is most important to learn in each moment of their careers…it gives them more confidence as they can stay updated with important coaching issues"*.

The opportunity to interact and share beliefs, knowledge and experiences between coaches within those courses was voiced by Afonso: "*Workshops are spaces where coaches can learn more, because all the participants can interact with each other, sharing thoughts, professional experiences and strategies"*. Rita highlighted the social facet of these events: "*Its during coffee-breaks, congress dinners or between conferences where coaches usually share ideas and socialize… this is very useful in the development of all the coaches, and not only for the less experienced ones*".

3. **Informal mentoring**

Expert coaches not only mentioned the importance of formal mentoring during coach certification programmes but also the informal mentoring that should take place within the coaching environment. For example, as Raúl emphasised:

When coaches are in their workplace, where everything happens, they often have doubts about what they are doing. However, the fear of showing their doubts often prevents them from talking with other coaches who have more experience and knowledge. This is not good as they remain silent and continue to have the same doubts that create their insecurity and low self-confidence.

The dominant sporting culture in Portugal was identified by the interviewees as the main obstacle for coaches to request guidance and advice from more experienced coaches. As César said:

There is a trend for coaches not to reveal their difficulties, as it is perceived as a sign of being incompetent. It's necessary to change the coaches' mind set showing them that they can be better coaches if they confide in coaches with more knowledge and experience about their insecurities, thoughts and fears.

Rita illustrated the potential advantages of an expert coach helping a beginner coach in an open and friendly way:

The expert coaches have enough security to allow other coaches to say things that are often contrary of their beliefs. It is very important as beginner coaches to feel that they have the opportunity to express their doubts, exposing themselves as a coach and a person.

4. Observing other coaches

Observing other coaches from the same or other sports was emphasized by participants, as they attributed great importance to comparing approaches and developing a wider vision of the coaching process. César believes that: "*Witnessing different types of practice is crucial for any coach's development because it promotes the comparison of practical issues and the analysis of different strategies*". Bernardo went further and commented:

> *The observation of other coaches, from the same or other sports, should be cultivated since coaches will be faced with different coaching approaches of how to recognise and solve problems, which promotes curiosity and leads them to question their own beliefs and knowledge, and gives them the opportunity to generate new concerns and understanding.*

Consistent with this message, Afonso stated:

> *There are many ways to reach success. Coaches usually think that they know the best drills, the best ways to lead players to achieve what they want; however when we observe other coaches new windows are open creating initially some discomfort, something that coaches hate, but then driving them to search for new solutions which are often not the same as those adopted by the other coaches.*

5. Collaborating with expert coaches

Collaborating with more experienced peers in the coaching context was referred to by most of the participants as fundamental for a coach's development. In César's opinion: *"Shadowing someone in their daily life, working and interacting with them, endows less experienced coaches with new and different strategies"*. Furthermore, this

also promotes an increased knowledge as: "*beginner coaches then have someone to observe and analyse*" (Bernardo). Here then, observing other coaches, was emphasized as a main pedagogical strategy for a wider vision of the coaching process. Consistent with this perspective, César believes that: "*Witnessing different types of practice, is crucial for any coach's development because it promotes the comparison of various practice related issues and the analysis of different strategies*". In particular, Raul emphasized the development of social and pedagogical skills as a result of working with experts:

> *To understand what the best coaches do, to see how they handle conflicts, how they motivate their players, how they make them believe in them and perform better… these things can only be observed by shadowing these coaches for periods of time, and by asking questions and sharing ideas.*

6. Doing "Home-work"

The interviewed coaches claimed that coaches should be able to search autonomously for the information required to keep them updated, since coaching constantly requires different solutions to be adopted. So, to learn through specialized books, papers, watching videos related to training and competition issues, or even using the internet was referred to as doing "homework" and reiterated as highly important for the individual growth process. In Bernardo's opinion: "*Coaches have to have the ability to work alone at home, doing 'homework', researching …, meeting their needs and their own goals*". To further emphasise this point, this coach also declared that: "*Reading magazines and journals is as important as attending coach certification programmes, because it demonstrates that people are searching, they are interested in seeking knowledge by themselves, and that is very important*". Moreover, Pedro specified that:

"*Coaches have to watch video games and training sessions; they have to see how things work in other sports*".

Notwithstanding this, the participants criticized the Portuguese coach education approach which attributes significant importance to the formal and mediated education, whilst disregarding the value of the knowledge sources gathered by coaches without external guidance. Afonso went on to explain that:

> *Coaches must recognize that only they know what is more important in each moment, in each situation. Those needs change every time and they must be capable of searching individually for information, making them more proactive and more autonomous… it will make them better leaders knowing the uncertainties, as there are never any absolutely right answers"*.

7. Learning through interaction among coaches

The expert coaches stated that one of the most important strategies to promote craft knowledge and a sustainable development throughout their career is learning through interaction amongst other coaches. As Raúl claimed: "*Coach education has the obligation to promote working groups, where coaches can share ideas, concerns and experiences… it promotes in them the desire to communicate with others"*. Afonso went further saying:

> *Coaches have to change the way they work by moving on from an isolated way to a collaborative way … but for this to work, firstly they must admit that by thinking out loud with others, the best solutions and ideas will be reached.*

In support of this point, Bernardo added:

The honest and open discussions, where coaches focus on sharing idea, instead of showing what they know, is very important because it's in these moments that a step forward is taken in understanding the issues and resolving them as well.

The coaches, therefore, highlighted the need to promote learning through interaction during the early stages in coach education courses, as well as in the actual coaching setting, in order to fully develop their professional knowledge. They believed that this would enable them to share ideas, not be afraid to show their weaknesses and understand that they can become better coaches if sharing is understood as a mission that enables them to learn through and with others. In congruence with this sentiment, Rita said: "*Even during the lower levels of the education courses, coaches should get used to sharing their ideas, fears, beliefs and everything else they have to do when training.*"

However, the interviewed coaches were unanimous in stating that currently, the existing coaching education programmes in Portugal do not provide time or space for these types of interactions and discussions, due to the way they are structured, so:

The future aim is to create situations that promote interaction on a systematic basis…but a step forward is for coaches to be able not only to discuss general issues related to logistical issues and common sense things but to go inside the coaching issues...... (Pedro). *Where coaches have the opportunity to discuss and share openly their doubts and beliefs in a friendly way.* (Rita).

Expert coaches also emphasized learning through interaction among coaches as the best way to improve social skills during their career development. As Bernardo pointed out:

When coaches interact as a group they can discuss their dilemmas and concerns about their coaching practice. Here they could offer insight and analysis to help resolve the big problems, such as conflicts within the team, or the upshot of losing when it is not expected, that sometimes seem to be irresolvable from an individual perspective.

Raúl added that:

Sometimes, in a team there are players that, although performing well, are not achieving their full potential, and the coach is not able to figure out the reason on his own. So, if the coach shares this problem with other coaches they might discover some new solutions together and consequently develop new understanding that might help to solve the problem.

Notwithstanding, the dominant sporting culture where competition prevails over collaboration, as manifested in the Portuguese setting, was pointed out by the interviewees as the main obstacle to improving coaches' development through participation within working groups. Consistent with this, Afonso concluded that:

Coaches often choose to be alone in their own thoughts, and they have real difficulties in showing their weaknesses to the others, as well as their knowledge or tactics. So, the other coaches are seen as enemies, and this may even occur with coaches of the same club.

Still regarding the way that learning through interaction should be developed, some interesting strategies were highlighted by the coaches. For example, Pedro suggested:

The discussion within the group can't lose its focus, and digress… that would only lead to small talk and a dysfunctional conversation. It's important that at least someone, or some of them, can be recognized as more knowledgeable and could lead the conversation and facilitate everyone's participation.

In this sense, Afonso went further, adding that:

It is very important that the most experienced coaches help the others to be open about their ideas, encouraging them to share their thoughts without being afraid of being criticized…it will allow them to establish their position in the group.

Bernardo finished this point by arguing that: "*They need to feel that everything that they think can be said, because this is the only way to expose their position and become more aware of themselves as coaches*".

Finally, the importance of negotiating ideas and beliefs in order to increase learning through interaction was underlined by Afonso:

The problem is that very often when coaches discuss, for example the role of physical training in the game performance, they have their minds already set, not being open to accept other opinions as valid…each coach has his own theories but there are no real absolute truths for success, and contradictions happen... so, coaches have to learn to deal with it, and be capable of being open.

In summing up, Raúl highlighted that: "*They need to truly listen to others, and not isolate themselves…it will help them open their minds, by listening to and considering other perspectives without fear of losing their own position*".

Discussion

The purpose of this study was to analyse the conceptions of Portuguese expert coaches regarding coach learning sources that promote long-term progressive development, and to investigate to what extent they are currently present in the Portuguese coach education curriculum. The exploratory nature of this study meant that the findings should not be generalized. Indeed, the production of a universal notion was not our purpose; rather, it was to stimulate further reflection that can inform coach education practices and future research.

The results highlighted the participants' awareness of the wide variety of learning sources (attached to *mediated* and *unmediated* situations and supported by *internal* learning situations) needed to build coach knowledge, echoing the *acquisition and participation metaphors* of Sfard (1998). The learning sources highlighted by coaches related with the *acquisition metaphor* were certifications courses and courses outside the formal system, corroborating other studies (Bloom, Salmela & Schinke, 1995; Fleurance & Cotteaux, 1999; Werthner & Trudel, 2006; Mesquita et al., 2010). Here, expert coaches voiced a certain amount of dissatisfaction with the current dominant coach education framework utilised in Portugal; a framework which remains extremely didactic and classroom-orientated, resorting mainly to formal and explicit teaching techniques and where individual needs are disregarded. This criticism focused on the promotion of subdividing coach learning into components, (turning it into a fragmented and de-contextualized process) and, consequently, incapacitating beginner coaches to transform theoretical knowledge into craft knowledge.

Considering that applying the *acquisition metaphor* assists learners in understanding and putting into practice the theoretical knowledge (Sfard, 1998), it becomes

extremely important to provide space and time for practitioners to reflect, and to consider individual needs. This position echoes the call to view learning as an active process by which individuals connect new information with prior knowledge in order to reach an understanding. In this process, subjectivity, intentionality and identity (i.e. agency) play a central role (Billett, 2000). For instance, the importance attributed by experts coaches to the "homework" (readings, watching videos, internet sources, etc.) where self-direct learning (Nelson, Cushion & Potrac, 2006) is promoted, reinforces the role of the reflective process in promoting a sustainable long-term coach development. Lyle (2002) argues that reflection appears as principally pertinent in pedagogical activities where practice is complex, applied and contextualised, and in which learning, therefore, requires a high degree of introspection. Therefore, it is evident that only by developing an individual learning system, are coaches able to tackle their own educational needs. This provides them with the opportunity to discover the kind of knowledge that they actually need at a given moment in time and that expresses their personal commitment to coaching.

The panoply of learning sources referred to by the participants where they placed more value on sharing and reflecting upon (their own and others) coaching experiences, emphasised the *participation metaphor* of Sfard's learning conceptualisation. Learning sources such as *vocational training* (promoting experiential learning), *learning through interaction with coaches*, *collaborating with experts*, *observing other coaches and mentoring (informal and formal)* were singled out by the interviewed coaches, confirming a trend already manifested in coaching research (Abraham, et al., 2006; Irwin, et al., 2004; Mallett, Trudel, Lyle & Rynne, 2009; Werthner & Trudel, 2006; Culver & Trudel, 2006; Rynne, Mallett & Tinning, 2010; Jones et al., 2012).

These findings reiterate the importance of promoting situated learning, which brings to light the social settings that influence the construction of the individual as a learner (Lave & Wenger, 1991). In accordance, the participants pointed out the existing gap in Portuguese coach education programmes, accusing the current framework of being heavily driven by theoretical knowledge and neglecting situated learning. Indeed, the absence of vocational training as a curricular unit within Portuguese coach certification courses was emphasized by participants as a strong limitation for coach's learning. This prevents coaches from critically reflecting about the theoretical framework previously acquired in light of their actions, therefore limiting the understanding, inseparability and complementarity of theory and practice.

This is consistent with Jones's (2000) call for developing intellectual and practical competences and creative thinking skills in conjunction with meaning construction and problem solving. In response to this call, the expert coaches stressed the value of supervised field practice during vocational training and the role of the mentor in allowing coaches to have agency. Furthermore, they felt that this should take place within reflective practice, a process that helps coaches examine their decisions developing their understanding and their practices (Anderson, Knowles & Gilbourne, 2004). Here, observing, reflecting and discussing approaches set within real life coaching situations, with the help of other more capable coaches, was seen as a significant way for coaches to reach a deeper understanding about coaching issues, a source already extensively valued in research (Bloom et al., 1995; Cushion et al., 2003; Salmela, 1996; Irwin et al., 2004).

The use of questioning was also highlighted as an essential means to promote long-term progressive development, which allows coaches to be able to create learning

situations on their own. Research in different domains (Fenwick & Parsons, 2000; D. Hammerman, W. Hammerman & Hammerman, 1994; Knight, Guenzel & Feil, 1997; Otero & Graesser, 2001; Sachdeva, 1996; Thomas, 2000; Pereira, Mesquita & Graça, 2010) refers to questioning as an essential instructional tool which improves cognitive efforts, problem solving, creativity and critical thinking.

The particular value given by our coaches to *learning through interaction among coaches* (that takes place within working groups) underlined some important issues that are embodied in the concept of CoPs. Indeed the importance of working groups to share ideas and concerns about coaching in their desire to improve knowledge highlighted by our coaches, is consistent with the CoPs' definition (Wenger, McDermott & Snyder, 2002, p. 4) "a group of people who share a common concern, set of problems, or a passion about a topic and who deepen their knowledge and expertise in the area by interacting on an going basis". Furthermore, participants implicitly voiced the three elements that should exists in effective CoPs, i.e., mutual engagement (tensions and challenges are accepted as common elements of participation), joint enterprise (if the members do not agree on all issues they negotiate, and are not determined by an outside mandate, or by any individual participant) and shared repertoire (the result of mutual engagement and enterprise in their capacity to share significant learning about the coaching subjects) (Wenger, 1998).

As a future step forward, the participants promoted the role of an expert coach, as a facilitator, in the working groups to move less skilled coaches from peripheral participation to central participation, which is also an essential concept of CoPs (Lave & Wenger, 1991). Cassidy, Potrac and McKenzie (2006) and Culver and Trudel (2006) found that the success of coaches' CoPs was largely dependent on the facilitators' work

in developing recognition of its relevance among the participants; what Wenger and colleagues (2002, p. 8) described as "the vitality of the leadership". However, similar to any other social group, the CoPs are not devoid of power relations and consequently may not be particularly welcoming structures, or sharing knowledge enablers (Cushion, 2008; Rynne, 2008). As the coaching environment is often characterized by competition rather than collaboration, as enunciated by the participants of this study, it constitutes for itself a boundary to develop collaborative and situated learning within a CoP framework. Efforts should, therefore, be made in order to alter the dominant coaching culture, where rhetoric and indoctrination legitimate the traditional approaches, preventing advances in coaching knowledge with drastic consequences for coaching practice.

Although rhetorically recognizing the constructivist nature of learning, many supporters of experiential learning have advocated its rather mechanistic implementation in coach education, assuming a similar set of practice situations (usually technically orientated); a position somewhat implicit on the words of this study's expert coaches. Therefore, this approach has largely failed to take into account the coach's differences in perspective, disposition, and capital (Rynne et al., 2010), whilst also overlooking the role of potentially significant others (e.g., mentors) in sustaining such personal critiques of practice. Indeed, the participants' strong reference to situated learning, echoing the social nature that constructs and constitutes the individual as a learner (Wenger, 1998), invokes the need to include interactive experiences within practical contexts in coach education programs.

Undertaking vocational training within the coach education certification courses was explicitly suggested by the coaches in this study, where the role of mentoring to develop reflective practice and, therefore, a more effective education was emphasized.

This would inevitably add cost to coach education (i.e. by extending the courses and employing coach mentors). Notwithstanding this, a coach education model embracing the *acquisition* and *participation metaphors* in a meaningful way, would provide high quality coach development and ultimately better conditions for athlete learning and performance.

It is evident from this study that there is a need to develop greater knowledge-for-understanding in coaching practice, in order to provide a more sophisticated grasp of the complexities of coach learning, thus; "yielding more realistic practical guidance and, ultimately, greater sporting success" (Jones & Wallace, 2005, p. 123). However, this complex portrait is only possible by studying coaches' learning processes within the 'real world' setting. Although some research has already identified the need to better monitor the coaches' engagement within real coaching settings (e.g., Culver & Trudel, 2006; Nelson & Cushion, 2006; Ollis & Sproule, 2007) the work of Jones and colleagues (2012) is one of only a few studies to date that really examines the student coaches' learning within a CoPs framework, a vital area worthy of future research.

Concluding thoughts

Although recent research has made a case for using several learning sources to enhance coaches' knowledge, this has not yet been applied to practice. Indeed, coach educational programmes, namely in Portugal, continue to rely on traditional and classroom-based teaching approaches, prescribing 'one right way' of learning. The results of this study revealed expert coaches' perspectives in relation to utilising a wide range of learning sources; echoing the complementary of the *acquisition* and *participation metaphors* when designing a rationale for coach education.

Coaches' statements externalized a constructivist learning conception for coach education invoking the importance of a set practical experience, alongside the taught programme as essential in promoting sustainable, long-term coach development. Perhaps then, a gap in coach education has been the imposition of a set of coaching ideals upon coaches whose challenges are always unique, as opposed to taking greater account of their social and experiential learning. Therefore, the case made here is that coach education courses need to adjust their programmes and offer the learners a variety of learning experiences in order to encourage more critical and creative practitioners. Rather than emerging in separate contexts, these varied learning opportunities should be linked in a constant and mutual interaction and influence. Thus, theoretical knowledge must be framed in practice contexts, where learners have the opportunity to learn though the active adaptation of their existing knowledge in response to real and situated coaching demands.

Recommendations for further research include moving beyond perceptions and opinions, and exploring how learning can be optimized in coaching contexts, connecting theoretical knowledge with practical needs and examining how situated learning can be explored. Here, in-situ experiences may contribute to further construct and evaluate coaches' learning when embedded in 'communities of practice', as a means of addressing the issue of maximising coaches' experiential learning (Culver & Trudel, 2006). Major interest is also placed in exploring how tensions and conflicts, resulting from group demands and individual needs, are solved within CoPs, since learning is essentially an experience of identity (Wenger, 1998).

Acknowledgments

References

Abraham, A., Collins, D., & Martindale, R. (2006). The coaching schematic: Validation through expert coach consensus. *Journal of Sports Sciences, 24*(6), 549-564.

Anderson, A., Knowles, Z. & Gilbourne, D. (2004) Reflective practice for applied sport psychologists: a review of concepts, models, practical implications and thoughts on dissemination, *The Sport Psychologist,* 18, 188–201.

Billett, S. (2000). Guided learning at work. *Journal of Workplace Learning, 12*(7), 272-285.

Bloom, G., Salmela, J., & Schinke, R. (1995). Opinion des entraîneurs experts sur la formation des aspirants entraîneurs. *Sport* 38(3), 46-51.

Busen, N.H., & J. Engebretson. (1999). Mentoring in advanced practice nursing: The use of metaphor in concept exploration. *The Internet Journal of Advanced Nursing Practice 2*, no. 2.
http:// www.ispub.com/ostia/index.php?xmlFilePath1∕4journals/ijanp/vol2n2/mentoring.xml

Cassidy, T., Potrac, P., & McKenzie, A. (2006). Evaluating and reflecting upon a coach education initiative: the coDe of rugby. *The Sport Psychologist*(20), 145-161.

Côté, J., & Sedgwick, W. (2003). Effective Behaviors of Expert Rowing Coaches: A Qualitative Investigation of Canadian Athletes and Coaches. *International Sports Journal, 7*, 62-77.

Culver, D., & Trudel, P. (2006). Cultivating coaches' communities of practice: developing the potential for learning through interactions. In R. Jones (Ed.), *The Sports Coach as Educator: Re-conceptualising sports coaching* (pp. 97-112). London: Routledge.

Cushion, C. (2008). Re-visiting coach behaviour: How effective is your coaching

practice?   Retrieved 05-09-2011, from http://www.sports-

media.org/index.php?option=com_content&task=view&id=12&Itemid=2

Cushion, C., & Denstone, G. (2011). Etienne Wenger: Coaching and communities of

practice. In R. L. Jones, P. Potrac, C. Cushion & L. T. Ronglan (Eds.), *The

Sociology of Sports Coaching*. Oxon: Routledge.

Cushion, C., Armour, K., & Jones, R. (2003). Coach education and continuing

professional development: Experience and learning to coach. *Quest, 55*, 215-230.

Cushion, C., Armour, K., & Jones, R. (2006). Locating the coaching process in practice:

models 'for' and 'of' coaching. *Physical Education and Sport Pedagogy, 11*(1), 83-

99.

Cushion, C., Nelson, L., Armour, K., Lyle, J., Jones, R., Sandford, R., et al. (2010).

Coach Learning & Development: a Review of Literature. Leeds, United Kingdom:

Sports Coach UK.

Erickson, K., Bruner, M., MacDonald, D., & Côté, J. (2008). Gaining Insight into

Actual and Preferred Sources of Coaching Knowledege. *International Journal of

Sports Science & Coaching, 3*(4), 527-538.

Erickson, K., Côté, J., & Fraser-Thomas, J. (2007). Sport Experiences, Milestones, and

Educational Activities Associated with High-Performance Coaches' Development.

The Sport Psychologist, 21, 302-316.

Fenwick, T., & Parsons, J. (2000). *The art of evaluating adult learners: A handbook for

educators and trainers*. Toronto, Ontario: Thompson

Fleurance, P., & Cotteaux, V. (1999). Construction de l'expertise chez les entraîneurs

sportifs d'athlètes de haut-niveau français. *Avante, 5*(2), 54-68.

Gilbert, W., Côté, J., & Mallett, C. (2006). Developmental Paths and activities of

Successful Sport Coaches. *International Journal of Sports Science & Coaching,*

1(1), 69-76.

Gilbert, W., & Trudel, P. (1999). An Evaluation Strategy for Coaching Education

Programs. *Journal of Sport Behavior, 22*(2), 234-250.

Gilbert, W., & Trudel, P. (2001). Learning to coach through experience: Reflection in

model youth sport coaches. *Journal of Teaching in Physical Education, 21*, 16-34.

Glaser, B., & Strauss, A. (1967). The Discovery of Grounded Theory: Strategies for

Qualitative Research. Available from

http://books.google.pt/books?id=tSi7KiOHkpYC&printsec=frontcover&dq=the+d

iscovery+of+grounded+theory&source=bl&ots=pUTbwlH14W&sig=9fjjqNpDU

VuJrLIGHKr043mzOrE&hl=pt-PT&ei=Oa6XS--

8JouG4Qbw6oXnCg&sa=X&oi=book_result&ct=result&resnum=1&ved=0CA0

Q6AEwAA#v=onepage&q=&f=false

Gould, D., Giannani, J., Krane, V. & Hodge, K. (1990) Educational needs of the elite

US National, Pan-American and Olympic Coaches, *Journal of Teaching in*

Physical Education, 9, 332–344.

Hammerman, D.R., Hammerman, W.M., & Hammerman, E.L. (1994). *Teaching in the*

outdoors. 4th edition. Interstate Publishers, Danville, Ill.

Irwin, G., Hanton, S., & Kerwin, D. (2004). Reflective practice and the origins of elite

coaching knowledge. *Reflective Practice, 5*(3), 425-442.

Jones, R. (2000). Towards a sociology of coaching. In R. Jones & K. Armour (Eds.),

The sociology of sport: theory and practice (pp. 33-43). Harlow: Longman.

Jones, R. (2007). Coaching redefined: An everyday pedagogical endeavour. *Sport, Education and Society, 12*(2), 159-174.

Jones, R., Armour, K., & Potrac, P. (2004). Sports Coaching Cultures: From Practice to Theory. Available from http://books.google.pt/books?id=Epf-j1HCt9gC&printsec=frontcover&dq=Sports+Coaching+Cultures:+From+Practice+to+Theory&source=bl&ots=zcLZuxGhbb&sig=FXB1sPzTyA7QzhSKYc1JSk5e wqA&hl=pt-PT&ei=_HvhS7qRGcTr-AbEt_jcDg&sa=X&oi=book_result&ct=result&resnum=2&ved=0CBQQ6AEwA Q#v=onepage&q&f=false

Jones, R., Harris, R., & Miles, A. (2009). Mentoring in sports coaching: a review of the literature. *Physical Education and Sport Pedagogy, 14*(3), 267-284.

Jones, R., Morgan, K., & Harris, K. (2012). Developing coaching pedagogy: Seeking a better integration of theory and practice. *Sport, Education and Society, 17*(3), 313-329.

Jones, R. & Turner, P. (2006). Teaching coaches to coach holistically: can Problem-Based Learning (PBL) help? *Physical Education and Sport Pedagogy, 11*(2), 181-202.

Jones, R., & Wallace, M. (2005). Another bad day at the training ground: coping with ambiguity in the coaching context. *Sport Education and Society, 10*, 119-134.

Knight, G. W., Guenzel, P. J., & Feil, P. (1997). Using Questions To Facilitate Motor Skill Acquisition. *Journal of Dental Education, 61*(1), 56-65.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Lemyre, F. & Trudel, P. (2004) Le parcours d'apprentissage au rôle d'entraîneur bénévole. *Avante* 8(2), 40-55.

Lyle, J. (2002). *Sports coaching concepts: a framework for coaches' behaviour*. London: Routledge.

Mahoney, M.J., Constructivism and Positive Psychology, in: Snyder, C.R. & Lopez, S.J., eds., *Handbook of Positive Psychology*, Oxford University Press, New York, 2002, 745-750

Mallett, C., Trudel, P., Lyle, J., & Rynne, S. (2009). Formal vs. Informal Coach Education. *International Journal of Sports Science & Coaching, 4*(3), 325-334.

Marshall, D. 2001. Mentoring as a developmental tool for women coaches. *Canadian Journal for Women in Coaching*, 2, no. 2: 1–10.

McCormick, R., & Murphy, P. (2000). Curriculum: a focus on learning. In B. Moon (Ed.), *International Companion of Education* London: Routledge.

Mesquita, I., Isidro, S. & Rosado, A. (2010). Portuguese coaches' perceptions of and preferences for knowledge sources related to their professional background, *Journal of Sports Science and Medicine*, 9, 480-489.

Moon, J. (2004). *A handbook of reflective and experiential learning: theory and practice.* London: RoutledgedFalmer.

Nelson, L.J., & Cushion, C.J. (2006). Reflection in coach education: The case of the national governing body coaching certificate. *The Sport Psychologist*, 20, 174-183.

Nelson, L.J., Cushion, C.J. & Potrac, P. (2006) Formal, Nonformal and Informal Coach Learning: A Holistic Conceptualisation. *International Journal of Sports Science and Coaching*, 1, 247-259.

Ollis, S., & Sproule, J. (2007). Constructivist Coaching and Expertise Development as Action Research. *International Journal of Sports Science and Coaching, 2*(1), 1-14.

Otero, J., & Graesser, A. C. (2001). PREG: Elements of a Model of Question Asking. *Cognition and Instruction, 19*(2), 143-175.

Patton, M. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks: Sage.

Pereira, F; Mesquita, I. & Graça, A. (2010). Relating content and nature of information of teaching volleyball approaches in youth volleyball training settings. *International Journal of Fundamental and Applied Kinesiology*, 42 (2), 121-133.

Roberts, A. 2000. Mentoring revisited: A phenomenological reading of the literature. *Mentoring and Tutoring: Partnership in Learning*. 8, no. 2: 145–169.

Rynne, S. (2008). Claryfing the concept of Communities of Practice in Sport: a commentary. *International Journal of Sports Science & Coaching, 3*(1), 11-14.

Rynne, S., Mallett, C., & Tinning, R. (2010). Workplace learning of high performance sports coaches. *Sport, Education and Society, 15*(3), 315-330.

Sachdeva, A. K. (1996). Preceptorship, mentorship, and the adult learner in medical and health sciences educations. *Journal of Cancer Education, 11*(3), 131–135.

Salmela, J. (1996). *Great job coach! Getting the edge from proven winners*. Potentiun, Ottawa, Canada.

Sawyer, R. (2006). *The Cambridge Handbook of the Learning Sciences*, Cambridge University Press, New York.

Scanlan, T., Ravizza, K., & Stein, G. (1989). An in-depth study of Former Elite Figure
    Skaters: I. introduction to the project. *Journal of Sport & Exercise Psychology,*
    11(1), 54-64.

Schön, D. (1983). *The reflective practitioner: how practitioners think in action.* San-
    Francisco, Harper Collins.

Schön, D. (1987). *Educating the reflective practitioner.* San Francisco: Jossey-Bass.

Sfard, A. (1998). On Two Metaphors for Learning and the Dangers of Choosing Just
    One. *Educational Researcher, 27*(2), 4-13.

Strean, W., Senecal, K., Howlett, S., & Burgess, M. (1997). Xs and Os and What the
    Coach Knows: Improving Team Strategy Through Critical Thinking. *The Sport*
    Psychologist, 11, 243-256.

Tesch, R. (1990). Qualitative Research: analysis types & software tools. In
    RoutledgeFalmer. (Eds.) Available from http://www.google.com/books?hl=pt-
    PT&lr=&id=SEpl7643WE0C&oi=fnd&pg=PA1&dq=Tesch%2Bqualitative+anal
    ysis&ots=QaOxaTGG2a&sig=_pFxn0hyXGFx_zZjE0OCUGBdl0o#v=onepage&
    q&f=false

Thomas, P. (2000). On the art of questioning. *Horizon*, 27, 1-3.

Trudel, P., & Gilbert, W. (2006). Coaching and coach education. In D. Kirk, D.
    Macdonald & M. O'Sullivan (Eds.), *The Handbook of Physical Education.*
    London: SAGE Publications Ltd.

Wenger, E. (1998). *Communities of practice: learning, meaning and identity.*
    Cambridge, UK: Cambridge University Press.

Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice:*
    A guide to managing knowledge. Boston: Harvard Business School Press.

Werthner, P., & Trudel, P. (2006). A New Theoretical Perspective for Understanding

How Coaches Learn to Coach. *The Sport Psychologist, 20*, 198-212.

Wright, T., Trudel, P., & Culver, D. (2007). Learning how to coach: the different

learning situations reported by youth ice hockey coaches. *Physical Education and

Sport Pedagogy, 12*(2), 127-144.