Full-text available free of charge at http://journal.lspa.lv/
All papers are reviewed

CONTENTS

Introduction to Special Issue:
Sport Coaches' Development

Dr. Pierre Trudel & Dr. Diane Culver, Guest Editors
University of Ottawa, Canada

Dr. Juris Grants, Editor
Latvian Academy of Sport Education, Latvia

Welcome to this special issue of LASE Journal of Sport Science on "sport coaches' development". In April 2017, the Baltic Sport Science Society (BSSS) held in Riga, Latvia, its 10th Baltic Sport Science Conference "Multiplicity of Sport Science in Practice". I (Pierre Trudel) was invited to make a presentation whose title was "Sport coaches' development: It is time to be creative and innovative". During my stay in Latvia, I had the chance to talk with several researchers and graduate students about the training of sports coaches. In a discussion with Dr. Juris Grants, editor of the LASE Journal of Sport Science, I mentioned that there is currently a fad on the part of researchers regarding the topic of sport coaches' development. We therefore agreed that it would be appropriate to continue sharing knowledge by publishing a special issue and I accepted to be a guest editor.

I asked my colleague Dr. Diane Culver to join me in this adventure. Together we agreed that, instead of having a call for papers, we would solicit specific colleagues with the knowledge of what they might contribute. In this way, it would be lead to a common thread between the articles and thus continue the discussion that begun at the conference. Each article went through a review process. The editors made a first reading to ensure the rigor and that the link with the development of coaches was evident. Subsequently, the article was evaluated by other researchers, the authors made the suggested / needed changes and then returned their article to the editors for final proofreading. When possible, we asked the authors to extend their review of literature so that readers might access the work of several of the key researchers in the coach development/learning field. The special issue includes a short introduction, three original research articles, two review articles and two short communication articles.

In the first article, Milistetd and colleagues provide an overview of the main learning episodes of sport coaches' development and the roles played by different people to support and facilitate their learning. Especially for high performance coaches, they suggest the introduction of a new actor, the 'Personal Learning Coach' (PLC). Subsequently, they present the key principles and characteristics of narrative coaching, a relatively new

personal coaching approach. This is followed by an example illustrating the procedure and content of 23 weeks of narrative coaching with a tennis coach.

In the second article, Rodrigue and Trudel present reflective cards (r-cards) as a tool to help coaches to reflect on their coaching. After a brief review of literature on reflective cards, they provide information on how a coach (Rodrigue) has developed and adapted r-cards to his coaching context and how he has used them to reflect on 46 events (games and practices). They conclude by discussing the benefits and challenges of using r-cards.

In the third article, Mouchet and Maso discuss the limitations of actual approaches employed to help coaches to reflect on their practice. They argue that psychophenomenology and 'explicitation interviews' as promoted in France by Vermersch (1994, 2012), can offer new perspectives and opportunities for coach education by developing the analysis of the subjective lived experience. Following a 'spiral training approach', the researchers worked with eight elite rugby coaches on their half-time speeches.

The fourth and fifth articles are review articles. Duarte and colleagues introduce the reader to the disability sport context in Canada and provide an overview of recent studies that have examined Parasport coach development from the perspectives of coaches in this country. Their paper ends with recommendations for Parasport coach developers. Roy and colleagues, using a deep review of literature, provide definitions and models related to planning and monitoring athletes' training. Then they present the results of a case study on coaches' experience of participating in workshops that teach how to plan athletes' training. They conclude their article suggesting an approach to teaching planning and training that is based on reflective practice and critical thinking.

The last two articles are short communication articles by Cardinal and Isidori. Cardinal provides a discussion on 'how to teach techniques and tactics in team sports'. Isidori presents a book review, *Sports Psychology: Theory and Practice* by Agita Ābele.

Reviewers for this Special issue

Dr. Juris Grants, Latvian Academy of Sport Education, Latvia

Members of the Research Group for Coach Development lab at the University of Ottawa, Canada:
- Professors: Dr. Diane Culver, Dr. Pierre Trudel
- Doctoral students: Tiago Duarte, François Rodrigue, Cassandra Seguin, Erin Kraft, Maji Shaikh
- Masters' students: Heather McManus, Megan Donovan, Iman Hassan

Dr. Martin Roy, Sherbrooke University, Canada

Dr. Rolf Carlson, Swedish School of Sport and Health Sciences, Sweden

Dr. Johnny Nilsson, Dalarna University, Sweden

ORIGINAL RESEARCH PAPER

NURTURING HIGH-PERFORMANCE SPORT COACHES' LEARNING AND DEVELOPMENT USING A NARRATIVE-COLLABORATIVE COACHING APPROACH

Michel Milistetd[1], [2]Luiz Peniza, [3]Pierre Trudel, [3]Kyle Paquette

[1]Federal University of Santa Catarina, Brazil,
[2]ADK Tennis Center, Brazil
[3] University of Ottawa, Canada
E-mail: michel_canhoto@hotmail.com

Abstract

For several years, sport coach education has meant the development of specific training programs and subsequent certifications. Given the phenomena of globalization and advances in technology, it is now easy to gain access to a vast amount of information that is constantly being updated. This has a significant impact on education in general, including the sporting world. In this article, we present, using the literature, coach education and development as a lifelong learning journey, and we highlight who are the key people to help/support coaches in their learning journey. Then we focus on a new actor; a coach of coaches we call the 'Personal Learning Coach'. By using a narrative coaching approach, we argue that personal learning coaches can offer the sport coaches a safe and demanding environment for a co-creation of knowledge. We conclude the article by presenting a case study in which we describe the coaching conversations between a high-performance tennis coach and his personal learning coach over a period of six months.

Keywords: *Sport Coaching; Learning; Coach development*

Introduction

It is well recognised that learning is a very complex process that cannot be explained by only one theory (Illeris, 2009; Jarvis, 2006). Similarly, the complexity of sport coaching continues to permeate the literature, and the growing supporting cast within the high-performance

coaches' (HPC) environment is an indicator of the need for many different sport specialists to help the HPCs navigate this complex landscape (Buchheit, 2016; Cushion, Armour, & Jones, 2006; Keogh, 2011). From these perspectives, it can be extrapolated that learning how to coach, specifically for HPCs, cannot be limited to the usual formal sport coach education programs (He, Trudel, & Culver, 2018), but should instead be seen as a lifelong learning journey (Trudel, Culver, & Richard, 2016; Van Mullem & Dahlin, 2017; Watts & Cushion, 2017). This journey is idiosyncratic given that learning is an individual process that occurs in a multitude of social contexts (Werthner & Trudel, 2009) and is often guided by different significant others. These social contexts and the elements surrounding all aspects of life are now being influenced by the constant and rapidly changing world around us (Watkins, 2016); therefore people are "increasingly confronted with the question of how to manage differences in perceptions" (Stelter, 2014a, p. 15). In this hyper-complex society, personal coaching such as life coaching, team coaching, career coaching and so on (Cox, Bachkirova, & Clutterbuck, 2010) has the potential to create a learning environment where clients have access to a safe space to reflect on what they do, which in turn provides them with an intriguing opportunity to advance their learning and development (Cox, 2013; Stelter, 2014a). Although personal coaching has gained in popularity in many sectors, such as business, health, and education (Cox et al., 2010; Law, 2013), we will argue that it has not yet found a foothold in the context of sport and more specifically with sport coaching (Stelter, 2014b).

The goals of this article are to describe the main characteristics of a specific type of personal coaching (narrative coaching) and then to present its application in the case study of a tennis HPC. The article is divided into three main sections. First, we will provide an overview of the main learning episodes of sport coaches' development and the roles played by different people to support and facilitate their learning. This will culminate with the presentation of a new actor, the 'Personal Learning Coach' (PLC). Second, we will present key principles and characteristics of narrative coaching, a relatively new personal coaching approach which to our knowledge has been used in only one study in the sport context (Stelter, 2014b). Third, we will provide some parts of the coaching conversations the PLC and the HPC had over a period of 23 weeks to illustrate the type of interactions afforded through narrative coaching.

Sport Coaches' Development: A Lifelong Learning Journey

In Figure 1, we present our attempt to map the main components of coaches' lifelong learning journeys, including the different people that might influence the quality of one's journey by facilitating learning. Like a

map, it does not attempt to provide an exact reference for the landscape and all its specificities within the territory illustrated; we recognise that more nuances and details could be added. Also, as much as we have tried to enhance the design and visual presentation of the map to simplify it and increase its clarity for the readers, the truth is the learning journey to and through coaching is messy and does not always fit nicely into well-justified boxes of coherent ideas and concepts (Cushion et al., 2006).
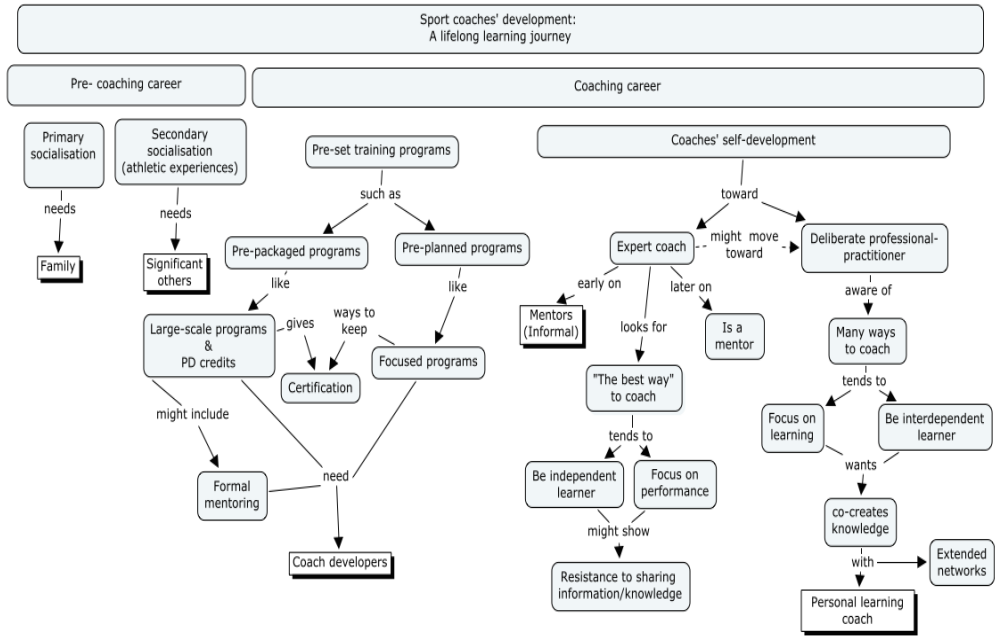
Figure 1. Sport coaches' development journey

As presented on the map, several groups of significant people facilitate the learning journey, including family, significant others, coach developers, mentors, and personal learning coaches. To help understand when and how these people can best contribute to the learning journey, you can see the map is divided into two broad periods: pre-coaching career and coaching career. Within pre-coaching career, researchers have found that life experiences within the family (i.e., *primary socialisation*) allow for the development of key values that will influence the coaches' coaching approaches (Callary, Werthner, & Trudel, 2011a; Duarte & Culver, 2014). Next, experiences outside of the family (i.e., *secondary socialisation*), and particularly experiences as an athlete, will also influence how coaches will coach. Within the first year of coaching in particular, it has been shown that coaches will try to either model or avoid replicating the behaviours of

significant others such as parents, teachers, and coaches (Fraser-Thomas, Côté, & Deakin, 2005; Harwood & Knight, 2009; Rynne & Mallett, 2014).

The transition from pre-coaching to coaching can be planned or unplanned (Barker-Ruchti, Lindgren, Hofmann, Sinning, & Shelton, 2015), and contrary to many other professions, coaches will often be already coaching when asked or required to complete a coach education program (Trudel et al., 2016). For Tsang (2013, p. 33): "Whereas a lot of learning takes place in everyday life without deliberate instruction, training, or coaching, very often individuals need a more systematically designed program of learning in order to meet their specific needs". The attempt to make coaching a profession has given more importance to coach education programs and the certifications (Duffy et al., 2011) needed to be allowed to coach. Because these programs are developed by a group of specialists and then implemented, they can be called the *pre-set training programs* (Tsang, 2013) and divided into two types. The *pre-packaged programs* are designed on the assumption that all coaches at a specific coaching level (e.g., recreational, developmental, elite/high-performance) have the same needs (Trudel & Gilbert 2006). With these large-scale coach education programs, coaches are expected to learn the basic elements of the best coaching practices – there is no need to reinvent the wheel. If the number of coaches to train is not too high, a formal mentoring process might be offered (Callary, Werthner, & Trudel, 2011b; Koh, Bloom, Fairhurst, Paiement, & Kee, 2014). Alternatively, rather than focusing on the training of all coaches, *pre-planned programs* are generally composed of modules delivered to a specific group of coaches about specific coaching topics given identified or suspected gaps between the coaches' actual competencies and those of 'ideal coaches'.

In an effort to maximise the quality of these pre-set training programs, we have seen in the last decade numerous attempts to better define the role and develop training programs for those who design, deliver, and assess coaches' competencies/knowledge in these programs – often called coach developers or coach educators (e.g., Abraham, Collins, Morgan, & Muir, 2009; Nippon Coach Developer Academy, NCDA/International Council for Coaching Excellence; North, 2010; Werthner, Culver, & Trudel, 2012; see also International Sport Coaching Journal, 2015, 2(3)). In this area of the map, coach developers play a significant role in facilitating the learning journey of coaches.

Given the impact of globalization and new technology on the production and accessibility of information (Hawkins & Smith, 2013; Trede & McEwen, 2016), the certifications achieved by coaches following the completion of pre-set programs attest only to coaches' competencies at a

specific moment in the past (Rodrigue, He, & Trudel, 2016). The answer to 'What's next after the pre-set programs?' will depend on the coaches' initiative to take charge of their own development which will be influenced by many factors, such as coaching level (i.e., recreational, developmental, and elite, Trudel & Gilbert, 2006), coaching environment (i.e., administration's support, Rocchi & Pelletier, 2017; Rynne, Mallett, & Tinning, 2010), and the coaches' biography (i.e., previous experience, approach to learning, motivation, aspiration, etc., Allen & Shaw, 2013; Trudel et al., 2016).

At the end of the 20th century and the beginning of the 21st century, expertise in coaching was a key concept in the high-performance sport system. Searching out what expert coaches knew and/or were doing was a primary strategy to get the material to structure and design sport coaches' education programs (e.g., Abraham, Collins, & Martindale, 2006; Cooper & Allen, 2017; Ford, Coughlan, & Williams, 2009; Leite, Coelho, & Sampaio, 2011). Unfortunately, it is not easy to define an 'expert coach' (Lemyre, Trudel, & Durand-Bush, 2007; Nash, Martindale, Collins, & Martindale, 2012) given that coaching expertise involves a process of becoming without a clear learning path (Lara-Bercial & Mallett, 2016). However, it can be said that early in this process coaches will often benefit from a person with coaching experience who they can contact when they need advice (Stephenson, & Jowett, 2009; Young, 2013). There is not a clear definition of mentoring in the literature (Haggard, Dougherty, Turban, & Wilbanks, 2011) and much less within the context of sport (Jones, Harris, & Miles, 2009). In a recent publication on mentoring for sport coaches Bloom (2013, p. 477) offered a definition that we believe reflects very well how most actors in the sport system would define a mentoring process:

> Most experts would agree that mentoring involves a non-familial and non-romantic relationship between an experienced person and a less experienced person in their field, where the former has more influence and is conscious of it. It involves a relationship between a mentor and his/her protégé where the former has a direct influence in the development of the latter and personally commits his/her time for the other's personal growth and development.

Mentoring programs can be formal or informal, but the latter seems to be more frequent and provides better results as it relates to coach learning (White, Schempp, McCullick, Berger, & Elliott, 2017), that is if the mentoring process does not simply reinforce common sport knowledge (Olsson, Cruickshank, & Collins, 2017). Later in their careers, expert coaches might play the role of mentor which if it is done right can contribute to their own learning (Brasil, Ramos, Milistetd, Culver, &

Nascimento, 2017; Cushion, Armour, & Jones, 2003; Fairhurst, Bloom, & Harvey, 2017).

In many sport organizations, there is an expectation that their HPC(s) will possess and model what is considered at time to be 'best coaching practices'. Moreover, "debriefing after the Games or other major championships and then planning for the next edition are a primary responsibility of national athletics federations and their personnel, particularly the Chief Coach or Performance Director" (Dick, 2012, p. 25). Often working in an 'urgency of winning' climate (Mallett, Rossi, Rynne, & Tinning, 2016), coaches have to perform or at least demonstrate they know 'the' best way to coach. Furthermore, in such a highly competitive environment, HPCs might feel alone (Olusoga, Butt, Hays, & Maynard, 2009), which can increase the tendency to become an independent learner in their pursuit of expertise resulting in them looking for or stealing information that matches their coaching approach (Stoszkowski & Collins, 2014) while showing resistance to share what they know (Collins, Abraham, & Collins, 2012; Mallett et al., 2016).

The concept of expert/expertise has recently been challenged by different authors: "While expertise is an important aspect of excellence in any creative discipline, one risk of being a seasoned pro is that we become so entrenched in our own point of view that we have trouble seeing other solutions" (Kaufman & Gregoire, 2015, p. 95); "However, expertise implies a kind of rigidity. If your cup is full, it cannot accept more water" (Hoque, 2014, p. 7); "Although you don't realize it, limiting personal biases are likely to influence your approach. Because you tend to assume that your judgments are correct, you're not likely to test your views against objective data or differing viewpoints" (Joiner & Josephs, 2007, p. 45); "Individual expertise did not distinguish people as high performers. What distinguished high performers were larger and more diversified personal networks." (Hart, 2014, p. 28). To be clear, the point here is not to say that expert coaches and mentors should be avoided. Their reservoir of knowledge is essential for good decision-making and to provide advice when supporting others (Nash & Sproule, 2009). However, in a world characterised by ever-increasing volatility, uncertainty, complexity, and ambiguity (VUCA; Kegan & Lahey, 2016; Watkins, 2016), "we no longer have access to knowledge that offers immediate answers to the challenges we are facing…It has become difficult to offer firm directions for actions and decision-making" (Stelter, 2014a, p. 3). Thus, to be a successful HPC, coaches must have/develop a mindset characterised by openness to diversity and flexibility (Trudel, Gilbert, & Rodrigue, 2016). In brief, they should move along a continuum from 'less-expert' to 'more-expert' (Schempp & McCullick, 2010; Turner, Nelson, &

Potrac, 2012). To do so, we argue that a special learning environment must be developed – an environment where coaches will not be told what they should do (pre-set programs) or guided by knowledgeable experts telling them the right direction (formal/informal mentoring) for performance (i.e., learning just in case, Collins et al., 1997). Instead, the coaches should enjoy a safe and challenging environment where they have the latitude to learn how to be better in their actual coaching environment (i.e., learning just in time). This environment should be a response to "a need for more critically transformative learning environments that challenge coaches' long-held beliefs and unpacks coaches' taken-for-granted assumptions" (Townsend & Cushion, 2017, p. 542).

For Trede and McEwen (2016), deliberate professionals/practitioners "are continuous learners who question their own assumptions and beliefs, they are also curious of other's beliefs and work towards finding common ground and shared understanding." (p.8), and they "aspire to learning more than mastering measurable knowledge and skills; they also aspire to acquiring the means to support their need for perspective, value and meaning-making through a lifelong journey of learning and change" (p.9). As deliberate professional practitioners, coaches will recognise that there are many ways to coach and their actual approach is but one of them and can be improved. Thus, coaches will tend to focus on learning and will recognise the importance of being an interdependent learner by interacting with others to receive and share information (Kegan & Lahey, 2016; Rynne & Mallett, 2014). To fulfill their need to self-develop, coaches will deliberately interact with different people to co-create knowledge, which implies an extended network: "…,within a multiple mentor approach, mentors recommended that mentees use a variety of mentors, including cross-sports and non-sport mentors" (Sawiuk, Taylor, & Groom, 2017, p. 403). However, "despite the acknowledged utility of learning from others, all coaches reported some sense of isolation in their learning" (Mallett et al., 2016, p. 36). Therefore, we propose a new actor to help those HPCs who deliberately want to maximise their learning from their actual coaching practice. We name this new actor 'Personal Learning Coach' (PLC).

Narrative Coaching

There are many types of personal coaching approaches based on different theories (see Cox et al., 2010 for an overview). For Stelter (2014a), the evolution of personal coaching can be described through three generations. In the first generation, the role of the personal coach is "to help the coachee address his or her particular challenges and problems in order to achieve specific goals and develop action strategies" (p. 51). The second

generation is based on positive psychology and the function of the personal coach is to intervene "to generate positive future scenarios with a strong focus on existing resources and strengths that the coachee already possesses, and which the coachee should be able to build on" (p. 52). The third generation of coaching, which includes narrative coaching, is based on the psychology of learning and the role of the personal coach is not merely a facilitator but a 'fellow human companion' that "shares his or her considerations and reflections with the coachee in order to serve as a witness and co-creator in the dialogue. The coaching conversation can be described as a co-creative and collaborative process" (p. 52). The three researchers who have strongly influenced the development of narrative/narrative-collaborative coaching are David Drake, Ho Law, and Reinhard Stelter (Drake, 2010, 2015; Drake & Stelter, 2014; Law, 2013; Stelter, 2014a, 2016; Stelter & Law, 2010). In Table 1, we present some quotes extracted from these authors' publications to give an overview of narrative coaching.

While there are many ways to define coaching, Stelter (2014a, p. 8) proposed this definition of narrative-collaborative coaching:

> Coaching is described as a developmental conversation and dialogue, a co-creative process between coach and coachee with the purpose of giving (especially) the coachee a space and an opportunity for immersing him/her in reflection on and new understanding of 1) his or her own experiences in the specific context and 2) his or her interactions, relations and negotiations with others in specific contexts and situations. This coaching conversation should enable new possible ways of acting in the contexts that are the topic of the conversation.

Table 1

Extracts from key authors of the narrative/narrative-collaborative coaching

1. "A coaching agenda that focuses exclusively on goals and quick solutions will fail to meet the needs of postmodern, late modern and hypercomplex societies, where the challenges and demands on the individual are changing very rapidly" (Stelter, 2016, p. 48)
2.   This third generation of coaching is based these main arguments: "1. Coaching as a reflective space; 2. Coaching as a process of meaning making; and 3. Coaching supporting reflective and value-based leadership" (Stelter & Law, 2010, p. 155)
3. "…third-generation coaching has a less clear and goal-oriented agenda but is hopefully more in-depth and sustainable, as coach and coachee create something together where meanings are co-created during the conversation, where both parties partake in a journey, and where new stories gradually take shape" (Stelter, 2014a, p. 10-11)

4. "It is a journey into the unknown, where neither the coach nor the coaching partner clearly knows the destination or the route. It is a journey of discovery into relatively unknown territory, where both parties are travel companions, and neither knows anything for sure about the road ahead" (Stelter, 2016, p. 64)

5. "Narrative coaching is one of the few coaching methodologies with an explicit learning and development component build into the model. It is an integrative process in which learning, development, and performance are intimately linked and simultaneously supported to create more sustainable change" (Drake, 2015, p. 71)

6. "The coaching conversation can be described as a co-creative and collaborative process, where the coach and coachee are both experts in their respective domains and, at the same time, not-knowing at the beginning of the conversation. The knowledge that is generated emerges between them in a dialogue process that gives rise to something new for both of them" (Stelter, 2014a, p. 52)

7. "Coaching is a dialogue form that provides a special framework for developmental and self-reflective conversations,… dialogue should be understood as a conversation where the participants explore each other's assumptions, thoughts, opinions, and perceptions of the world…In a dialogue, one does not attempt to persuade the other but instead seeks to listen and accept differences in perspectives that may enrich one's own position." (Stelter, 2014a, p. 45)

8. "…learning is essentially a process that always starts from specific experiences in a concrete social and material environment. This process builds on two interrelated dimensions: 1. Individual meaning making; 2. Social interaction – co-creation of meaning" (Law, 2013, p. 42)

Example of a sport coach's learning episode with a 'Personal Learning Coach'

In this section of the article we provide an example of how principles of narrative coaching have been used during a six-month learning episode for a HPC in tennis. The format used to present and discuss the results is slightly different from what we generally find in scientific journals. The main reason is the nature of the relationship that suggests "a move *away from intervention* and towards seeing coaching as an *interaction*; a position that highlights the collaborative nature of the dialogue" (Stelter, 2016, p. 59). As mentioned before, narrative coaching is a flexible approach where two actors can be involved in a process of co-creation of knowledge. In the following, we will first provide details about the dyad: Michel, the PLC and first author of the article, and Luiz, the HPC and second author. Then we will present the content of some of the coaching conversations between Michel and Luiz to illustrate what happened during the 23 weeks of narrative coaching. The literature pertaining to learning, personal

coaching,and sport coaching will be included to better explain and in interpreted this specific episode of Luiz's lifelong learning journey.

   The dyad (Michel and Luiz)

   Michel, the personal learning coach. Michel was 34-years old with 15 years of experience in volleyball (athlete and coach). An Associate Professor in a Federal University in Brazil, he was teaching courses related to sport pedagogy and sport coaching in the undergraduate program. In the graduate program, he was in charge of a sport coaches' professional development course and led a laboratory in sport pedagogy, conducting research specifically on coaches' learning and education (Milistetd and colleagues: 2014, 2016, 2018). Michel was also a consultant with a few sport federations, designing coach education initiatives and athlete development programs. In 2016, he was certified as a Coach Developer from the Nippon Coach Developer Academy (NCDA) / International Council for Coaching Excellence (ICCE). In the last three years, Michel had worked closely with Pierre Trudel, also author on this article. Pierre is an Emeritus professor at a university in Canada with an established research program on sport coaches' development. In 2013, he completed a certification as a personal coach through the International Coach Federation. For many years, Pierre has been coaching university professors and high-performance sport coaches in their career development.

   Luiz, the tennis high-performance coach. At the time of this learning opportunity, Luiz was a 33-years old Brazilian with 10 years of experience as a tennis player and 15 years as a tennis coach. At the age of 18, he started a four-year degree in Physical Education, with a strong desire to coach tennis. At the same time, he started giving private tennis lessons and obtained all the Brazilian Tennis confederation certifications (similar to International Tennis Federation pathway). In 2009, he went to Spain to work at a recognised Tennis Academy, and he completed a certificate as a specialist in high-performance tennis. From 2012 to 2016, he coached the Brazilian junior team, had an athlete win the Youth Olympic Games, and had one of his athletes ranked number one in the Junior ITF. In 2016, two of his athletes were among the ten best Brazilian tennis players in the ATP (Association of Tennis Professionals) ranking. When Luiz met Michel, he was working in a tennis training center in Brazil. Luiz was in charge of six professional tennis players and coordinating the work of 12 tennis coaches supervising the development of athletes at the participation and performance levels.

   Michel and Luiz met for the first time in September 2016 at a National Tennis Coaching Conference. Luiz was invited to present different coaching methods and training drills during the applied part of the

conference. Michel was invited to talk about the application of coach learning and development theories. Using the model developed by Trudel, Gilbert, and Rodrigue (2016), Michel explained that learning to coach is a lifelong learning process and coaches' approaches to learn can vary as they move toward the continuum: newcomer, competent, supercompetent and, if well-supported, innovator. The content of Michel's presentation resonated with Luiz who was looking for ways to maximise his coaching potential and to make sure his training center was well-positioned for a successful future. At the end of the conference, Luiz went to Michel for more information and to request if Michel would accept to work with him.

The Learning Episode: Six Months of Coaching Conversations

Table 2 summarises the learning episode of Luiz with his companion Michel. The 23-week journey and the specifics of the content of their dialogues are divided according to the four phases of the appreciative inquiry (AI) approach: (a) Discovery, (b) Dream, (c) Design, and (d) Destiny. Appreciative inquiry is an approach to help people in organizations discuss their actual situation and imagine the future: "Through the 4-D Cycle, people can transform the present state of their organization into a future state by building on a 'positive core' of strengths to create its destiny" (Cooperrider, Whitney, & Stavros, 2005, p. XVI). Generally, an AI will happen during what is called an 'AI summit' – people regrouped for a few days to go through the four phases. Using the AI approach with an individual instead of an organization is not unthinkable. For Stetler and Law (2010, p. 157), "AI can easily be integrated into the coaching process, because it is often much more helpful not to focus on the problems of the situation but on the possibilities and strengths of the participants involved". They also mentioned: "By choosing positive topics as the starting point for their dialogue, by discovering and imagining possibilities, the participants have a chance of creating a reality that furthers their development" (p. 157). In the same vein, Drake (2015, p. 101) mentioned: "Coaching is not about fixing anything. Start where people are right now; work with what they have; and build up and out from there". In recent years, we have seen recommendations to use the AI approach in the development of sport coaches (Pill, 2015; Trudel, Gilbert et al., 2016).

<div align="right">**Table 2**</div>

The learning episode: Six months of coaching conversations

Weeks	A) Major events in the week B) Main topic(s) of the dialogue	Material used (see annex)
Discovery		
1	B) Cognitive structure (knowledge, skills, values,…)	Brief questionnaire
2	B) Cognitive structure (knowledge, skills, values,…)	Brief questionnaire
Dream		
3	B) How can I improve my coaching level	--
Design		
4	B) Leadership	--
Destiny		
5	B) Reflective process (4 steps) B) Emotional intelligence (recognizing own emotions)	1, 2, 3
6	A) Brazil Open B) Emotional intelligence (recognizing emotion in others)	1, 4
7	A) Rio Open B) Emotional intelligence (recognizing emotion in others)	1, 5, 6
8	B) Emotional intelligence (emotional control) B) Mental toughness	7, to 10
9	B) Mindset	10, 11, 12
10	A) Presenter at a conference	--
11	A) Preparation of the coaches at the club B) Emotional intelligence (interpersonal relationship)	1
12	A) Preparation of the coaches at the club B) Reflective cards for the coaches at the club	13, 14
13 – 18	A) European Tour B) Winning environment	15 to 21
19	B) Debrief of the European Tour	--
20	A) Meeting the coaches at the club B) Coaches' planning strategies & Coaches' growth mindset	10
21 – 23	A) Meeting the coaches at the club B) Coaches' planning strategies	--

In the second column of the table we indicated, when applicable, if a particular event happened in Luiz's professional practice (A) and the main topic(s) addressed during the dialogue (B). The numbers in the last column refer to some of the material consulted by Michel and Luiz in an attempt to bring the perspectives of other people into their learning conversations (i.e., co-creation of meaning). The list presented in the annex is only a sample of the documents.

Discovery phase. The discovery phase was comprised of three coaching sessions during the first two weeks of the dyad's journey. This

time was used by the dyad to get to know each other and specifically to give Luiz the opportunity to explore and present his personal values and professional knowledge to Michel.

Luiz's personal values. For Stelter (2014a), a key component of narrative coaching is the coachee's values: "Clarifying values may be an objective in itself as a developmental orientation or as a basis for more clarified goal perspective and possible 'solutions' to pursue" (p. 55). However, because "values often reflect the implicit aspects of our actions and are thus not always clearly articulated" (p. 39), Michel asked Luiz, in preparation for the next coaching session to answer a brief questionnaire including the question: 'Identify a few people who had a strong influence on you and on your coaching career?'. During the coaching conversation, Luiz mentioned first his parents:

> I think my strongest values are effort and persistence and they come from my parents. My mother owned a paddle court (sport similar to squash) and was working from 8 am to 10 pm every day. My dad had another job, and he did everything to support me as a tennis player in my childhood and adolescence. The trips and tournaments were expensive and I knew they didn't have the money, but they never said no. They always found ways to help me in my career. I grew up in that environment and for me sport is linked with effort and persistence.

Luiz went on and talked about his first coach:

> My coach from the ages of 10 to 14 years was one of the most important coaches in my entire life. He was a very serious man, well organised, and strong on discipline and respect. He also valued partnership and friendship among the athletes. Although we were a bunch of young guys, he stressed the importance of respecting and supporting each other.

Then dialogue went like this:

Michel: Can you name three other people who influenced you positively in your professional life. What are the most striking features about them? Why are they important?

Luiz: Mr. VV was one of my coaches when I was young. He was a master at developing athletes regardless of their level, and he knew so well how to motivate his athletes. Mr. TT was a fitness trainer I met in Spain. He possessed different types of knowledge and could apply all of them with simplicity with any player. For me, he is a sage. Finally, I will say Mr. GG, the actual manager of our tennis club. He is a great leader. He has the capacity to solve problems with players or other stakeholders with great leadership.

Michel: What do you value the most in your own coaching? Can you give examples?

Luiz: Effort is important. Some years ago, I was the head coach of the Brazilian team at a World Junior Championship. One of the players was lacking motivation and did not behave properly, like being late for practices and so on. Although he was one of the best players and my superiors were putting pressure on me to play him, I decided to cut him from the team because he was not giving his 100%.

Michel: Can you give me another example?

Luiz: Humility is another important value for me. There is always something to learn and it is important to recognise it. I can learn from other coaches, from my athletes, and even from a ball collector. I am constantly looking for learning opportunities.

Luiz's professional knowledge. Following the principles of the AI approach, the coaching conversations should not focus exclusively on Luiz' coaching knowledge weaknesses. Instead, the conversations should be about Luiz' strengths and the key knowledge/skills to possess for increasing success in a working context like Luiz' one. Here is a short excerpt of the dialogue:

Michel: Imagine the ideal HPC in a tennis club like yours. Describe the key features that this coach would have (i.e., skills, knowledge, and competencies).

Luiz: For me a good coach should be a hard worker. He also should be very good at planning, developing drills, and controlling the training sessions – keeping focus and intensity. The coach should also be a good leader and be able to positively influence the athletes – the athletes should believe that with him/her they will fully develop.

Michel: Considering your actual context, what are the key knowledge/skills you need to succeed?

Luiz: I think I have a good capacity to design training sessions, and I believe I have enough creativity to come up with new drills that can be adapted to players at different levels. I believe that I am a detail-oriented person. For example, for each training session I have information for each player. I think my main challenge for the next season will be being overloaded. I am quite new in my role as a coach coordinator. I have to supervise 12 coaches, and I am also coaching six high-performance athletes who will play at ATP level tournaments. It will be a challenge to control

everything and I certainly need strong interpersonal knowledge and skills.

Michel: You have pointed out that planning activities is one your strengths. How are you going to use this strength next season?

Luiz: For me, planning is the basis of a good training session. I really would like all the coaches under my supervision to be aware of how important it is. A good plan will make their coaching a lot easier and will help us to have a shared philosophy regarding athletes' development.

At the end of the first two weeks, the dyad came up with a figure (Figure 2) that summarises Luiz's perspective on his strengths (in the center) and the knowledge and skills he should focus on (more on the periphery) to become a better professional in his actual working environment.
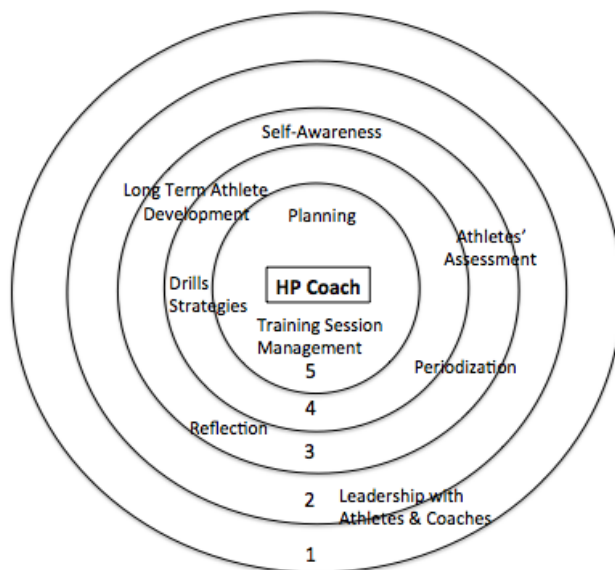
Figure 2. Co-creation of Luiz' perceived knowledge/skills/needs to succeed

The process used to develop this figure respects the approach suggested by Tsang (2013), because the current knowledge, skills, and strategies are not assessed to what an 'ideal H-P coach' will know or do as defined by a group of experts as in pre-planned programs. Instead they are seen in terms "of their relevance and effectiveness with regard to the individuals' needs and goals. The problem is usually translated into an understanding of the person's needs, helping the individual to articulate goals, and collaboration with the individual in developing relevant strategies. (p. 34-35)

Dream phase. The dream phase was completed in one coaching session. Building on what was mentioned in the discovery phase, Luiz had

to imagine himself working in the best possible conditions. The following excerpt illustrates the main point explored in this phase:

Michel: If you have no constraints, how will you imagine yourself as a coach and coordinator?

Luiz: I often feel that I cannot influence my athletes and my coaches as I would like. I tell them what I want, but I rarely see them implementing what I have explained? In the ideal future, I see myself 100% connected with my athletes, they are confident in competitions and able to apply what we have practiced. About my coaches, I would like to see them assuming more autonomy in the club, especially when I travel for competitions. I should not be watching them all the time. In brief, I see myself as a great leader with very good communication skills.

    The coaching conversations in the discovery and dream phases had helped Luiz expresses his desire to become a more inspiring leader for his athletes and coaches, and by extension a high-quality communicator. Interestingly, Law (2013) suggested that leadership and communication are two of the seven key social competences to be developed, and for Stelter (2016, p. 55): "The ultimate goal of coaching is to facilitate and improve leadership, communication, and cooperation".

    Design phase. The design phase is where the participants co-construct the future as "a provocative and inspiring statement of intention that is grounded in the realities of what has worked in the past combined with what new ideas are envisioned for the future" (Cooperrider et al., 2005, p. 7). The following presents part of the dialogue between the dyad.

Michel: In the perspective of becoming a great leader, many team sport coaches have stressed the importance of adapting their communication style to their athletes. One of the reasons is that each generation of athletes is different, and the new generation is not like us when we were athletes. We did not question the coaches that much because what was said was generally considered a command to be followed. Nowadays, coaches must be ready to motivate the athletes and also to provide the reasons for training and why we train this way and not that way.

Luiz: That's right. It's often a fight with my athletes when I ask them to close their mobile phones and focus on training. They always have their heads on something else, I need to stay in contact with them and repeat how important it is to be mentally focused to achieve their goals.

Michel: It seems to be the profile of the new generation of athletes. So, I think communication can be our major focus for the next couple

of weeks. There are many forms of communication being explored in the sport coaching literature: Transformational Leadership, Emotional Intelligence, Athlete-Centered Coaching and so on. We can use a lot of stuff. What do you think?

Luiz: That´s fine. I think this learning goal will be very good. Generally speaking, I am a closed person and I am too straight in my relationships. I think exploring communication can give me better conditions to deal with my athletes and coaches.

Destiny phase. In an AI conducted at an 'AI summit', "people of the organization find innovative ways to help move the organization closer to the ideal" (Cooperrider et al., 2005, p. 7). In our case, the destiny is not a written statement to be used in the future, but a series of learning conversations that occurred generally once a week through Skype and lasted on average 90 minutes. Many authors in the personal coaching field (e.g., Cox, 2013; Hawkins & Smith, 2013; Law, 2013; Parsloe & Leedham, 2009; Stelter, 2014a) suggest using Kolb's experiential learning cycle or an adaptation, as a possible framework to guide the coaching conversations. The four stages of this framework are: (a) *concrete experience or do* (learner is experiencing an activity), (b) *reflective observation or observe* (consciously reflecting back on the activity), (c) *abstract conceptualization or think* (presented with/or trying to conceptualise a theory or model), and (d) *active experimentation or plan* (testing in a forthcoming experience) (Healey & Jenkins, 2000). It is also important to mention that the cycle doesn't have a beginning, middle or end, but "the most effective learning, however, will take place when you take the opportunity to complete all the stages in the cycle" (Parsloe & Leedham, 2009, p. 70).

In the destiny phase, the point of departure for most of the coaching conversations was a concrete experience. As Luiz was relaying his experience, Michel was asking questions to better understand while simultaneously helping Luiz to develop a better understanding of his experience (reflective observation). The dialogue between Luiz and Michel about how to do things differently was nurtured by sharing their perspectives and also by looking at others' perspectives through the documents suggested by Michel and sometimes by Luiz (abstract conceptualization). Luiz was then testing the new way of doing and a new cycle could be started (active experimentation). In the following, we present five examples of co-creation of knowledge guided by Kolb's model. We highlight the stages only in the first example.

Coaching conversations on the 'Reflective process'. In week 5, Michel and Luiz addressed the importance of reflection when learning from

experience. Luiz's familiarity (concrete experience/reflective observation) with the reflective process can be seen through this short excerpt:

Michel: What do you know about reflection as a way to help you in your coaching?

Luiz: I reflect a lot about my practice. I'm thinking all the time about my coaching.

Michel: This is interesting. But to learn from our practice coaches need a high quality of thinking. The best approach is to reflect deliberately which means to think deeply about an event and learn from it.

Luiz: Ok, I see.

Then, Michel suggested using a reflective process composed of questions based on Gibbs' (1988) reflective cycle (abstract conceptualization). The five questions were: What did happen? How did I feel? What were the positive aspects? What aspects could I improve? If I have the same situation how can I perform better? Luiz agreed to use the suggested reflective process and a total of 78 audio logs were sent to Michel during the six months period (active experimentation).

Coaching conversations on 'Emotional intelligence'. As mentioned earlier, Luiz was experiencing some leadership issues particularly with the coaches he had under his supervision. Thus, for four weeks, the coaching conversations were inspired by documents explaining the importance and the components of emotional intelligence to become a better leader. At some point in the cycle, Luiz sent a reflective log to Michel about a specific issue he had to deal with:

Luiz: I understand that all coaches cannot have the same coaching approach. So, I am more aware now that it is normal if I do not necessarily agree all the time with how some coaches work with the kids. But, as the coordinator, I must provide some directions. I want to give to the club some homogeneity in term of coaching. It is not always easy, but I know now that I have to control my temper. I must talk with some of my coaches and try to bring new perspectives about coaching. I have to plan something.

Later Michel and Luiz had the following dialogue:

Michel: So, Luiz have you defined a strategy to approach Mr. CC?

Luiz: Well, as I have already mentioned to you, I am an introverted person and I hardly talk about me and my life. But based on the reading and our conversations, I think if I open a little and talk about my personal experiences when I was a child and then make

reference to his son, who happens to be playing tennis right now, I think I can initiate a trustful pathway to connect better with him.

Later during the week, Luiz sent an audio log describing the situation:

Luiz: Today, I had a great day. I approached Mr. CC as I had planned and it worked very well. I had defined in my mind how to start the conversation with him. I felt very confident because he was open to talk about his son's performance and after I talked about my experiences when I was young and the pressure I put on myself to play well for my parents. I think I can keep approaching Mr. CC without pressure and in a few days, I can talk more about coaching children.

Coaching conversations on Luiz presenting at a conference. Michel was in charge of organizing a conference on 'How to coach youth athletes'. He decided to invite coaches from three different sports including Luiz for tennis. Both knew it would put Luiz outside of his comfort zone.

Luiz: I have never presented in front of students or academics. I am used to talking to my athletes and coaches.

Michel: If it is a challenge for you, we can work together on it. I think it could be a good opportunity to improve your communication skills. At the same time, you will need to reflect on your overall experience as an athlete and coach – make your tacit knowledge more explicit.

Luiz: Well, viewed from this side, I think it can be a nice learning experience.

Michel: Remember, no one will know more than you about how to coach young tennis athletes. Which coaching topic do you feel comfortable to talk about?

Luiz: I will be on a tennis court or in a classroom?

Michel: It is up to you, but on a tennis court I think you can use a mixed approach. You can show some drills and then discuss with the participants to get their feedback and even to create other drills.

Luiz: Ok, not bad. So, I can talk about how to create exercises to keep the athletes focused based on decision making drills with different intensity. What you think?

Michel: For me, it sounds great. You are the coach, I really trust you. Prepare material for a two hours presentation and we will go over your presentation during our next coaching session.

Luiz presented to a group of 30 people including coaches and graduate students. A few weeks later during a coaching conversation, Luiz made this comment that shows that he had learned:

I remember how hard it was for me to present at the conference. I was nervous to talk at the university. If I had to deliver again, I would do it differently. I would present some problems for the participants, discuss these, and then show them some exercises and drills to help the participants overcome their difficulties.

Coaching conversation on 'Reflective cards'. At weeks 11 and 12, in anticipation of his stay outside of the country because of the European Tour, Luiz wanted to meet with his coaches to make sure they were going to provide high quality training during his absence. For Luiz, reflection was becoming a usual term in their coaching conversations and, from his perspective, introducing this process to his coaches' coaching practice would be beneficial.

Luiz: I think it would be great if my coaches could reflect on their personal coaching practice. It would be a kind of self-evaluation.

Michel: I agree with you. I think you recognise now how important this process is to improve a coaching practice. But to reflect well is not an easy task and it takes time.

Luiz: Oh yes. It took me many audio logs before I really felt the impact on my coaching like being more organised, and so on.

Michel: I am just thinking of a tool we can use to support the coaches as they learn the reflective process. Have you heard about reflective cards?

Luiz: Yes, but I'm not sure what it is.

Michel: There are some models available in the scientific literature, and in some countries they use them in their coach education programs. The main idea is to develop specific statements to guide the coaches' thinking. The statements should be relevant to them and also match your club's needs. For each statement, the coach can say if he/she agrees using a scale from 1 to 5.

Luiz: I see. I would like them to reflect on their planning and delivery.

Michel: Then the statements could be like: I have introduced the goals of the session to my athletes; there was clear progression in the difficulty of the drills, and so on. At the end, they can select two or three statements and explain with more details why they have achieved those grades.

Luiz: Great. I think it could be useful for them, and if they send me their reflective cards I will be able to give them feedback even though I am in Europe.

Michel and Luiz created a reflective card with 10 statements. The week after, Luiz met his coaches to discuss the work to be done when he

will be absent, and he presented the reflective material. The next coaching conversations went like this:

Luiz: I met my coaches and I think we had a good meeting.

Michel: How do they see the coming weeks without you? How is their motivation?

Luiz: Well, it looks good. All of them have prepared material for the next six weeks. I also introduced the reflective cards we created for them. We agreed that at the end of the day, they will send me an audio log about their training sessions, and if needed we can discuss using Internet.

Michel: How have they received the task to fill the reflective card?

Luiz: I did not ask them too much. I just told them to choose one training session per day and fill the reflective card. I think we have to start slowly with this new tool.

Michel: That's a good point, especially because you will not be beside them to fill the cards and support them with this new task.

After the trip to Europe (weeks 20 and 21) the dyad continued the conversation about using the reflective cards with the coaches.

Michel: How is the coaches' motivation to follow their planning strategy and to use the reflective cards?

Luiz: The planning is going ok. It could be better, but they are improving. As mentioned in the literature, learning to use reflective cards can be challenging at times. At the moment, only a few coaches seem to be comfortable using the reflective cards as suggested.

Michel: Why do you think only a few coaches do it? What about the others?

Luiz: Like you and me, in our day-to day work we have established some ways of doing our tasks. It is our routine but if we want to achieve something different to get better results we need to invest time and energy. It is the same for my coaches. To be better in their reflection on their coaching, they need to be ready to put more effort, but this will be possible only if they can see how important the reflective process is.

Michel: Are you making reference to what we have talked about and read regarding mindset?

Luiz: Yes. Most of my coaches have been working in this club for years. Their expertise is there, no doubt. But to stay on the top in your field you must be pro-active, look for challenges, and so on.

Michel: Yes. There is a difference between growth mindset and fixed mindset. Let's discuss a plan to try bringing more coaches on board.

   Coaching conversations on 'European Tour'. Luiz was on a six-week tour in Europe for a series of tournaments in Portugal, Spain, and Italy. When Luiz arrived in Europe, the athletes had already played two tournaments, both resulting in first round eliminations. The following is an excerpt of a coaching conversation early in the trip:

Luiz: The situation here is chaotic. The level of confidence of the athletes for the next tournaments is very low. One of them is already thinking about giving up the next tournament in Spain. It is not easy with them now.

Michel: What do you think is the main reason for them to have failed?

Luiz: Self-confidence. They arrived in Europe thinking their opponents were much better than they really were. This misperception seems to block all the work we did, and they cannot play their best tennis.

Michel: How have you usually approached such a situation?

Luiz: We usually talked about how they have played below of their potential. They can apply some techniques that the psychologist taught them before the games. But here, it is not working.

Michel: I get it. I can send you some material about building a winning environment. The idea is to use the growth mindset principles we have already discussed. If you remember it is important to focus on the process and not the outcome. How many tournaments do you still have to play? Four. What do you think of the option to focus on short-term goals and on some technical-tactical or psychological elements for each athlete in each tournament?

Luiz: It can be a good idea. I need for sure to change their focus. Do you think we can use those goal-setting cards we have used during practices?

Michel: Yes. You can ask each athlete to pick two or three components of performance to improve in each game.

Luiz: Ok. I will bring the goal-setting cards we have already used for practices and even games. I will ask them to self-assess using the pre-defined criteria.

After three weeks on the European Tour, Luiz and Michel had this conversation:

Luiz: I cannot believe that John is going to play the semifinal. He is now so confident with his first serve. We have worked hard on his

first serves. As an example, the drill we did during practices was this. He needed to get 24 points. If he had a good first serve he would win three points, if he failed, he would lose two points. If he had only a medium serve, one point. This strategy made him more focused on the task, bringing consistency to his serve.

Michel: Why do you think your strategy during the training sessions was effective for John to succeed in the competition?

Luiz: I think I really got his focus off the pressure of the result. John is a player who creates a lot of self-pressure. By incorporating technical goals (serving), he felt less pressure from the game. Also, when we decided the goal together, I saw that he had increased this level of motivation to achieve the targeted performance.

Michel: His level of intrinsic motivation seems to have increased as a result of seeing an attainable goal. Sometimes, focusing only on the outcome seems to put the player in a panic zone. In sports coaching, the balance between challenge and support is fundamental. Thus, good communication is essential. Do you think the connection and communication between you and your athletes has improved?

Luiz: Yes, for sure. In my coaching now, I am more often questioning. Using self-assessment cards allows me to get the athletes' perspectives. John is a good example. I´m really happy about the results we achieved in the European Tour.

Reflection on the complete narrative coaching lived by Michel and Luiz

For both Michel and Luiz, it was the first time they were engaged in narrative coaching. Therefore, it is important to get their perspectives on this learning episode of their lifelong learning journey and to discuss the whole process using the literature. On week 24, Michel and Luiz had a session where they talked about their learning experience. This short excerpt of their dialogue summarises quite well their perspectives.

Luiz: Look, I'm sure I have improved my communication skills and this whole experience was great. The number of coaching topics we have worked on and discussed is huge. But the main thing I realise that I have improved a lot is my ability to be more self-aware and reflective about my practice. I feel that my thinking is much clearer and I can focus more on my coaching activities. The audio logs have helped me a lot to make my coaching more systematic but at the same time I have a more holistic approach and I can guide each athlete not only on the technical goals. It is

so much easier when you have good communication and connection with your athletes.

Michel: This is interesting, and I agree with you. We have focused on leadership and communication, but you have developed these competences progressively as you were coaching, experimenting. Reflection made you more aware about your coaching, more emotionally regulated, and specifically more self-critical. For me, the most interesting point of our coaching conversations is rigorous engagement. We met on a regular basis, almost every week, to talk about different issues, based on your needs at that moment. For me it was a huge learning experience as I had to understand well your coaching issue, find questions that might help us to progress, and, if pertinent, search for relevant material that we could include in our conversations. We could not control everything but by being open to changing everything we were able to come up with new ways of doing things. It was an amazing experience.

Based on this quote we can assume that Michel and Luiz have both learned and developed. We can highlight a few reasons for this positive result. First, Luiz seems to be an 'ideal' coachee. His strong desire for self-development corresponds to "One of the common reasons for a coachee to seek coaching" (Stelter, 2014a, p. 7). Second, Luiz was really motivated and made the weekly coaching conversations with Michel a priority. The coachee's level of engagement is so important that some authors go as far as "Ask your client during an early conversation what she or he will give up or cut back on in order to make time and space for the coaching to occur" (Flaherty, 2010, p. 163). Third, in the first few weeks, the coaching conversations allowed interesting dialogues on Luiz's personal values, cognitive structure, and actual coaching context. We can say that key principles of the personal coaching process were respected: "Coaching is not about fixing anything. Start where people are right now; work with what they; have and build up and out from there" (Drake, 2015, p. 101). Forth, from the examples of coaching conversations presented earlier we can assume that the dyad had the right conditions for reflective learning because they were able to create "a psychological space that allows clients to withdraw from the workplace in order to stand back and think, thus enabling them to gain some perspective on their experiences and on their tasks" (Cox, 2013, p. 73). Such reflective space is often lacking: "…high performance coaching work is a complex and extremely challenging task. Several of the coaches expressed frustration at their own inability to achieve some 'cognitive space' for reflection" (Rynne & Mallett, 2014, p. 20).

Michel also played an important role in the success of this learning episode. First, by having no real experience in tennis but being knowledgeable in sport pedagogy, he tends "towards being a self-directed learning specialist, which is in contrast to common definitions of a mentor as a knowledgeable expert" (Cox, 2013, p. 102). Second, his familiarity with the sport science literature allowed him to select appropriate materials (see annex) to be included in the coaching conversation. It has been found that many HPCs are now considering the applied sport science literature to develop their coaching practice (Abraham et al., 2006; Davidson & Williams, 2009; Martindale & Nash, 2013; Nash et al., 2012; Williams & Kendall, 2007). Third, although Michel was playing the role of PLC for the first time he was able to demonstrate many of the skills listed as essential and critical: mutual trust and respect, balance between being prepared and flexible, good listening, and so on (e.g., Drake, 2015; Flaherty, 2010).

We would not want to leave our readers with the impression that this narrative coaching was not without challenges. As mentioned by Michel, in the middle of some coaching conversations he found it difficult to ask the right questions or suggest new perspectives. Here are some suggestions for Michel to develop further his coaching practice. First, the different issues that coachees bring do not have the same level of difficulty and therefore how to address them can vary greatly. The categorization (simple situations, complicated situations, and complex situations) suggested by Patton (2011) could be very useful. Second, questioning in personal coaching is a very important and complex skill and authors such as Cox (2013) and Law (2013) provide useful material about this skill. Third, to keep developing as a PLC, Michel needs to recognise his background and current knowledge to take stock of where the main gaps are in his personal coaching knowledge and abilities (Stober, 2010). He might look as well for a PLC.

Conclusion

In this article we have argued, like many others before us (Duarte & Culver, 2014; Van Mullem & Dahlin, 2017), for the use of the lifelong learning journey metaphor when conducting research and discussing coach development with practitioners. By doing so, we recognise that learning how to coach happens through many different learning situations that may or may not guided by knowledgeable people. Each learning situation has pros and cons, and there is always room for improvement. Thus, we must avoid the debate about which one is better by "acknowledging the unique contributions all forms may make to coach development and accreditation. All education/learning situations should be valued for their contribution to coach development, which is a lifelong process" Mallett, Trudel, Lyle, &

Rynne, 2009, p. 332). The interest by researchers around the world has been strong in investigating how coaches learn to coach (He et al., 2018, for a review of literature), but there is a lack of empirical studies about how to help those coaches who deliberately want to be pro-active in their self-development. Attending continuous professional development activities developed by national governing bodies − for (re)certification purposes or not − is an option (Stephenson & Jowett, 2009), but coaches should also have the opportunity to learn from their actual coaching practice which will give them more power regarding what is important to learn (Nelson, Cushion, & Potrac, 2013). Through this article we have provided an example of this type of learning situation. The narrative coaching principles and the roles played by both the HPC and the PLC imply some changes in how we define the interactions between coaches and those helping coaches: "What's fascinating is that a vocabulary evolves with a culture. Because we are now in the innovation economy rather than the efficiency economy, we need to recast a few of our definitions" (Hoque, 2014, p. 80). Because narrative coaching is based more on those principles guiding the coaching conversations than a very structured methodology to follow, each learning episode involving a HPC and a PLC will be different. Therefore, there is a strong need for other studies like the one presented here. Finally, as coach developers, we would do well to remember Stelter's (2016) words presented above: "It is a journey of discovery into relatively unknown territory, where both parties are travel companions, and neither knows anything for sure about the road ahead" (p. 64).

References

1. Abraham, A., Colling, D., & Martindale, R. (2006). The coaching schematic: Validation through expert coach consensus. *Journal of Sports Sciences, 24*(6), 549-564.
2. Abraham, A., Collins, D., Morgan, G., & Muir, B. (2009). Developing expert coaches requires expert coach development: Replacing serendipity with orchestration. In A. Lorenzo, S. J. Ibanez, & E. Ortega (Eds.), *Aportaciones Teoricas Y Practicas Para El Baloncesto Del Futuro*. Sevilla: Wanceulen Editorial Deportiva.
3. Allen, J.B., & Shaw, S. (2013). An interdisciplinary approach to examining the working conditions of women coaches. *International Journal of Sports Science & Coaching, 8*(1), 1- 17.
4. Barker-Ruchti, N. Lindgren, E-C., Hofmann, A., Sinning, S., & Shelton, C. (2015). Tracing the career paths of top-level woman football coaches: Turning points to understand and develop sport coaching careers. *Sports Coaching Review, 3*(2), 117-131.
5. Bloom, G. A. (2013). Mentoring for sport coaches. In P. Potrac, W. Gilbert, & J. Denison (Eds.), *Routledge Handbook of Sports Coaching* (pp. 476-

485). London: Routledge.

6.   Brasil, V. Z., Ramos, V., Milistetd, M., Culver, D., & Nascimento, J. V. (2017). The learning pathways of Brazilian surf coach developers. *International Journal of Sports Science & Coaching*, DOI: 10.1177/1747954117739717

7.   Buchheit, M. (2016). Chasing the 0.2. *International Journal of Sports Physiology and Performance*, *11*, 417-418.

8.   Callary, B., Werthner, P., & Trudel, P. (2011a). Shaping the way five women coaches develop: Their primary and secondary socialization. *Journal of Coaching Education, 4*(3), 76-96.

9.   Callary, B., Werthner, P., & Trudel, P. (2011b). A brief online survey to help a sport organization continue to develop its coaching education program. *International Journal of Coaching Science*, *5*(2), 31-48.

10. Collins, D., Abraham, A., & Collins, R. (2012). On vampires and wolves – exposing and exploring reasons for the differential impact of coach education. *International Journal of Sport Psychology, 43*, 255-271.

11. Collins, J. A., Greer, J. E., Kumar, V. S., McCalla, G. I., Meager, P., & Tkatch, R. (1997). Inspectable user models for just-in-time workplace training. In A. Jameson, C. Paris, & C. Tasso, (Eds.), User modeling: *Proceeding of the sixth international conference UM97*, (pp. 327-338), Springer-Verlag Wien GmbH.

12. Cooper, D., & Allen, J. B. (2017). The coaching process of the expert coach: A coach led approach. *Sport Coaching Review*, DOI: 10.1080/21640629.2017.1361168

13. Cooperrider, D. L., Whitney, D., & Stavros, J. M. (2005). *Appreciative Inquiry Handbook: For leaders of change* (2nd ed.). Brunswick, OH: Crown Custom Publishing, Inc.

14. Cox. E. (2013). *Coaching understood: A pragmatic inquiry into the coaching process*. Thousand Oaks, CA: Sage.

15. Cox, E., Bachkirova, T., & Clutterbuck, D. (2010). *The complete Handbook of Coaching*. Thousand Oaks, CA: Sage.

16. Cushion, C. J., Armour, K. M., & Jones, R. L. (2003). Coach education and continuing professional development: Experience and learning to coach. *Quest, 55,* 215-230.

17. Cushion, C. J., Armour, K. M., & Jones, R. L. (2006). Locating the coaching process in practice: Models 'for' and 'of' coaching. *Physical Education and Sport Pedagogy, 11*(1), 83-99.

18. Cushion, C. J., & Nelson, L. (2013). Coach education and learning: Developing the field. In P. Potrac, W. Gilbert, & J. Denison (Eds.), Routledge handbook of sports coaching (pp. 359-374). London: Routledge.

19. Davidson, R., & Williams, M. (2009). The use of sports science in preparation for Olympic competition. *Journal of Sports Sciences, 27*(13), 1363-1365.

20. Dick, F. (2012). 2012 Olympic performance assessment: A European perspective. *New Studies in Athletics, 27*(4), 25-44.

21. Drake, D. B. (2010). Narrative coaching. In E. Cox, T. Bachkirova, & D. Clutterbuck, (Eds.), *The Sage Handbook of Coaching* (pp. 120–131). London: Sage.
22. Drake, D. B. (2015). *Narrative coaching: Bringing our new stories to life*. Petaluma, CA: CNC Press
23. Drake, D., & Stelter, R. (2014). Narrative coaching. In J. Passmore (Ed.), *Mastery in coaching – A complete psychological toolkit for advanced coaching* (pp. 65–94). London: Kogan Page.
24. Duarte, T. & Culver, D. (2014). Becoming a coach in developmental adaptive sailing: A lifelong learning perspective. *Journal of Applied Sport Psychology, 26*, 441-456.
25. Duffy, P., Hartley, H., Bales, J., Miguel, C., Dick, F., Vardhan, D., Nordman, L., & Curado, J. (2011). Sport coaching as a 'profession': Challenges and future directions. *International Journal of Coaching Science, 5*(2), 93–123.
26. Fairhurst, K. E., Bloom, G. A., & Harvey, W. J. (2017). The learning and mentoring experiences of Paralympic coaches. *Disability and Health Journal, 10*, 240-246.
27. Flaherty, J. (2011). *Coaching: Evoking excellence in others (3rd ed.)*. New York: Routledge.
28. Ford, P., Coughlan, E., & Williams, M. (2009). The expert-performance approach as a framework for understanding and enhancing coaching performance, expertise and learning. *International Journal of Sports Science & Coaching, 4*(3), 451-463.
29. Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education and Sport pedagogy, 10*(1), 19-40.
30. Haggard, D. L., Dougherty, T. W., Turban, D. B., & Wilbanks, J. E. (2011). Who is a mentor? A review of evolving definitions and implications for research. *Journal of Management, 37*(1), 280-304.
31. Hart, J. (2014). *Social Learning Handbook 2014: The Next Generation of Learning Practices*. Centre for Learning & Performance Technologies.
32. Harwood, C., & Knight, C. (2009). Stress in youth sport: A developmental investigation of tennis parents. *Psychology of Sport and Exercise, 10*, 447-456.
33. Hawkins, P., & Smith, N. (2013). *Coaching, mentoring and organizational consultancy: Supervision, skills & development (2nd ed.)*. Berkshire, England; McGraw-Hill Education.
34. He, C., Trudel, P., & Culver, D. (2018). Actual and ideal sources of coaching knowledge of elite Chinese coaches. *International Journal of Sports Science & Coaching*. DOI: 10.1177/1747954117753727.
35. Healey, M., & Jenkins, A. (2000). Kolb's experiential learning theory and its application in Geography in higher education. *Journal of Geography, 99*(5), 185-195.

36. Hoque, F. (2014). *Everything connects: How to transform and lead in the age of creativity, innovation, and sustainability*. NY; McGraw Hill.

37. Illeris, K. (2009). *Contemporary theories of learning: Learning theorists… in their own words*. London: Routledge.

38. Jarvis, P. (2006). *Towards a comprehensive theory of learning*, London: Routledge.

39. Jarvis, P. (2007). *Globalization, lifelong learning and the learning society: Sociological perspectives*, London: Routledge.

40. Joiner, B., & Josephs, S. (2007). *Leadership agility: Five levels of mastery for anticipating and initiating change*. San Francisco, CA: Jossey-Bass.

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

42. Kaufman, S. B., & Gregoire, C. (2015). *Wired to create: Unraveling the mysteries of the creative mind*. NY: Perigee.

43. Kegan, R., & Lahey, L. L. (2016). *An everyone culture: Becoming a deliberately developmental organizatio*n. Boston, Massachusetts: Harvard Business Review Press.

44. Keogh, J. (2011). Paralympic sport: An emerging area for research and consultancy in sports biomechanics. *Sports Biomechanics, 10*(3), 234-253.

45. Koh, K. T., Bloom, G. A., Fairhurst, K. E., Paiement, D. M., & Kee, Y. H. (2014). An investigation of a formalized mentoring program for novice basketball coaches. *International Journal of Sport Psychology, 45*, 11-32.

46. Lara-Bercial, S., & Mallett, C. J. (2016). The practices and developmental pathways of professional and Olympic serial winning coaches. *International Sport Coaching Journal, 3,* 221-239.

47. Law, H. (2013). *The psychology of coaching, mentoring and learning* (2nd ed.). Chichester: Wiley.

48. Leite, N., Coelho, E., & Sampaio, J. (2011). Assessing the importance given by basketball coaches to training contents. *Journal of Human Kinetics, 30*, 123-133.

49. Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth-sport coaches learn to coach. *The Sport Psychologist, 21*, 191-209.

50. Mallett, C. J., Rossi, T., Rynne, S. B., & Tinning, R. (2016). In pursuit of becoming a senior coach: The learning culture for Australian Football League coaches. *Physical Education and Sport Pedagogy, 21*(1), 24-39.

51. Mallett, C. J., Trudel, P., Lyle, J. & Rynne, S. B. (2009). Formal vs informal coach education. *International Journal of Sports Science & Coaching, 4*(3), 325- 334.

52. Martindale, R., & Nash, C. (2013). Sport science relevance and application: Perceptions of UK coaches. *Journal of Sports Sciences, 31*(8), 807-819.

53. Milistetd, M., Ciampolini, V., Salles, W. D. N., Ramos, V., Galatti, L. R. & Nascimento, J. V. (2016). Coaches' development in Brazil: Structure of sports organizational programmes. *Sports Coaching Review*, *5*(2), 138-152.

54. Milistetd, M., Trudel, P., Mesquita, I., & Nascimento, J. V. (2014). Coaching and coach education in Brazil. *International Sport Coaching Journal*, *1*, 165-172.

55. Milistetd, M., Trudel, P., Rynne, S., Mesquita, I., & Nascimento, J. V. (in press). Learner-centered status of a Brazilian university coach education program. *International Sport Coaching Journal.*

56. Nash, C., Martindale, R., Collins, D., & Martindale, A. (2012). Parameterising expertise in coaching; Past, present and future. *Journal of Sports Sciences, 30(*10), 985-994.

57. Nash, C., & Sproule, J. (2009). Development of expert coaches. *International Journal of Sports Science & Coaching, 4*(1), 21-138.

58. Nelson, L., Cushion, C. J., & Potrac, P. (2013). Enhancing the provision of coach education: The recommendations of UK coaching practitioners. *Physical Education and Sport Pedagogy, 18*(2), 204-218.

59. Nippon Coach Developer Academy – NCDA / International Council for Coaching Excellence – ICCE. *Academy Programme*. Retrieved December 10, 2017, from https://www.ncda.tokyo/programme

60. North, J. (2010). Using 'Coach Developers' to facilitate coaching learning and development: Qualitative evidence from UK. *International Journal of Sports Science & Coaching, 5*(2), 239-256.

61. Olsson, C. Cruickshank, A., & Colling, D. (2017). Making mentoring work: The need for rewiring epistemology. *Quest, 69*(1), 50-64.

62. Olusoga, P., Butt, J., Hays, K., & Maynard, I. (2009). Stress in elite sports coaching: Identifying stressors. *Journal of Applied Sport Psychology, 21*, 442-459.

63. Parsloe, E., & Leedham, M. (2009). *Coaching and Mentoring: Practical conversations to improve learning* (2nd ed.). London: Kogan Page.

64. Patton, M. Q. (2011). *Developmental evaluation: Applying complexity concepts to enhance innovation and use*. New York: The Guilford Press.

65. Pill, S. (2015). Using appreciative inquiry to explore Australian football coaches' experience with game sense coaching. *Sport, Education and Society, 20*(6), 799-818.

66. Rocchi, M., & Pelletier, L. G. (2017). The antecedents of coaches' interpersonal behaviors: The role of the coaching context, coaches' psychological needs, and coaches' motivation. *Journal of Sport & Exercise Psychology, 39*, 366-378.

67. Rodrigue, F., He, C., & Trudel, P. (2016). Concept mapping: Its use for high performance sport coach development. In P.A. Davis (Ed.), *The Psychology of Effective Coaching and Management* (pp. 71-90). New York: Nova science Publishers.

68. Rynne, S. B., & Mallett, C. J. (2014). Coaches' learning and sustainability in high performance sport. *Reflective Practice, 15*(1), 12-26.

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

70. Sawiuk, R., Taylor, W. G., & Groom, R. (2017). An analysis of the value of multiple mentors in formalised elite coach mentoring programmes. *Physical Education and Sport Pedagogy, 27*(4), 403-413.

71. Schempp, P. G., & McCullick, B. (2010). Coaches' expertise. In J. Lyle, & C.J. Cushion (Eds.), *Sports coaching: Professionalisation and practice* (pp. 221-232). London: Elsevier Ltd.

72. Stelter, R. (2014a). *A guide to third generation coaching: Narrative-collaborative theory and practice*. New York: Springer.

73. Stelter, R. (2014b). Reflective practice in talent development: A narrative inquiry of a coaching psychology intervention. In Z. Knowles, D. Gilbourne, B. Cropley, & L. Dugdill (Eds.), *Reflective practice in the sport and exercise sciences: Contemporary issues* (pp. 169-181). New York: Routledge.

74. Stelter, R. (2016). The coach as a fellow-human companion. In: L. van Zyl, A. Oddendal, & M. Stander (Eds.), *Meta-theoretical Perspectives and Applications for Multi-cultural Contexts of Coaching Psychology* (pp. 47-66). New York: Springer.

75. Stelter, R., & Law, H. (2010). Coaching – Narrative-collaborative practice. *International Coaching Psychology Review, 5*(2), 152–164.

76. Stephenson, B., & Jowett, S. (2009). Factors that influence the development of English youth soccer coaches. *International Journal of Coaching Science, 3*(1), 3-16.

77. Stober, D.R. (2010). Continuing professional development for coaches. In E. Cox, T. Bachkirova, & D. Clutterbuck (Eds.), *The Sage Handbook of Coaching* (pp. 403-416). London: Sage.

78. Stoszkowski, J., & Collins, D. (2014). Communities of practice, social learning and networks: Exploiting the social side of coach development. *Sport, Education and Society, 19*(6), 773-788.

79. Townsend, R. C., & Cushion, C. J. (2017). Elite cricket coach education: A Bourdieusian analysis. *Sport, Education and Society, 22*(4), 528-546.

80. Tsang, A. K. T. (2013). *Learning to change lives: The strategies and skills learning and development system*. Toronto, Ontario: University of Toronto Press.

81. Trede, F., & McEwen, C. (2016). Scoping the deliberate professional. In F. Trede & C. McEwen (Eds.), *Educating the deliberate professional: Preparing for future practices* (pp. 3-14). New York: Springer.

82. Trudel, P., Culver, D., & Richard, J-P. (2016). Peter Jarvis: Lifelong coach learning. In L. Nelson, R. Groom, & P. Potrac, P. (Eds.), *Learning in Sports Coaching: Theory and Applicatio,* (pp. 202-2014). New York: Routledge.

83. Trudel, P., & Gilbert, W. (2006). Coaching and coach education. In D. Kirk, M. O'Sullivan, & D. McDonald (Eds.), *Handbook of physical education* (pp. 516-539). London: Sage.

84. Trudel, P., Gilbert, W., & Rodrigue, F., (2016). The journey from competent to innovator: Using Appreciative Inquiry to enhance high performance coaching. *AI Practitioner, 18*(2), 40-46.

85. Turner, D., Nelson, L., & Potrac, P. (2012). The journey is the destination: Reconsidering the expert sports coach. *Quest, 64,* 313-325.

86. Van Mullen, P.V., & Dahlin, S. (2017). Five perspectives on pursuing mastery in coaching. *International Sport Coaching Journal, 4*, 246-253.

87. Watkins, A. (2016). *4D Leadership: Competitive advantage through vertical leadership development*. London: Kogan Page.

88. Watts, D. W., & Cushion, C. J. (2017). Coaching journeys: Longitudinal experiences form professional football in Great Britain. *Sports Coaching Review, 6*(1), 76-93.

89. Werthner, P., Culver, D., & Trudel, P. (2012). An examination of a large-scale coach education program from a constructivist perspective. In R. Schinke (Ed.), *Sport Psychology Insights* (pp. 337-355). New York: Nova science Publishers.

90. Werthner, P., & Trudel, P. (2009). Investigating the idiosyncratic learning paths of elite Canadian coaches. *International Journal of Sports Science & Coaching, 4*(3), 433–449.

91. White, J. S., Schempp, P. G., McCullick, B. A., Berger, B. S., & Elliott, J. M. (2017). *International Journal of Evidence Based Coaching and Mentoring, 15*(1), 152-168.

92. Williams, S. J., & Kendall, L. (2007). Perceptions of elite coaches and sport scientists of the research needs for elite coaching practice. *Journal of Sports Sciences, 25*(14), 1577-1586.

93. Young, B. W. (2013). Coaching expertise and the quantitative examination of developmental experiences. In P. Potrac, W. Gilbert & J. Denison (Eds.), Routledge handbook of sports coaching (pp. 437-450). London: Routledge.

Annex
List of some of the material used during the coaching conversations
    Emotional Intelligence
1. Book: Goleman, D. (1995). Emotional intelligence. New York: Bantam Books
2. http://www.danielgoleman.info/topics/emotional-intelligence/
3. https://www.youtube.com/watch?v=Y7m9eNoB3NU
    Emotional Intelligence in Coaching
4. https://www.connectedcoaches.org/spaces/10/welcome-and-general/blogs/general/169/emotional-intelligence-is-integral-to-becoming-a-great-coach
5. https://www.connectedcoaches.org/spaces/10/welcome-and-general/blogs/general/208/inside-story-the-value-of-self-awareness-as-a-tool-for-improvement

Mental Toughness

6. https://www.connectedcoaches.org/spaces/10/welcome-and-general/blogs/general/130/how-to-develop-behavioural-agility-in-your-coaching-to-get-the-best-out-of-yourself-and-your-players

7. https://www.youtube.com/watch?v=yG7v4y_xwzQ

8. http://www.optimumtennis.net/mental-tennis-tips.htm

9. http://www.norcal.usta.com/T-I-P/mentally_tough_tennis/

10. http://www.active.com/tennis/articles/4-steps-to-develop-mental-toughness-on-the-court

Growth Mindset

10. Dweck, C. (2016). Minset: A Nova Psicologia do Sucesso. São Paulo: Objetiva

11. http://www.psicologiamsn.com/2015/02/o-que-e-mindset-conheca-os-dois-tipos-basicos.html

12. https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve#t-161096

Reflective Cards

13. Book Chapter: Design and Implement an Evaluation System. In Gilbert, W.(2017) Coaching Better Every Season. Champaign: Human Kinetics.

14. Hughes, C., Lee, S., & Chesterfield, G. (2009). Innovation in sports coaching: The implementation of reflective cards. Reflective Practice, 10(3), 367–384.

Winning Culture

15. https://www.connectedcoaches.org/spaces/10/welcome-and-general/blogs/general/2939/smells-like-team-spirit-how-to-create-a-winning-culture-through-the-use-of-emotional-intelligence?platform=hootsuite

16. https://www.connectedcoaches.org/spaces/10/welcome-and-general/blogs/general/122/dealing-with-feelings-the-importance-of-getting-your- head-around-emotion-perception

17. http://whatdriveswinning.com/video/coaching-the-line/?f5tp=1

Athletes Mindset

18. http://www.puntodebreak.com/2017/04/15/paganini-no-habido-dia-17-anos-roger-llegara-arrastrando-pies?utm_source=dlvr.it&utm_medium=facebook

19. http://academiasplaytennis.blogspot.com.br/2010/09/talento-x-dedicacao.html

20. http://ed.ted.com/lessons/how-to-practice-effectively-for-just-about-anything-annie-bosler-and-don-greene#review

21. https://www.theplayerstribune.com/kobe-bryant-allen-iverson-obsession-is-natural/

ORIGINAL RESEARCH PAPER

REFLECTIVE PRACTICE: A CASE STUDY OF A UNIVERSITY FOOTBALL COACH USING REFLECTIVE CARDS

Francois Rodrigue, Pierre Trudel

School of Human Kinetics,
University of Ottawa, Canada
E-mail: frodr048@uottawa.ca

Abstract

Sport coaches struggle to integrate reflective practice. To reflect, coaches can choose from multiple tools: concept maps, reflective journals, or reflective cards (r-cards) to name a few. One persisting challenge is for coaches to allocate time to reflect. R-cards present an interesting avenue for coaches because they require little time. Nonetheless, few empirical studies have documented the use of r-cards. The purpose of this study was to document the experience of a high-performance Canadian football coach's use of r-cards. The authors conducted an intrinsic case study of the first author's – a Canadian football assistant coach – use of r-cards. Data collection included 52 r-cards from post-practice (n=46) and post-competition (n=8) reflections that were analysed using a conventional content analysis. The findings detail three aspects of the coach's use of r-cards. The first section describes the development and adaptation of the r-cards to the coach's practice. Second, the authors describe one post-practice and post-competition example and provide an overview of the coach's use of each section of the r-cards. Finally, the coach presents his reflections on the challenges and benefits of using r-cards as a high-performance coach. The coach saw several benefits to the use of r-cards even though it was challenging at times due to redundancy and prioritization.

Keywords: *reflective practice; reflective cards; coaching; high-performance.*

Introduction

Engaging in continuous learning is important for achieving professional success. Schön (1983, 1987) proposed that reflective practice, the ability of practitioners to continuously learn from previous actions, is crucial for ensuring continuous learning. Although researchers across numerous fields of study suggest that reflective practice is an effective development strategy, there is a lack of empirical studies on its implementation (Saury & Durand, 1998). Specific to sport coaching, the growing number of calls advocating for the integration and importance of reflective practice for developing coaches (Gallimore, Gilbert, & Nater, 2014; Irwin, Hanton, & Kerwin, 2004; Knowles, Gatz, & Gilbourne, 2012) contrasts with the limited reports on how coaches actually engage in it. Nevertheless, Knowles, Gilbourne, Cropley, and Dudgill (2014) proposed that the process of becoming a successful sport coach depends on the ability to become a reflective practitioner.

Coaches must develop reflective skills (Cushion & Nelson, 2013) because they help, among other things, to shape intrapersonal knowledge; the ability to understand yourself as a coach while improving upon your coaching skill (Gilbert & Côté, 2013). For Gallimore et al. (2014), reflection is "the pondering, reviewing and questioning of their experiences that prompts individuals to adapt and change their behaviours in subsequent action" (p. 269). This definition is important to remember because it helps to differentiate between thinking, ruminating, and reflecting about an experience (Werthner & Trudel, 2009). It also suggests that "competent practitioners will not limit their effort to a trial and error approach but will enter into a reflective process" (Gilbert & Trudel, 2006, p. 115) that will connect all aspects of their profession. In other words, "it would be wrong to assume that simple exposure to a professional experience will bring about learning" (Miles, 2011, p. 110).

Using Schön's conceptual framework (1983, 1987) to conduct studies in sport coaching, Gilbert and Trudel (2001, 2004, 2005, & 2006) identified three types of reflection: reflection-in-action, reflection-on-action, and retrospective reflection-on-action. Reflection-in-action is to transform observations into actions while performing an activity. Schön (1983) explained that, in some circumstances, reflection-in-action might have some limits because it can paralyze practitioners and hinder the quality of behaviours in the moment. Nonetheless, reflection-in-action can help coach's process information and improve their behaviours in real-time (Whitehead et al., 2016). By contrast, reflection-on-action is when reflection occurs following professional activities. The timing of this approach's application is helpful because practitioners can examine more areas of their

practice (Schön, 1983). For instance, Irwin et al. (2004) showed that reflection-in-action is a valued source of learning by individual coaches after discussions with coaching colleagues. Taylor, Werthner, Culver, and Callary (2015) also showed that the utilization of both reflection-in-action and reflection-on-action lent parasport coaches a sense of clarity in their thought process. Lastly, a coach may engage in retrospective reflection-on-action at a point in time when they are not able to influence the events any longer. Although this approach may be helpful for future seasons, this technique does not improve current coaching practice.

Reflection-on-action is particularly important for coaches since it enables improvements from one training or competition session to the next. Reflection-on-action can help coaches deal with emotions and bridge the gap between their practice and coaching knowledge (Knowles, Tyler, Gilbourne, & Eubank, 2006). It can support a coach's decision-making processes when faced with having to make difficult decisions (Roberts & Faull, 2013). Reflection-on-action can also help coaches with understanding interactions with players, coaching identity, as well as critically reviewing events from the previous day (Peel, Cropley, Hanton, & Fleming, 2013).

Considering this, it becomes relevant to have a look at the various reflective tools available for coaches to engage in reflection-on-action. Authors have suggested many tools, such as concept maps, reflective journals, and reflective cards (r-cards; Gilbert & Côté, 2013; Telfer & Knowles, 2009; Rodrigue et al., 2016). Although Gilbert & Côté (2013) suggested that concept maps were a valuable tool for assessing a coach's knowledge, concept mapping can be useful to reflect as well. Rodrigue, He, and Trudel (2016) explained that concept mapping helps sport coaches manage their knowledge as it forces them to represent and negotiate the meaning of concepts. Concept mapping is a structured top-down approach that examines the unique relationships between concepts relevant to a specific subject (Eppler, 2006). However, concept mapping may present some challenges when aiming to reflect on action. Concept mapping must be learned and practiced in order to be effective and efficient. Its power may depend on the introduction by a facilitator or the investment of a significant amount of time. This seems to make it a tool suited for retrospective reflection-on-action rather than reflection-on-action.

The handiness of a reflective journal makes it an effective and favoured tool for reflective practice (Telfer & Knowles, 2009). Reflective journals usually contain a set of open-ended questions that guide the coach's reflective process (Koh, Mallett, Camiré, & Wang, 2015). Although it can be useful for reflection-on-action, its appeal and effectiveness are questionable. Coaches struggle to continue to reflect on their practice

through a reflective journal because of a lack of time (Knowles et al., 2006). Knowles and colleagues (2016) reported that some had to modify their reflective strategy to continue its use. A reflective journal may also become monotonous for a more experienced professional (Knowles et al., 2012). Nonetheless, Kuklick, Gearity, & Thompson (2015) showed that an online reflective journal helped to improve the efficacy of reflective practice in a coach education program.

These reflective tools have apparent benefits, but coaches perceive their use as time consuming and boring at times. In fact, Burt and Morgan (2014) identified 99 examples of barriers to reflective practice that they grouped into one of four different categories: workload, incentives, enforcement, and support. The workload category reinforced the concerns about the time available for reflective practice. Reflecting remained of secondary importance for many coaches because it competes with time needed to complete other important work (Knowles et al., 2006; Rynne & Mallett, 2012). Interestingly, Hall and Gray (2016) conducted an action research on reflective practice and explained that it should be concise (less than half an hour), specific (limited and focused objectives), and deep (ask hard questions).

Reflective Cards

R-cards may present interesting benefits to sport coaches. This tool consumes little time while providing enough structure to generate effective reflections (Ghaye, 2009). Two empirical studies have examined the implementation of r-cards with three equine coaches (Hughes et al., 2009; Winfield et al., 2013). Hughes and colleagues (2009) showed that coaches struggled to use r-cards at first, but they appreciated them more as they were exposed to them more often. The r-cards made coaches more aware of their reflective processes while focusing their reflections on coaching competencies, and also helped coaches develop critical thinking skills. Winfield and colleagues (2013) explained that r-cards counteract the isolation that coaches can experience as the leaders of a club. Coaches in this position rarely receive feedback, whereas such needed feedback can be generated from use of r-cards. Recently, Koh, Chew, Kokkonen, and Chew (2017) also studied the use of r-cards by one head coach and 12 players of an elite youth basketball team. Participants perceived the use of r-cards as valuable because it helped them identify weaknesses and recognize effort levels. Nonetheless, participants considered some reflective questions as being detrimental to the value of r-cards because they did not see the relevance for their work.

In their study, Winfield and colleagues (2013) incorporated the reflective cycle developed by Gibbs (1988) to the r-card model used by

Hughes et al. (2009) to create their own effective reflective card design. The six stages of reflective process established by Gibbs is as follows:

1. Description: what happened?
2. Feelings: what were your reactions and feelings?
3. Evaluation: what was good or bad about the experience?
4. Analysis: what sense can you make of the situation?
5. Conclusions: what can be concluded from the experiences and the analyses you have undertaken?
6. Personal action plan: what are you going to do differently in this type of situation next time?

Gibbs (1988) created these six stages to facilitate the start of the reflective process and increase the likelihood that it produces something valuable for the learner. In addition, the order of steps is necessary because it prevents learners from taking premature decisions to make changes without going through the entire reflective process. This sequence also helps practitioners who lived a powerful experience to analyse it thoroughly rather than remembering it emotionally only and never discussing its implications. Lastly, learners that do not follow the sequence by writing about their feelings in the part may impede the value of their reflections in the later steps.

The use of such a reflective process is consistent with many recommendations. For example, Miles (2011) suggested that individuals should make reflections a directed task by grouping reflections in specific categories such as technical, scientific, pedagogical, personal, and interpersonal. To use Gibbs' (1988) six-stage cycle accomplishes that goal and organises the reflective process effectively (Knowles & Telfer, 2009; Whitehead et al., 2016). Some authors underlined that reflections must be contextualized and must include emotions in the process (Dixon, Lee, & Ghaye, 2013; Knowles & Telfer, 2009). Gallimore and colleagues (2014) highlighted important features of effective reflective practice that are similar: (a) defining important instructional problems specific to the context, (b) preparing and implementing detailed instructional plans, (c) utilizing evidence to drive reflections, and (d) persistent work towards detectable improvements.

Considering that r-cards have the potential to overcome the barrier of time and provide enough structure for effective reflection-on-action, the purpose of this study was to document the experiences of a high-performance Canadian football coach who used r-cards during one competitive season.

Methods and Materials

The first author – Coach Frank – was a high-performance Canadian football coach who planned to use r-cards while coaching during the 2016 season. Therefore, we decided to conduct an intrinsic case study. Intrinsic case studies are useful when "the researcher wants better understanding of this particular case" and when "the case itself is of interest" (Stake, 2000, p. 437).

Participant

At the time of the study, the first author was a doctoral student interested in coach development research (e.g., Rodrigue, He, & Trudel, 2016). He was also an Assistant Coach (nicknamed Coach Frank) with a university football team, the highest level of amateur football in Canada. Although this was his first year as a high-performance coach, he previously coached for three years at the developmental level in different coaching roles.

Data Collection

During a complete season (mid-August to the end of October), Coach Frank completed 52 r-cards; one after every practice (n = 46) and match (n = 8). At the end of each practice or match, the coach followed this procedure:

Coach Frank debriefed the session with his players for two to three minutes on the field. Then he walked back to the assistant coaches' office and immediately accessed his r-card booklet located in his private locker. He sat down and set a timer for three minutes and completed each section of the r-card. Ideally, it would end with the identification of one action that could lead to an improvement for the next session. He put back his r-card booklet and proceeded to the assistant head coach's office where he joined the other coaches to prepare the next course of action for that day.

Data Analysis

For this study, the authors conducted a conventional content analysis as it is effective for studies with aims that focus on describing a phenomenon while using open-ended questions (Hsieh & Shannon, 2005). The conventional content analysis was conducted using a seven-step process: (a) the researcher immersed himself in the data by reading the raw data numerous times; (b) r-cards were read section by section to capture key words and create initial codes; (c) the author then annotated the document to capture initial thoughts; (d) initial codes were organized into meaningful clusters specific to each section of the r-card model; (e) these clusters were then combined in section bound subcategories; (f) the author then used these subcategories to define categories for each section; and finally (g) the

researchers worked to identify relationships between different categories (Hsieh & Shannon, 2005).

Results and Discussion

The results and the discussion sections are combined to present and organize the data in the most practical and trustworthy manner for sport coaches and researchers. We present the findings through a first-person perspective for two main reasons. We wanted to present the findings in a manner relatable to coaches. We also believed this approach would be more authentic since the first author was the participating coach in this study.

The results have been divided into three sections to clearly delineate the outcomes of this case study. The first section describes the coach's process for developing and adapting r-cards to his coaching context. Second, we summarize the coach's use of r-cards. The last section details the coach's reflection on the benefits and challenges of using r-cards.

Development and Adaptation of the Reflective Cards

To begin with, I reviewed recent publications to explore the various styles of r-cards. The inspiration for my r-card model came from three main sources: (a) Hughes and colleagues (2009) who invited equine coaches to reflect using an R-Learning Record Sheet, (b) Winfield and colleagues (2013) who created Reflective Practice Sheets to support the development of three equine coaches, and (c) R-card examples from a presentation by Trudel and Gilbert (2014). I used the model presented by Winfield and colleagues (2013) as a preliminary model, which I then modified based on my coaching needs and preferences. I wanted a reflective process that would take less than three minutes. A short reflective process would insure my commitment. Finally, I carefully designed each section of my r-card (see Figure 1 and 2).

My r-card model was composed of three main sections split in eight fields: a *Performance* section with fields evaluating *Players Performance* and *Coaching Performance*, a *Reflection* section with fields related to *Feelings*, *Evaluation*, *Analysis*, and *Technical/Tactical* reflections, and a *Generation* section composed of a *Conclusion* field and an *Action Plan* field.

To get this final version, I first created the *Players Performance* field to monitor my players' progress and the influence of my coaching on their performance. In this field, I inserted four key performance factors that were *effort*, *execution*, *tackling*, and *pass defense*. I chose these factors through a combination of coaching experience, analyses of professional football, and coaching research.

Second, I listed coaching competencies used by a previous study in the *Coaching Performance* field to initiate the reflective process: *Judgement,*

Decision-Making, Communication, Observation, and *Teamwork* (Hughes et al., 2009). However, I realized that *Decision-Making* was not directly relevant to my coaching role and therefore this was removed. Part-time assistant coaches in Canadian university football typically do not have authority to make tactical or strategic decisions. Although not often, in some instances assistant coaches are invited to make recommendations, but final decisions are always left to superiors.

Third, I decided, based on examples suggested by Trudel and Gilbert (2014), to use an evaluation scale ranging from 1 (mediocre) to 5 (excellent) to write my perceptions of the *Players* and *Coaching Performance*s. By taking this approach, I viewed this as an efficient way to initiate the reflective process and deliberately orient it towards aspects that would be meaningful to me.

Fourth, I continued the creation of my r-card by adding six qualitative fields based on the work of Winfield and colleagues (2013). I found it essential to add a technical/tactical field because my primary coaching mandate was to enhance the technical proficiency of my players and to ensure that they understood their tactical responsibilities. In my view, the *Feelings*, *Evaluation*, *Analysis*, and *Technical/Tactical* field created a *Reflection* section that would lead me to reflect on my coaching. The *Conclusion* and *Action Plan* fields formed a *Generation* section that would lead me to suggest concrete practical changes to my practice.

Finally, I presented my preliminary r-card model to the second author and we reviewed it together. My overall goal during this process was to confirm that my r-card model remained consistent with the principles of the three main sources (Hughes et al., 2009; Trudel & Gilbert, 2014; Winfield et al., 2013), and that it would be as effective as possible for my coaching purpose. My discussion with the second author resulted in needing to make minor modifications, which eventually led to the final model of r-cards used throughout this study.

Usage of the Reflective Cards by Coach Frank

Practice. R-cards were helpful post-practice to delve deeply into the significant events of that day's session. R-card #21 is an example of this as I initially identified overall player effort as a problem during the scrimmage, which was then used to explore explanations for possible causes in the *Analysis* field.

Figure 1. Reflective card #21

This card shows that I identified multiple elements in my reflection. For example, I identified two possible explanations for the lack of effort coming from my players, two challenging technical and tactical aspects, and two possible solutions for these issues. Identifying potential weaknesses and recognizing effort level echo the findings of Koh and colleagues (2017). R-card #21 may have given me the ability to identify action points that are specific to initial problems in the *Generation* section. The following statements demonstrate that:

- Doing the consolidation stage with blockers for tackling
- Emphasizing sprinting to the ball in helmet tempo
- Give less repetitions to players
- Improve their stamina

In implementing these solutions, I identified action points such as running the next progression of a drill for a technique (e.g. tackling), focusing feedback on player effort, changing personnel management strategy, and/or training another aspect of player fitness. Overall, this card shows that I initially critiqued player performance to then identify four different solutions. Without this reflective process it is likely that I would have ignored some of the causes and/or solutions.

Game. The analyses of the eight r-cards completed after competitions show that I used this process to critique my in-competition coaching behaviours and to identify areas of improvement for the upcoming week of practice. For example, I mentioned the need to improve the execution of a tactic and my observational skills in r-card #30.

Figure 2. Reflective card #30

This post-competition reflection shows that I identified player performance as excellent for tackling and good for execution. However, I assessed the players' tactical execution more positively in the *Analysis* field. I also contradicted myself when I evaluated my observation as good, whereas stressing the need to improve it in the action plan section. This reflection shows a tendency to point out challenging areas and later link them to potential solutions. For example:

- The alignments and +1 were challenged
- The game preparation was great but I should be more aware of the mistakes of assignments in real time

In the *Conclusion* field, I mentioned my intent to work on a specific tactic during individual development periods. I also noted the need to improve my in-game awareness of player execution in the action plan section. Differences between *Coaching Performance* and *Action Plan* fields show a progression in my reflection with respect to my observational skills. This post-competition reflection helped me identify weaknesses even though the result first appeared positive. Perhaps these outcomes suggest that a quick reflection via r-card use can answer the need for deep reflections (Hall & Gray, 2016).

Summary. Overall results are now presented for the three sections of my r-card. First, I display a summary statement for each section. Following, I detail the general idea that emerged from the content analysis of each field. Quotes accompany these explanations to provide readers with a clear illustration of the content's meaning.

Performance section. The aim of the *Player Performance* field was to help me track players during each session as well as throughout the season. Generally, my assessment of player performance showed *execution* as the lowest rated key performance factor, whereas *effort*, *tackling*, and *pass defense* were consistently rated between three and four (see Table 1). For example, one time I initially considered *execution* as the lower scoring category of player performance. In later fields, I focused on the players' ability to react to a specific situation. *"It seemed like they had issues with counter flow runs"* (Card #49). This shows that I expanded my reflections from the initial process that took place in the player performance section when I made it more specific later on.

Table 1

Cumulative frequency of the evaluation marks according to each performance factor

Field	Factor	Mediocre	Correct	Good	Very Good	Excellent
Players Performance	Effort/+Energy	1	8	16	23	4
	Execution	2	9	27	14	0
	Tackling	2	2	23	22	3
	Pass Defense	2	9	16	23	2
Coaching Performance	Observation	0	10	20	20	2
	Communication	1	10	14	20	7
	Judgement	1	4	24	22	1
	Teamwork	0	6	11	25	10

The *Coaching Performance* field focused on the self-evaluation of my performance of the coaching competencies. Overall, I identified *teamwork* as the top performance area, whereas *observation* and *judgement* were most often rated as very good. *Communication* was inconsistently rated from *passable* to *excellent* (see Table 1). This initial reflection often set the focus for the *Reflection* and *Generation* section. For instance, I could evaluate my communication as *passable* and then identify an action point specific to that in the last section. *"I will try to communicate better with my LBs as what we expect"* (Card #10). This statement shows the completion of the cycle initiated in the *Coaching Performance* field since it ended with a hint to the need to improve my communication of expectations.

Reflection section. My reflections often began in the *Feelings* field with a general look at a training session and then transitioned to a description of the players' condition for a given day, *"I felt good about the session, but I feel like the players could have played better and I felt that we were tired."* Answers were occasionally random as shown by this example directed at technical and tactical components, *"I really [think] we are making strides in terms of tracking and tackling but we have to make improvements"* (Card #10). On other occasions, I went straight to a positive evaluation of the session, *"I felt good*

and I was in control the whole time. I was able to provide teachable moments to the players" (Card #17). Overall, this section helped to unload my initial and superficial thoughts while opening the way for deeper and more meaningful reflections. For example, I answered the following on r-card #5, *"I felt the practice was good, but the players should have been better at knowing their plays."*

The goal of the *Evaluation* field was to judge the quality of the players' performance or my own performance. I often used this section to critique specific performance areas as represented by this summary statement, *"I think the players played well versus the pass but had issues with finishing their assignments and were inconsistent at tackling."* I also showed appreciation for good player performance several times in this section. This quote from card #44 shows an example of praise, *"The players did fairly well for a Tuesday practice even though they need to be more consistent in their block shedding."* This highlights a general trend to have the second part of my statement target the players' inability to finish plays or struggle with tackling. On card #49, I wrote: *"I think the players were sound in their assignments but that they have to get better at finishing plays."* On card #45, I stated that *"The players did well in terms of execution, but they are still inconsistent on tackles."*

Building on statements made in the previous field, I used the *Analysis* to hypothesize what might have been causing player under-performance. The analysis shows that searching for the causes of the struggles was a process full of uncertainties. *"I think we got those results because we might be overthinking, we might be too comfortable, we might do this wrong, or we might have inconsistent focus."* Performing this analysis did not always lead to the identification of the root cause behind poor performances. *"Alignment was poor, and some tensions arose. A lot of players wanted to talk and know their roles"* (Card #25). At other times, this step seems to have raised questions. *"Maybe the players were not rested. Maybe the players were overthinking"* (Card #21). Overall, the statements in this section underlined my uncertainties while often remaining general to a point where I do not answer the reflective question.

The *Technical/Tactical* field frequently contained reflections on sport-specific components related to the statements made in *Evaluation* and *Analysis*. I often used Canadian football terms to point out the problematic area. The following summary statement expresses this: *"I think this specific technical aspect was challenged today: reading the passing concepts, the players' mindset, or the tackling footwork."* Sometimes, the statements covered a technique superficially. For example, I stated on card #12 that *"I think block destruction and playing the ball is a challenge right now."*

However, I pinpointed some technical or tactical issues on other cards. *"I feel knowing their spacing or drops were a challenge and also their ability to identify their tackling situation"* (Card #17). I mostly focused on the technical and tactical challenges faced by the players, which matches the original intent of adding this section to the original design.

    Generation section. Three types of solutions emerged from the *Conclusion* field. First, I often focused on the selection of upcoming training activities or the modification of typical training activities. For instance, I suggested a tiny tweak to a regular drill on card #12. *"Insert more shield and forearm bags into the flow reads drills."* Second, I often considered the option of modifying the meetings' format or creating other resources for the players. The summative idea goes as follow: *"I could make them do this in the meeting or I could organize a video edit for them."* Finally, reflections occasionally targeted the instructional component of my coaching performance. For instance, when I noticed in the early sections of r-card #21 that the players' energy and effort levels were not up to par, I decided to change the emphasis of the feedback I would give to the players in the upcoming sessions.

    The *Action Plan* field of the r-cards was designed to help me target one concrete action that I could perform in the next session. Often written as an assertive statement, the summative idea goes as follows: *"I will make sure to interact better with the players and I should review my preparation and the instructions before the drills and periods."* I often made an *"I will"* statement to identify the behaviour to start or change. For example, this statement was written on card #19: *"I will make sure I teach players about the proper fits and that I emphasize block destruction."* I also made regular statements about the behaviours or elements that went well during that practice. *"The leadership group meetings are so valuable, it really helps the group be proactive" (Card #37).* Finally, answers in this section also identified instructional behaviours that could be adopted or changed. *"I should use more visual demonstrations or live feedback."*

    Reflections on the Use of Reflective Cards by the Coach
Once the competitive season ended, I completed a retrospective reflection on the benefits and challenges of using r-cards. It was challenging to use the r-cards at times because it felt redundant and unimportant when compared to other coaching tasks (Knowles et al., 2006; Rynne & Mallett, 2012), such as creating an edited video of the practice for meeting with the players. Nonetheless, it seems that my coaching practice has benefited from using r-cards on multiple fronts.

    Adaptation. I felt that adapting the r-cards to my own practice and purpose was a highly motivating part of using reflective practice. This

process is insightful because I learned about other coaches' improvement strategies and I improved my understanding of the rationale behind reflective practice. However, some coaches may find the adaptation tricky. The scientific resources were quite accessible to me, but it may not be the case for all coaches. Some coaches may also make modifications that will be detrimental to the reflective process. For example, they may remove the *Feelings* field because they underestimate the influence it has on their coaching performance.

The process of adapting the r-cards is important for a coach to integrate them into his or her practice. If the elaboration is not well done, it will feel like added work. For instance, the insertion of my own key performance factors and the addition of a technical/tactical section increased the likelihood of continuously using the tool as I noticed an impact on my daily coaching practice. It answers the call for contextualized reflection (Dixon et al., 2013). The tool also becomes personal, which may favour a more authentic reflective process.

Challenges. I did find it challenging to use the r-cards regularly. In fact, the data shows that there was a lack of coherence from one card to the next, and a lack of perceived value in completing the process at times. For instance, I wrote "*Forgot*" on card #13 and that I did not want to reflect on card #28. On occasions, my reflections were also vague and deficit-based. I wrote on card #46 that *"there was still some issues, the practice was ugly. It may be good but will see on the weekend"* in the *Analysis* field. Such a statement neither helps to find the root causes nor improves player performance. This reinforces perhaps the suggestion that reflective tools can be overwhelming and that having a person to act as a sounding board might be necessary (Gilbert & Trudel, 2013).

At times, I also experienced an internal conflict of wanting to jump ahead to the *Conclusion* and *Action Plan*. I thought that I already knew the causes of our struggles and had no need for the other sections. Nonetheless, I never answered to that urge and always stuck to the proposed sequence. After all, it directly meets one of the three reasons that justified the creation of this sequence by Gibbs (1988), so that practitioners do not skip essential part of the reflective process.

Benefits. The reflective process that was supported by the r-cards acted as a catalyst for change and improvement in my coaching practice. First, data shows that I reflected on my teaching of technical skills and tactical concepts repeatedly. In the *Technical/Tactical* field, I often (a) recalled effective teaching strategies, (b) generated novel explanation strategies, or (c) critiqued strategies I used during that session. For instance, I began to use on-field tutorial video and implemented pre-drill walk-

throughs from reflections written in that section. Second, the use of r-cards seemed to enhance my reactivity to player performance. Several excerpts monitor the players' energy levels, recognize the need to rest some players, and subsequently determine the best course of action. Third, the reflective process helped me make several sport-specific and precise observations. I consistently identified weaknesses, such as the inability to bring their feet under their tackles or to track the hips of opposing players. Fourth, the r-cards helped me identify and repeat effective coaching behaviours. I was able to associate some actions with an outcome and highlight positive events that happened in that day's session. Finally, many reflections discussed relationships and the climate within the coaching staff. For instance, I wrote this on Card #25: "*Indies are great but I need to be better at guiding the offensive coaches in scout (period).*" I seemed to have reflected on my interactions with the coaching staff frequently. This adds evidence to the argument that r-cards are beneficial for beginner coaches (Hughes et al., 2009). It also underlines the support provided by r-cards in the process of becoming a better coach. The little time required for this learning situation was key to insuring an effective use of reflective practice throughout the season. Researchers should examine the possibility of coaches combining the use of multiple reflective tools, since the length and space of r-cards may limit the depth of some reflections.

It is somewhat naïve to think that coaches will become effective reflective practitioners without instruction or facilitation (Miles, 2011). Coaches find reflective practice useful when they are taught how to use it (e.g., Roberts & Faull, 2013; Taylor et al., 2015), but coach education programs still struggle to integrate reflective practice into their curriculum (Callary, Culver, Werthner, & Bales, 2014; Lefebvre, Evans, Turnnidge, Gainforth, & Côté, 2016; Milistetd, Trudel, Mesquita, & Nascimento, 2014). Coach education programs could integrate reflective practice strategies into their curriculum and start by teaching how to adapt these tools. This could increase the regular use of reflective practice since my occasional lack of motivation adds another example of a coach who struggled with the use of r-cards (Hughes et al., 2009; Winfield et al., 2013). Perhaps, researchers should explore further the need for reflective practice to be supported, facilitated, and periodically debriefed (Winfield et al., 2013). Roberts and Faull (2013) demonstrated that facilitated reflective practice could be mutually beneficial for a sports coach and a mental performance coach. Future studies should perhaps include a periodical debriefing with a reflective practice facilitator considering that some reflections were vague, and that motivation was lacking. Nonetheless, support could be detrimental as it could limit the coaches' originality in

their reflections and produce reflections that adhere to the norm (Cushion, 2018).

Although this r-card model generated benefits for my coaching practice, I would modify it to improve its efficiency if I had to use r-cards again (see Figure 3).

Figure 3. Adapted r-card model designed by the coach after the study

The *Performance* section would remain the same considering that I felt it was intrinsically related to my coaching purpose. Similar to designs from previous studies (Hughes et al., 2009; Winfield et al., 2013), I would insert a field designed to identify the focus of my reflection early in the reflective process. The analysis showed that there was a lack of coherence between the answers in the early and later fields. This would help to narrow down the scope of my reflection and increase the likelihood of deeper reflections. I would then refine and lighten the *Reflection* section by putting only the reflective questions without a heading. This would simplify the design and make the question the focus. Finally, I would combine the last two sections since the analysis revealed that there were many duplications between the *Conclusion* and *Action Plan* field.

Conclusion

This study demonstrated that the use of r-cards adapted to my coaching context helped me to reflect effectively and consistently on my coaching in practices and competitions. My reflections also produced several benefits – (a) generating teaching strategies, (b) enhancing reactivity, (c) increasing personnel awareness, (d) recognizing effective behaviours, and (e) critiquing human interactions – and presented some challenges – (a) lack of motivation, and (b) superficial reflections.

To the best of our knowledge, this study contributes to the literature because it is the first to present the use of r-cards by a coach in the high-performance coaching context. Another contribution for practitioners is in the examples of their use in a practice and competition setting. It also is the first to document the development and adaptation of r-cards by a coach to his preferences and needs. By contextualizing the tool and making it handy, it insures that the coach can reflect on his practice when he or she is mentally prone to reflect and/or emotionally charged. This characteristic seems conducive to recurrent use. Future studies should examine the process and the effectiveness of adapting reflective cards, and other reflective tools. The 46 post-practice reflections also showed that it helped the coach generate multiple solutions to various coaching problems.

Nonetheless, practitioners and researchers must be sensitive to the limitations of such a case study. This account only describes one coach's experience using r-cards. The findings come from a specific context (i.e. Canadian university sport, high-performance, graduate student conducting his dissertation). The coach was a graduate sports coaching student who had pre-existing knowledge of reflective practice. These characteristics may have enhanced the coach's ability to benefit from r-cards and increased his motivation to commit to reflective practice. Although this study described an in-depth use of r-cards, it underlines the need for future studies to continue the documentation of the implementation of reflective practice by high-performance coaches. The adaptation of the r-cards by the coach suggests that selecting and developing the tool is more important than finding the best tool (Kovacs & Corrie, 2017).

References

1. Burt, E., & Morgan, P. (2014). Barriers to systematic reflective practice as perceived by UKCC Level 1 and Level 2 qualified Rugby Union coaches. *Reflective Practice*, *15*(4), 468–480. https://doi.org/10.1080/14623943.2014.900016
2. Callary, B., Culver, D., Werthner, P., & Bales, J. (2014). An Overview of Seven National High-Performance Coach Education Programs. *International Sport Coaching Journal*, *1*(3), 152–164. https://doi.org/10.1123/iscj.2014-0094
3. Chivers, G. (2003). Utilising reflective practice interviews in professional development. *Journal of European Industrial Training*, *27*(1), 5–15.
4. Cropley, B., Miles, A., & Peel, J. (2012). Reflective practice: Value of, issues, and developments within sports coaching. *Sports coach UK research project*, 1-51.
5. Currie, J. L., & Oates-Wilding, S. (2012). Reflections on a dream: towards an understanding of factors Olympic coaches attribute to their success.

Reflective Practice, *13*(3), 425–438. https://doi.org/10.1080/14623943.2012.670106

6. Cushion, C., & Nelson, L. (2013). Coach education and learning: Developing the field. In P. Potrac, W. Gilbert, & J. Denison (Eds.). *Routledge Handbook of Sports Coaching (pp. 359-374).* Oxford, UK: Routledge.

7. Cushion, C. J. (2018). Reflection and reflective practice discourses in coaching: a critical analysis. *Sport, education and society*, *23*(1), 82-94.

8. Dixon, M., Lee, S., & Ghaye, T. (2013). Reflective practices for better sports coaches and coach education: shifting from a pedagogy of scarcity to abundance in the run-up to Rio 2016. *Reflective Practice*, *14*(5), 585–599. https://doi.org/10.1080/14623943.2013.840573

9. Eppler, M. J. (2006). A Comparison between Concept Maps, Mind Maps, Conceptual Diagrams, and Visual Metaphors as Complementary Tools for Knowledge Construction and Sharing. *Information Visualization*, *5*(3), 202–210. https://doi.org/10.1057/palgrave.ivs.9500131

10. Gallimore, R., Gilbert, W., & Nater, S. (2014). Reflective practice and ongoing learning: a coach's 10-year journey. *Reflective Practice*, *15*(2), 268–288.

11. Ghaye, T. (2009). Reflection: Principles and practices. In C. Heaney, B. Oakley, & S. Rae (Eds.). *Exploring Sport and Fitness: Work-based practice (pp. 5-10).* Oxford, UK: Routledge

12. Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods.* Oxford, UK: Further Education Unit.

13. Gilbert, W., & Côté, J. (2013). Defining coaching effectiveness: Focus on coaches' knowledge. In P. Potrac, W. Gilbert, & J. Denison (Eds.). *Routledge Handbook of Sports Coaching (pp. 147-159).* Oxford, UK: Routledge.

14. Gilbert, W. D., & Trudel, P. (2001). Learning to coach through experience: Reflection in model youth sport coaches. *Journal of Teaching in Physical Education*, *21*(2), 16–34.

15. Gilbert, W.D., & Trudel, P. (2004). Role of the coach: How model youth team sport coaches frame their roles. *The Sport Psychologist, 18*, 21-43.

16. Gilbert, W.D., & Trudel, P. (2005). Learning to coach through experience: Conditions that influence the reflective process. *The Physical Educator, 62*(1), 32-43.

17. Gilbert, W., & Trudel, P. (2006). The coach as a reflective practitioner. In R. L. Jones (Eds.), *The sports coach as educator: reconceptualising sports coaching* (pp. 114–127). London: Routledge.

18. Gilbert, W., & Trudel, P. (2013). The role of deliberate practice in becoming an expert coach: Part 2–Reflection. *Olympic Coach Magazine*, *24*(1), 35-44.

19. Hall, E. T., & Gray, S. (2016). Reflecting on reflective practice: a coach's action research narratives. *Qualitative Research in Sport, Exercise and Health*, *8*(4), 365–379. https://doi.org/10.1080/2159676X.2016.1160950

20. Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, *15*(9), 1277-1288.

21. Hughes, C., Lee, S., & Chesterfield, G. (2009). Innovation in sports coaching: The implementation of reflective cards. *Reflective Practice*, *10*(3), 367–384.

22. Huntley, E., Cropley, B., Gilbourne, D., Sparkes, A., & Knowles, Z. (2014). Reflecting back and forwards: An evaluation of peer-reviewed reflective practice research in sport. *Reflective practice*, *15*(6), 863-876.

23. Irwin, G., Hanton, S., & Kerwin, D. (2004). Reflective practice and the origins of elite coaching knowledge. *Reflective Practice*, *5*(3), 425–442.

24. Knowles, Z., Gilbourne, D., Borrie, A., & Nevill, A. (2001). Developing the reflective sports coach: A study exploring the processes of reflective practice within a higher education coaching programme. *Reflective practice*, *2*(2), 185-207.

25. Knowles, Z., Katz, J., & Gilbourne, D. (2012). Reflective practice within elite consultancy: Diary extracts and further discussion on a personal and elusive process. *The Sport Psychologist*, *26*(3), 454–469.

26. Knowles, Z., Gilbourne, D., Cropley, B., & Dudgill. (2014). *Reflective practice in the sport and exercise sciences: Contemporary issues.* London: Routledge

27. Knowles, Z., Tyler, G., Gilbourne, D., & Eubank, M. (2006). Reflecting on reflection: exploring the practice of sports coaching graduates. *Reflective Practice*, *7*(2), 163–179. https://doi.org/10.1080/14623940600688423

28. Koh, K. T., Chew, M. L. E., Kokkonen, M., & Chew, W. C. E. (2017). The use of reflection-card by elite youth basketball players, head coach and team manager: effects on players' performance and perceptions of users. *Reflective Practice*, *18*(3), 291–311. https://doi.org/10.1080/14623943.2016.1267001

29. Koh, K. T., Mallett, C. J., Camiré, M., & Wang, C. K. J. (2015). A Guided Reflection Intervention for High Performance Basketball Coaches. *International Sport Coaching Journal*, *2*(3), 273–284. https://doi.org/10.1123/iscj.2014-0135

30. Kovacs, L., & Corrie, S. (2017). Building reflective capability to enhance coaching practice. *Coaching Psychologist*, *13*(1), 4-12.

31. Kuklick, C. R., Gearity, B. T., & Thompson, M. (2015). Reflective Practice in a University-Based Coach Education Program. *International Sport Coaching Journal*, *2*(3), 248–260.

32. Lefebvre, J. S., Evans, M. B., Turnnidge, J., Gainforth, H. L., & Côté, J. (2016). Describing and classifying coach development programmes: A synthesis of empirical research and applied practice. *International Journal of Sports Science & Coaching*, *11*(6), 887-899.

33. Miles, A. N. D. Y. (2011). The reflective coach. *Coaching children in sport*, 109-122.

34. Milistetd, M., Trudel, P., Mesquita, I., & Nascimento, J. V. (2014). Coaching and coach education in Brazil. *International Sport Coaching Journal*, *1*(3), 165-172.

35. Nelson, L. J., & Cushion, C. J. (2006). Reflection in coach education: The case of the national governing body coaching certificate. *The Sport Psychologist*, *20*(2), 174-183.

36. Peel, J., Cropley, B., Hanton, S., & Fleming, S. (2013). Learning through reflection: values, conflicts, and role interactions of a youth sport coach. *Reflective Practice*, *14*(6), 729–742. https://doi.org/10.1080/14623943.2013.815609

37. Roberts, C.-M., & Faull, A. L. (2013). Building a successful Olympic team selection protocol in women's handball: a case study examining the benefits of employing reflective practice. *Reflective Practice*, *14*(5), 648–659. https://doi.org/10.1080/14623943.2013.835719

38. Rodrigue, F., He, C., & Trudel, P. (2016). Concept mapping: Its use for high-performance sport coach development. In P. A. Davis (Eds.) *The psychology of effective coaching and management.* New York, NY: Nova Science Publishers.

39. Rynne, S. B., & Mallett, C. J. (2012). Understanding the work and learning of high performance coaches. *Physical Education & Sport Pedagogy*, *17*(5), 507–523. https://doi.org/10.1080/17408989.2011.621119

40. Saury, J., & Durand, M. (1998). Practical knowledge in expert coaches: On-site study of coaching in sailing. *Research quarterly for exercise and sport*, *69*(3), 254-266.

41. Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* New York, NY: Basic Books.

42. Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.

43. Stake, R. E. (2000). Case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research (2nd ed., pp. 435-454).* Thousand Oaks, CA: SAGE.

44. Tan, S. L., Koh, K. T., & Kokkonen, M. (2016). The perception of elite athletes' guided self-reflection and performance in archery. *Reflective Practice*, *17*(2), 207–220. https://doi.org/10.1080/14623943.2016.1146582

45. Taylor, S., Werthner, P., Culver, D., & Callary, B. (2015). The importance of reflection for coaches in parasport. *Reflective Practice*, *16*(2), 269–284. https://doi.org/10.1080/14623943.2015.1023274

46. Telfer, H., & Knowles, Z. (2009). The 'how to' of reflection. In C. Heaney, B. Oakley, & S. Rae (Eds.). *Exploring Sport and Fitness: Work-based practice (pp. 36-47).* Oxford, UK: Routledge

47. Tracey, J., & Elcombe, T. (2015). Expert Coaches' Perceptions of Athlete Performance Optimization. *International Journal of Sports Science & Coaching*, *10*(6), 1001–1014.

48. Trudel, P., & Gilbert, W. (2013). The role of deliberate practice in becoming an expert coach: Part 3–Creating optimal settings. *Olympic Coach Magazine*, *24*(2), 15-28.

49. Trudel, P., & Gilbert, W. (2014). Reflection tools for becoming a more effective coach, presented at Sport Leadership Sportif 2014, Ottawa, CAN: Coaching Association of Canada.

50. Werthner, P., & Trudel, P. (2009). Investigating the Idiosyncratic Learning Paths of Elite Canadian Coaches. *International Journal of Sports Science & Coaching*, *4*(3), 433–449.

51. Whitehead, A. E., Huntley, T., Quayle, L., Cropley, B., Miles, A., & Knowles, Z. (2016). 'Think Aloud': Toward a Framework To Facilitate Reflective Practice Amongst Rugby League Coaches. *International Sport Coaching Journal*, *3*(3), 269-286.

52. Winfield, J., Williams, J., & Dixon, M. (2013). The use of reflective practice to support mentoring of elite equestrian coaches. International Journal of Evidence Based Coaching and Mentoring, 11(1), 162-178.

ORIGINAL RESEARCH PAPER

SUBJECTIVE LIVED EXPERIENCE: A RESOURCE FOR COACHES' EDUCATION

Alain Mouchet[1], Freddy Maso[2]

[1]Université Paris Est, Département STAPS Créteil,
LIRTES (EA 7313), France
[2]Rugby Academy in AS Montferrand, France
E-mail: mouchet@u-pec.fr

Abstract

> *The conceptual contributions of psychophenomenology (Vermersch, 2012) as well as explicitation interviews (Vermersch, 2006) can stimulate debates on reflexive practice and suggest original perspectives in coaches' education. Thus, our aim is to present a 'Spiral training approach', through which research and training can influence each other and become a resource to promote skill development and provide an environment to enhance learning. The coaches' subjective lived experience is at the heart of this analysis, particularly focused on their professional practices and respective transformations. This spiral approach facilitated the analysis of coaches' behaviour who were working within the same team. Furthermore, this multi-method approach included collective training sessions with a group of coaches from the same club. This training approach was employed with rugby union coaches in France, targeting their ability to do half-time speeches during games. Results showed the use and growth of experiential knowledge and effective routines within the technical staff and shared professional knowledge within the club. The effects of the spiral training approach were also analysed with consideration toward the coaches' perceptions and behaviour. We discuss the interest of this approach as an innovative intervention strategy, considering the role of coaches' subjective lived experience in coach education.*

Keywords: *coach education, subjective lived experience, reflexive practice, explicitation interview, half-time speech*

Introduction

        The present research is unique in its attempt to emphasize coach development processes, focused specifically on the coaches' lived-experience. This article aims to provide insight regarding intuitive decision-making and practical knowledge. Specifically, this research is focused on in-competition coaching, an area which has traditionally received less attention from coach education research. Indeed, in the recently published International Sport Coaching Framework (Lara-Bercial et al., 2017), in-competition coaching has been identified as an important element of a coach's core functions. However, in-game coaching has received little attention in the literature, particularly at elite level in team sports (Gilbert & Trudel, 2004), with few exceptions where the focus has been on elite coaches' activities during games in different team sports (e.g., Debanne & Fontayne, 2012; Mouchet, Harvey, & Light, 2013; Partington & Cushion, 2013). There is a scientific need for a holistic approach toward in-match coaching as it is a complex, dynamic and context-dependent process (Jones, 2006), with an in-depth understanding of coaches' procedural and tacit knowledge which seems to characterize their real-world decision-making and problems solving (Cassidy, Jones, & Potrac, 2009; Nash & Collins, 2006).

        Moreover, there is a professional need expanding beyond the possible implications for coach education. Although modules on how to coach during games are sometimes delivered in some formal coach education programmes, in-match coaching appears to often rely on instinct, sensations, experience, and informal learning, where coaches' knowledge is gained through shared information. The absence of a systematic approach to develop in-competition capabilities in coach education programmes has been noted by Lyle (2002, p. 284): "Match coaching has not been given sufficient attention in coach education, and appears to be left to 'experience' and trial and error for coaches to establish good practice". For this reason, we emphasize the need to expose coaches to reflective approaches of match coaching. Reflective practice in coaches' education has received a lot of attention in the literature (e.g., Abraham & Collins, 2011; Harvey, Cushion, Cope, & Muir, 2013). Leduc, Culver, and Werthner (2012) suggest that reflection is integral to reflective and deep learning because it links the biography and cognitive structure to the experienced situations. Nevertheless, if we agree with this interest for reflective practice in coaches' education, we consider some theoretical and methodological limitations through the necessity to preserve closer links to real coaches' experiences (Lyle, 2002). When coaches talk about their experience during in-match coaching situations, the difficulty is to go beyond some general declarations

and perceptions of what they did, without a rich and detailed description of their procedural knowledge which is tacit (Polanyi, 1969), implicit and partially unconsciouss during the action.

We contend that psychophenomenology and explicitation interviews as promoted in France by Vermersch (1994, 2012), offer new perspectives and opportunities for coach education, by developing the analysis of the subjective lived experience. Thus, this original approach has potential for both a scientific and social function in sport coaching. First, it provides an in-depth understanding of the participant's subjective lived experience in specific situations. We used this approach previously for studying coaches' communications with players (Mouchet, Harvey, & Light, 2014) and coaches' observation of the game (Mouchet, 2014). It was useful for exploring the tacit dimension of experience, that was mostly declared by coaches as feeling or instinct, without any clear identification of the constituents on which it could be based. Second, it contributes to a renewal of reflective practice and training approaches which were mainly based on Schön's work (1983), while offering other perspectives with Vermersch's propositions (2009).

Our challenge is to associate the scientific and professional stakes, around the preoccupation for subjective experience. So, in the present paper we aim to present an original model of 'Spiral training approach', with a dynamic relation between research and training, and a central focus on coaches' subjective lived experiences. This approach was conducted in France with a focus on in-match rugby union coaches' behaviour, during the half-time talk.

Theoretical and pragmatic supports: Revisiting the reflexive practioner model

We want to clarify the theoretical assumptions that sustain our 'Spiral training approach', while questionning the model of the reflective practitioner (Schön, 1983) that is often used in reflective practice. Schön (1983) differentiated the terms reflection-in-action and reflection-on-action. The former is developed during the action while the latter takes place after the action and is based, according to Saint-Arnaud (1999), on different cognitive processes. A critical re-examination of the reflective practitioner model and its uses was conducted by Vacher (2011) and Tardif (2012). They questioned the links between 'the actual practice' (i.e. what someone has really done in a situation) and 'the speech on the practice' (i.e. a posteriori reflection, debates, discourse about the practice), challenging the peculiarity and the authenticity of this relationship. For Vacher (2011), reflection-on-action is a conscious process and reflection-in-action is a process that is partially or totally unconscious. Perrenoud (2001) considers

that this model underestimates the interest of this non-conscious part of reflection-in-action regarding analysis and transformation of practice, while according a great consideration to the refletive activity and the conscious thought.

The explicitation interview method (Vermersch, 2012) along with the conceptual contibutions of psychophenomenology (Vermersch, 2012), propose an original perspective. Vermesch (2009, 2012) suggests distinguishing 'prereflective consciousness' (i.e. consciousness-in-action, lived, implicit, of which the subject is not reflectively aware during the lived experience) during lived experience in a past situation, from 'reflective consciousness' (i.e. conceptualized knowledge, judgements or explanations about a process, reflected upon, what coaches think they do or should do)[1]. Vermesch (2009) also offered the possibility of switching from prereflective consciousness to reflective consciousness, with support from the interviewer, for gaining rich descriptions of the initial tacit knowledge. This cognitive process is named 'réfléchissement', which illustrates the action of accessing prereflective consciousness and becoming aware of details about one's actions in a past situation. Here, great importance is placed on the production of knowledge from the participant's point of view of one's own subjective lived experience. Specifically, the 'first-person point of view' is used as an introspective opportunity for accessing lived experience through an explicitation interview (Vermersch, 1999). This allows for an in-depth understanding of human beings in real contexts, for in-depth and experiential insights into their lifeworld. More precisely, Vermersch's (1994/2006) explicitation interview engages the interviewee in the 'reliving' of the subjective lived experience during a past, specific, and singular situation, to become aware of and describe the experience with precision. In doing so, the focus is on the 'what' and 'how' of the activities, as opposed to the 'why'. It requires the researcher to set up methodological conditions in the interview that enable the subject to be in a 'position de parole incarnée' ('embodied speech position'), that means to be in touch with one's experiences, on a sensory level. This retrospective mindset requires a reminiscent state which restores the subjective lived experience into its sensitive and intuitive dimension; in other words accessing concrete memory. This speech position is different from the traditional ones, which rely on rational and explanatory representations of reality.

Vermersch's contribution, as presented above, provides important support for our own propositions. First, an explicitation interview encourages the possibility of a coach going further than the limits of verbalization, thus accessing knowledge-in-action, when an experience is lived without the coach

---

[1] That is not to be confused with the Freudian concept of unconsciousness.

being fully conscious. This inherent value prioritizes the 'first-person point of view' from a person's lived experience, in order to better understand the rationale behind his or her actions (Vermersch, 1999). For Cahour, Salembier, and Zouinar (2016), this first-person perspective makes it possible to take into account and closely analyse the cognitive, sensory, and emotional aspects of the lived experience. Moreover, there is an important implication: the 'réfléchissement' of a lived experience and the 'réflexion' about this past experience cannot have equal status in reflective practice. Explicitation interviews are useful for understanding and exploiting experiential knowledge, and offer a great basis for later investigating reflections about an action. Thus, it is important to revisit the process of reflective practice toward experiential learning, as developed by Schön (1983) and Kolb (1984). Thus it becomes of utmost importance to consider the past as a concrete experience, in order to build new competencies, before relating learned lessons to similar lived experiences. However, within this process it is useful to include 'réfléchissement' from the lived experience through an explicitation interview, as a basis for the 'réflexion' or reflection-on-action. This dynamic is presented in the Figure 1 below. These two cognitive processes and two speech postions are interesting when they are considered in relation to people's subjectivity for developing their competencies. This dynamic sequence includes: (a) action (i.e. half-time talk during a match), (b) 'réfléchissement' on this action (i.e. coaches' awareness of prior implicit processes and experiential knowledge during one half-time speech), (c) and (d) shared experiences and 'réflexion' about action during the collective sessions (i.e. declarative knowledge about half-time talk), and (e) perspectives for next action (i.e. next half-time talk). We believe that this approach can provide insight into coaches' intuitive decision-making and practical knowledge (Lyle, 2010).
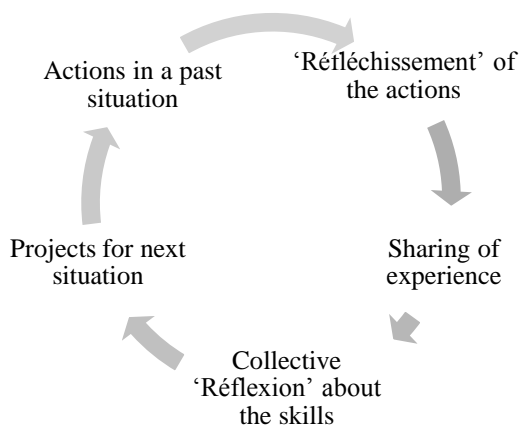
Figure 1. Process for learning from experience (adapted from Balas-Chanel, 2013)

Rethinking the relationship between research and training

In accordance with Vannier (2012), we attempted to develop real interactions between research and training. This is very important when we collaborate with coaches because they are continually engaged in a performance process and want to improve their effectiveness. As such, research on their own actions is important if it supports their efforts toward short-term goals. Thus, we have organised this interaction toward research on their half-time speech activity and its analysis in continuous-flow training, by placing the explicitation of the lived experience at the heart of the 'Spiral training approach'. There is an opportunity for mutual enrichment between research and collective training sessions with all the coaches in the club. Resultantly, a collaborative research (Desgagné, 2001; Vinatier & Morrissette, 2015) favours the co-construction of knowledge between the coaches and the researcher/trainer. In the 'Spiral traning approach', coaches' training is supported by research while the training also contributes to the evolution of this methodology. Namely, the same person is acting as the main researcher and trainer. We provide training to the coaches through the analysis of their own activity in match situations (i.e. they work on some of the research results). Furthermore, the coaches represent a professional group; they work together during the analysis phase, considering the results of some of the group's lived, in-match activity. Thus, as Vacher (2011) and Vinatier (2012) suggest, we alternate some individual phases (i.e. research with two coaches on the same staff during two games) and collective phases (i.e. collective training sessions with all of the coaches of the same club, the dean of Academy, mental coaches; approximatley 15 people).

During training sessions, the collective becomes the main resource, both for the research and training, through the dynamic exchanges between peers and the emergence of professional controversies, offering an opportunity to go beyond general discourse about professional skill. The training within the group is a means of co-developing the sense of a professional activity and arousing the emergence of certain invariance (i.e. shared professional knowlege) in the practices implemented by the coaches.

Therefore, this study had a dual purpose: (a) to understand the activity of coaches in a dynamic and complex situation (half-time), with temporal and emotional pressure, and (b) to design an original training approach focused on the analysis of practice and the development of the coaches' skills. Consequently the plan enables the description of the coaches' activity during games, identifies the experiential knowledge implemented by some coaches in real contexts, enables the sharing of

similar experiences that were lived by other coaches, and capitalizes on the opportunity for knowledge of action to develop within this group.

Methodology

Participants and situation

Participants included eight coaches of different teams (U15, U19, U20, U23) competing at the elite national level for their category, who were also within a French club, AS Montferrand. These coaches were between 30 and 50 years old (average = 43) and held the required certification. Their coaching experience varied from 4 (for the youngest) to 23 years (average = 13). Four coaches were employed in their club full-time and four part-time. For ther purposes of this study, the half-time talk period during games was the coaching activity analysed. In rugby, coaches have limited access to the players during games because of rule constraints (coaches must stay in a specific zone, far away from the players). So, the half-time speech, which is approximatively 5 minutes long at this level, is an important opportunity for coaches to deliver instructions, prioritize strategy, introduce substitutions, and so on.

Methods and Materials

The spiral training approach (see Figure 2) includes interactive phases as previously mentioned, which we will outline here. In order to study the half-time talks, a multi-method data collection approach was used: (a) a brief semi-structured interview before the match to identify the coaches' game plans, their strategies for substitutions, and their expectations concerning the players behaviours, (b) audio/video recordings of the speeches through the use of two cameras and microphones, with an audio recorder placed on each coach, (c) a video recording of the match in order to provide context for the half-time intervention and the possible influence the instructions had on the game during the second half[2], and (d) an explicitation interview the next day to help the coaches relive the situation and become aware of their actions. Data treatment procedures will not be presented in this article, but additional information can be found in other papers (Mouchet et al., 2014; Mouchet, 2015). In preparation for the collective training sessions, the researchers extracted information from the data sources to develop material for discussion.

---

[2]Let us note that it is impossible to conceive of a direct line of influence from the speech to the game production, given the complex characteristics of a match situation (e.g. injuries, strenths and weakness of both teams, the socre…). Nevertheless, to identify the potential influence of the coaches' speech we used: explicitation interviews with leader players to access their understanding of the speech message, and game analysis (Mouchet, Harvey, and Light, 2014) allowing us to compare the content of the speech with previous events in first-half and events in second half.

Each collective training session involved the researcher/trainer, the assistant researcher (PhD student), the coaches who were involved in the previous games with the multi method approach, the other coaches of the club (from four different teams U21, U20, U18, U15), as well as the dean of the Academy, the sport manager of the Academy, the two mental training coaches, and a coach from the professional team. Thus, a total of 15 people attended each collective training session. The material was carefully prepared with the intent of facilitating the sharing of experiences among the group. The focus of this approach, which links research and training, was on the organization and the contents of the speech, as well as its possible influence on the game's sequence. The researcher/trainer first presented some data (e.g. video recording of the half-time speech, extracts from the speech or from the explicitation interviews) and/or some results (e.g. organization of the speech, coherence with the game events, influence on second half…).

3st Collective training session

Participants: C1…..

2st Collective training session

Participants: C1…..

1st Collective training session

Participants: C1…..

3rd Game context

Half-time done jointly by C4 and C5 during two games

2nd Game context

Half-time done jointly by C3 and C4 during two games

1st Game context

Half-time done jointly by C1 and C2 during two games

Legend - Participants in the training program: - Coaches: C1, C2, C3, C4, C5, C6, C7, C8
- Dean of Academy (DA)   - Sport Manager of Academy (SMA)
- Mental Training Coaches: MT1, MT2   - Coach from a professional team (CPT)
- Researcher/Trainer (R/T)   - Assistant Researcher (AR)

Figure 2. Spiral training approach

During the second collective session, a request was made by the participants to take into account players' inter-subjectivity, more specifically, how the players reacted/felt about the half-time speech. Thus, in order to be the least disruptive possible, a realistic data collection tool was introduced between the end of the coaches' half-time speech and the restart of the game, in the form of three 'flash questions', made by five interviewers to five players, previously chosen by the coaches. We had one minute and asked the following three questions: (a) What was the report of the first half? (b) What were the instructions for the second half? And (c) what did you appreciate or what did you not appreciate from the speech today? Moreover, the day after the match we added an explicitation interview with three players who were identified by the coaches as leaders on the team, in order to identify their lived experiences of the half-time speech.

Results

We present the main results from each phase of this spiral approach and some results about the effects of the approach itself.

Results from the multi method approach during games

On one hand, the quantitative analysis of coaches' communications highlighted some common points: (a) the talk was directed towards the team as a whole, (b) the talk was unilateral from coaches to the players, (c) the coaches talked (without shouting) with strong body language, (d) the content was centred on strategy, and on mental aspects linked to the fighting spirit, and (e) there was a balance between negative and positive feedback, even in difficult matches. Differences in coaches' behaviours (e.g., players addressed, tone of communication, content of the instructions) were also noticed in accordance with the context of the match (characteristics of the team and the opponent, the score, weather conditions, etc.). However, we identified coaching routines within all staff during their games, concerning the preparation, the organization, and the content of each speech. These routines were effective in managing temporal pressure and the relative uncertainty about the duration of half-time (e.g., in these competitions there was a fluctuation around 5 mins according to the time allotted by each referee). However, we noticed through the observation and recording of the coaches' behaviour, and through their own points of view during the explicitation interviews, some difficulties were noted in adapting these routines to unforeseen circumstances (e.g., a try which prevented the preliminary briefing between the two coaches, a player injury just before half-time).

Finally, personal logistics of the intervention (i.e., real goals, decision-making in the moment) were discussed during the explicitation interviews, centred around the subjective lived experience in half-time situations. These logistical factors included: (a) significant cues during the speech (to balance between global and detailed cues), (b) the importance of the players and coaches' appearance (i.e., what they see in the other people eyes) in terms of revealing mental states, (c) the projection and internalization of reassurance, particularly in relation to the players (i.e., to project confidence through positive attitudes, physical contact, presence, exchanges, rituals), (d) the capacity to manage one's own emotions (i.e., to share/mask emotions as necessary); (e) the clear presence of values and self-image within the speech, (f) the coaches' previous experience as a player in influencing the coaches' approach during the speech (e.g., feelings, needs, past lived experiences, models of ex coaches as influences), (g) the coaches' technical approach toward communication (e.g., getting the players' attention, ensuring congruence of verbal and non verbal cues, using appropriate tone, addressing key players), (h) being aware of and utilizing key moments, including preliminary preparation, time for player recovery, transition between the two coaches, individual/collective continuation when the referee blows the whistle, (i) to gather the team and its own thinking (i.e., to sort out, to synthesize, and to clarify strategies), and (j) to plan the speech and to remain focused in order to adapt to the arising circumstances.

The flash questions revealed differences in understanding the speech from the players' perspective. More particularly, this understanding was influenced by (a) the role of the players (starter or substitute), (b) a selective assimilation of the coaches' instructions based on their position (i.e., if they are directly affected by the message), (c) an increased sensitivity to some words that were delivered by the captain, and (d) a personal interpretation, or even the invention of some instructions.

Results from the collective training sessions

During the first collective training session, reflective practice allowed the coaches to familiarize themselves with some shared professional knowledge (Faingold, 2014) and singular knowledge of action (i.e., specific to one coach), or in other words common tendencies and personal styles of coaching, such as those that will presented in the next paragraphs[3]. The second collective training session allowed for the identification and refinement of shared professional knowledge, and a focus

---

[3] For Wittorski (2005), experiential knowledge refers to the implicit and embodied part of knowledge, while knowledge of action denotes an act of formalization of action, and (shared) professional knowledge concerns the recognizable strategies in a specific professional environment.

on the results relative to the players' understanding of the coaches' messages and the players' lived experience of the half-time speech. During the third collective training session, we asked the group to discuss difficult situations, such as being down by a large score margin at half-time. From the initial training session, two types of knowledge were addressed: shared professional knowledge and singular or personal knowledge of action.

The shared professional knowledge involves common steps or procedures in the organization of the speeches: (a) conduct a quick exchange between members of the coaching staff approximately five minutes before half-time, (b) allow the players time to calm down and recover, to establish favourable listening conditions, (c) spatially organize the group in more or less a squeezed circle according to the momentary context, (d) structure the speech itself with various sub-stages (e.g., beginning with a question for capturing the players' attention, organizing the speech with some key points, insuring a good transition between the two coaches), (e) make positively associated gestures to strenghten the effect of the words being used and turn around to face various people, and (f) finish, if possible, with individual instructions. The shared professional knowledge is also relative to the contents of the speech: (a) take into account the context of the game at the end of the first half (score, wind, referee, 'rapport de force'), (b) structure the message with recurring marks (the sandwich effect of a positive point, followed by a negative point, followed by another positive point (e.g., what worked / the opponent threats / proposals to answer effectively), (c) adjust the quantity of information toward simplicity and precision, (d) provide negative feedback only on occasion, with control and a clear explanation, (e) finish with motivation and encouragement, (f) talk about the fundamental principles of rugby, and (g) save time by using implicit references shared by the team.

Singular or personal knowledge of action was also identified, expressing personal styles of coaching or adaptations to the circumstances. This form of knowledge included: (a) remain standing to keep the referee within sight and temporarily regulate the intervention, (b) squat within the circle of players to fix their attention on a low point, (c) question players based on their age and education (nature, duration, addressees), (d) involve leadership players within the speech; e) use the energy of the team gathering as a significant cue to adapt the beginning of the speech, with a more quiet or more energetic intervention, (f) distribute the roles and contents of the message to the staff, and (g) develop effective routines with every staff member.

A few interesting questions emerged during the collective debates. The first question was how should the available time be managed?

According to the group, it is useful to use all of the available time, right until the referee blows the whistle or even beyond this time, by introducing individualized or group instructions. However, it was acknowledged that speaking too much can be useless, if the coach feels it is unnecessary. The second question was regarding the role of the team leaders, in particular the captain. We noted that these leaders had an important impact through their brief interventions, but simultaneously wasted some time for the coaches. This was of concern as the 5-minute time constraint is already short. We wondered if it would be more appropriate to involve the players in the time before and after the game, creating less temporal pressure. The third question concerned the different strategies for player substitutions. Shoud the coaches announce the substituted player and/or the player who is going on the pitch, or not? It likely would depend on the quality of the substitutes but also on the match context and on the coaches' communication.

Effects of the spiral approach on the coaches' perceptions and behaviours

We argue that orienting the coaches' reflections towards future actions is important. Without that, the collective reflection, even from the 'réfléchissement' of lived experiences, risks not having much of an impact for practitioners.

For this reason, during the course of the Spiral training approach, the researcher/trainer, in association with the coaches, shed some light on different coaching aspects they may change or add to their respective coaching practices: (a) optimize the observation and the analysis of the game to increase the relevance of the speech at half-time, (b) optimize the time of preliminary dialogue within the coaching staff before half-time to reduce any uncertainty and facilitate speech delivery (i.e., this might include writing themes down on a pad, (c) use different media for communication, based on the player profiles (e.g., gesture with speech, pad and speech), (d) develop the players' actions through self-evaluation and brief participation in first half evaluation and during the debriefing after the match, (e) the other coach should be attentive during the speech in case he needs to adapt his own speech in response, and (f) have key players or other messengers (e.g., physiotherapist) revisit the instructions at the beginning of the second half.

Additionally, at the end of the last collective session, each coach wrote down some personal 'working goals' (i.e., priorities for his own next half-time speech). Beyond this, the coaches had to answer three questions: (a) Was your participation in this spiral training approach useful for your practice? (b) What is your general opinion about this spiral training approach (case studies and collective session)? (c) Do you have any

suggestions to improve this training approach? We provide below some comments from the coaches.

Concerning the first question regarding the usefulness of the training, the coaches insisted on the importance of awareness in what they were doing well or what errors could be avoided. They also mentioned being open to other possibilities and different strategies, always with the objective of improving their practice.

> *'To see what our colleagues do… To bring additional options to our own experiences' (Franck);*
> *'That allowed me to structure my speech and not let my emotions be expressed in front of the players' (Cyril);*
> *'I've liked working in and especially being a subject for this study, because since this experience, I prepare my speeches and I think of how to be more effective' (Fred).*

For the second question concerning participants' general opinions, the coaches underlined their satisfaction and the important contribution of the collective sessions, which were anchored in the individual practices discussed in the debate.

> *'That is very interesting because this training system allows us to have an internal and external point of view with regard to a real-life situation' (*Ismael*);*
> *'It is enriching to share experiences with the other staff members. We take what seems convenient to us' (*Jérôme*);*
> *'+++. Look to oneself and look at the opinion of other coaches' (*Yoann*);*
> *'I think that it is necessary to continue' (*Fred*).*

For the third question, in which participants were asked to offer suggestions for improvement, the coaches expressed a desire to test other communication mediums (*'To use visual media such as a graph or iPad with video' -* Ismael and Cyril), to refine the evaluation of the speech effects on the game with an in-depth performance analysis (*'to Validate the results through a quantified video analysis… To do the same thing for knowing the impact of the video support during our speech'*-Franck), and the will to continue this work ('*I participated in this kind of meeting for the first time. Could we do it more regularly?'*-Jérôme).

Overall, we think that a longer period of collaboration with the coaches would enable the refinement and further evaluation of these effects, beyond the informal coach declarations.

Discussion

The aim of this paper was to present an original model of the 'Spiral training approach', with a central focus on the subjective lived experience of coaches. The following discussion will centre on the spiral training approach as an innovative strategy of intervention, or at least as an original and promising approach.

First, this approach is an attempt to develop real interactions between research and training, which feed each other over time. So, in agreement with Saury (2008), this cyclical approach is an interesting way of presenting results to the coaches within a regulated 'short loop' (short term), which consists of proposing opportunities for analysis and practice transformation from the beginning of the collaboration between the researcher and the coaches. Thus, we provided the coaches with immediate feedback on the basis of the materials through different methods: the analysis of the video recordings, the involvement of the coaches in the verbatim analysis of the expliciation interview, the enlightening of their awareness during the explicitation interwiew or at the end of this interview through the following question: 'what did you do well in your speech?' It is important for the coach to keep in mind, in his own words, the factors of efficiency, as a basis for future speeches. Moreover, this spiral is useful for developing learning from a constructivist perspective, through interactions between the researcher/trainer and the participants, as well as through interactions between the participants during the collective sessions. The 'long loop' consists of producing scientific knowledge in a more traditional way (i.e. communications in congress, scientific papers), while using some tools and media for coaches' training. At the end of the process, we provided the club with a document presenting the main results and solutions to practical problems which were discussed with the coaches themselves; this supports efforts towards coaching research and coaches' education.

The second aspect concerned the individuals' lived experiences in past situations, which were collectively shared to develop knowledge. The coaches established a group of professionalization (Faingold, 2014) to work together on topics which were pointed to by the researchers during the explicitation interviews with coaches and/or leader players. Thus, the advancement of knowledge emerges from the subjective lived experience, but it develops from specific actions in training which we wish to impress, to favour, and to organize. We hope to assemble concepts and tools from the practitioners' activity, which should echo strong professional, social, and personal stakes, which the coaches can then reflect on and relate to their own experiences. The fundamental point here is that it is necessary to encourage experiential learning and develop group, or in our case, club

culture. In agreement with Vermersch (2015), we think that this analysis of the professional practices demonstrates that if someone going through an explicitation interview becomes aware of what he did in a past situation, his reflection may be supported, allowing him to perfect his activity and be open to the possibility of sharing his practice.

Finally, this approach values experiential learning, by allowing, coaches to work on their awareness, then to deliberate on the implicit and embodied parts of the activity. Experiential knowledge is built in various moments: (a) during the explicitation interviews, based on awareness, (b) at the end of the interview when the interviewee is asked to put into words what he retained as personally important (e.g., by asking him a question such as 'what did you retain of what you did well in that situation?'), (c) a posteriori, during the subject's reading and analysis of the verbatim transcript, and (d) during the collective training sessions, where triangulation of the various data on the past activity can occur (e.g., the coherence between events during the first half, content of the half-time speech, and evolution of the game in second half concerning the same topics which were mentioned by the coaches during the speech). So, unlike reflective practices, which are so important in coach education and are essentially based on reflection-on-action (Abraham & Collins, 2011; Harvey et al., 2013; Leduc et al., 2012), we propose an original but complementary approach. The explicitation interview allowed the exchange of something else beyond opinions and comments. It deepened the sharing of implemented actions, cues that were picked up, the real rationale behind decisions in the past situations, and so on. With explicitation interviews, we have identified a particularly interesting tool to favour the awareness of experiential knowledge, through the access of the pre-reflective consciousness (Vermersch, 1999, 2012). Thus, it is possible to study coaches' actual in-game behaviours, in relation to their conceptions, and to study how these conceptions operate in the ebb and flow of the contest, an approach which was previously used for studying coaches' communications with players (Mouchet et al., 2013). This process allows us to characterize the coaches' experiential and theoretical knowledge about their half-time speeches. It is based on the subtle management of a tension between the use of a set of routines or techniques for intervention, and adaptations to the context with the capture of moment-based opportunities (e.g., unpredicted events in the first half, reactions regarding the behaviour of players during the speech). Coaches implement complementary technical approaches with a dominant orientation toward their preferences and coaching style (Mouchet, 2011): (a) an orientation of control (i.e., what they know they do well and what works well); (b) an orientation toward innovation (i.e., to try

different things, to surprise, to adapt oneself in an instant); (c) an orientation toward participation (i.e., distribution and complementarity of the roles within the staff); (d) an orientation toward reading cues (i.e., to take in significant cues to adjust, regulate, and adapt the rhythm and appropriate tone of the speech).

Conclusion

We wanted to show that explicitation of the lived experience can be, at the same time, a useful method for research and a resource for training. So, we placed the explicitation interview at the heart of an inclusive and dynamic Spiral training approach, which takes root in the 'réfléchissement' of the lived experience and its observation, to favour shared reflection on knowledge of action and renew possibilities for action. This approach requires the implementation of favourable conditions for explicitation interviews and for the sharing of experiences and debates within the group. For our explicitation interviews, we used the conditions that were pointed out by Vermersch (2009) and by Jarett, Mouchet, Harvey, Scott, & Light (2014). Importantly, a reliable 'contract of communication' played a central role; the necessity to work on a specified moment of activity, in a singular past situation (i.e., a precise half-time speech and some important instances for the coach himself); the criteria of 'invoking the speech context'. The collective training session debates held to certain conditions which include the proposals of Faingold (2006), Vacher (2011), and Vinatier and Morrissette (2015): (a) volunteer participation; (b) confidentiality; (c) the status/roles of the participants; (d) the definition of the role of the group; and (e) the speaking rules which centred and regulated the exchanges.

Finally, we suggest that the Spiral training approach is likely to provide insights into intuitive decision-making and practical knowledge (Lyle, 2010). This research is also an original contribution to reflective practice in sport coaching.

References

1. Abraham, A., & Collins, D. (2011). Taking the next step: Ways forward for coaching science. *Quest, 63*(4), 366-384.
2. Cahour, B., Salembier, P., & Zouinar, M. (2016). Analizing live experience of activity. *Le travail humain, 79*(3), 259-284.
3. Cassidy, T., Jones, R.L., & Potrac, P. (2009). Understanding Sports Coaching: *The Social, Cultural and Pedagogical Foundations of Coaching Practice*, 2nd edn., Routledge, London.
4. Debanne, T., & Fontayne, P. (2012). Étude des discours d'entraîneurs professionnels durant une rencontre de Handball selon la perspective du Coaching Model. *Movement & Sport Sciences-Science & Motricité, 76*, 11-23.

5. Faingold, N. (2006). Formation de formateurs à l'analyse des pratiques, *Recherche et formation*, *51*, 89-104.

6. Faingold, N. (2014). Réduction et résonnances en recherche et en formation : des compétences en acte à l'identité professionnelle. In A. Mouchet (Ed.), *L'entretien d'explicitation. Usages diversifiés en recherche et en formation* (pp. 39-60). Paris, France: L'Harmattan.

7. Gilbert, W., & Trudel, P. (2004). Analysis of coaching science research published from 1970-2001. *Research Quarterly for Exercise and Sport, 75*(4), 388-399.

8. Harvey, S., Cushion, C.J., Cope, E. & Muir, B. (2013) A season long investigation into coaching behaviours as a function of practice state: The case of three collegiate coaches, *Sports Coaching Review, 2*(1), 13-32.

9. Jarrett, K., Mouchet, A., Harvey, S., Scott, C., & Light, R. (2014). Using elicitation interview within a phenomenographic framework: Developing the breadth of research designs associated with game based approaches. *Agora*, *16*(3), 291-306.

10. Jones, R.L. (2006). *The sports coach as educator: re-conceptualising sports coaching*. Oxon, UK: Routledge.

11. Kolb, D.A. (1984). *Experiential learning*. Englewood Cliffs, NJ: Prentice-Hall.

12. Lara-Bercial, S., North, J. Hämäläinen, K., Oltmanns, K., Minkhorst, J., & Petrovic, L. (2017). *European Sport Coaching Framework*. Champaign, Illinois, United States: Human Kinetics.

13. Leduc, M., Culver, D.M., & Werthner, P. (2012) Following a coach education programme: Coaches' perceptions and reported actions. *Sports Coaching Review, 1*(2), 135-150.

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

15. Lyle, J. (2010). Coaches' decision-making: a Naturalistic Decision Making analysis. In J. Lyle & C. Cushion (Eds.), *Sports coaching: professionalization and practice* (pp. 27-42). Edinburgh, UK: Churchill Livingstone Elsevier.

16. Mouchet, A. (2011). Les registres de technicité: Un concept utile pour analyser l'activité des sujets dans les APSA? *eJRIEPS, 23*, 76-92.

17. Mouchet, A. (2014). L'attention expérientielle des entraîneurs : l'observation du jeu comme geste professionnel. *Recherches & Éducations, 12*, 53-56.

18. Mouchet, A., Harvey, S., & Light, R. (2014). Match coaching: communications with players during the game. *Physical Education and Sport Pedagogy*, *19*(3), 320-336.

19. Nash, C., & Collins D. (2006). Tacit knowledge in expert coaching: science or art? *Quest*, *58*(4), 465-477.

20. Partington, M., & Cushion, C. (2013). An investigation of the practice activities and coaching behaviours of professional top-level youth soccer

coaches. *Scandinavian Journal of Medicine & Science in Sports, 23*, 374–382.

21. Perrenoud, P. (2001). *Développer la pratique réflexive dans le métier d'enseignant*. Paris : E.S.F.
22. Polanyi, M. (1966). *The Tacit Dimension*. Garden City, N.Y.(USA): Doubleday.
23. Saury, J. (2008). *La coopération dans les situations d'intervention, de performance et d'apprentissage en contexte sportif*. Note d'Habilitation pour Diriger des Recherches, Université de Nantes.
24. Schön, D.A. (1983). *The Reflective Practitioner: How Professionals Think In Action*. New York: Basic Books.
25. Tardif, M. (2012). Réflexivité et expérience du travail enseignant : repenser le «praticien réflexif» à la lumière des traditions de la pensée réflexive. In M. Tardif, C. Borgès, & A. Malo (Eds.). *Le virage réflexif en éducation : où en sommes-nous 30 ans après Schön ?* (pp. 47-71). Bruxelles: De Boeck.
26. Vacher, Y. (2011). La pratique réflexive. Un concept et des mises en œuvre à définir. *Recherche et formation, 66*, 65-78.
27. Vinatier, I, & Morrissette, J. (2015). Les recherches collaboratives : enjeux et perspectives, *Carrefours de l'éducation, 39*(1), 137-170.
28. Vermersch, P (1994/2006). *L'entretien d'explicitation* (5ème édition). Paris: ESF.
29. Vermersch, P. (2009). Describing the practice of introspection. *Journal of Consciousness Studies, 16*(10-12), 20-57.
30. Vermersch, P. (2012). *Explicitation et phénoménologie.* Paris : PUF.
31. Vermersch, P. (2015). Entretien avec. Subjectivité agissante et entretien d'explicitation. *Recherche et formation, 80*, 121-130.
32. Wittorski, R. (2005). *Entre travail et formation : la professionnalisation*, Note de synthèse pour l'Habilitation à Diriger des recherches, CNAM.

REVIEW PAPER

PARASPORT COACH DEVELOPMENT: EVIDENCE FROM THE CANADIAN CONTEXT

Tiago Duarte[1], Diane M Culver[1], Pierre Trudel[1], Michel Milistetd[2]

[1] University of Ottawa, Canada
[2] Universidade Federal de Santa Catarina, Brazil
E-mail: tduar016@uottawa.ca

Abstract

Despite the exciting evolution of the Paralympic movement as it relates to high performance Parasport, there is concerning evidence concerning the many barriers people with an impairment have to overcome to participate in sports. Access to knowledgeable coaches is a barrier that permeates both high performance sports as well as grass roots. The purpose of this paper is to introduce the reader to disability sport coaching in Canada. A brief historical overview of the Canadian context referring to people living with an impairment situates the readers. The multiple layers of coaching are presented and a summary of recent studies that have examined Parasport coach development from the perspective of Canadian Parasport coaches. The paper uses the concepts of formal, nonformal, and informal learning situations to frame the literature and provide the readers with an overview of the subject. Based on the broader coach development literature, the paper offers some recommendations for Parasport coach developers.

Key words: *Disability sports, coach learning and development*

Introduction

Over the past two decades the disability sport movement has been growing steadily (Banack, Sabiston, & Bloom, 2011; Tawse, Bloom, Sabiston, & Reid, 2012). One of the most impressive examples relates to the According to Tas the interest of the public for the event. Spence revealed the cumulative opping (2012) the Games exceeded the local committee expectations, selling 2.7 million tickets, surpassing by 900,000 the previous Games in Beijing. To provide a sense of the progression, the 2004 Paralympic Games in Athens sold 850,000 tickets (Eccles, 2012).

Moreover, for the first time in the history of the Paralympic Games the tickets sold out even before the start of the Games (Eccles, 2012; Hirst, 2012). These numbers elevated the Paralympic Games from second-tier status, without adequate support and funding in 1996 (Le Clair, 2011), to the third sporting event in the world behind the Olympic Games and the FIFA World Cup of soccer (Spence, 2015). In Canada, the worldwide increase of interest and popularity brought more funding opportunities to Parasport federations (e.g., Own the Podium funding for Paralympic sports).

Despite the exciting evolution of the Paralympic movement as it relates to high performance Parasport, there are concerning statistics regarding participation at the grass roots. Within Canada, a 2012 Standing Senate Committee on Human Rights report (Jaffer & Brazeau, 2012) indicated 37 percent of children and youth with disabilities never take part in organized physical activities compared to 10 per cent amongst those without disabilities. These alarming numbers are linked to the many barriers prohibiting people with a disability from participating in sport ranging from structural and environmental to social and personal (Canada Heritage, 2006; Shikako-Thomas & Law, 2015). Not surprisingly the lack of specialized coaches is one of these barriers. Based on this reality, the purpose of this paper is to introduce the reader to the disability sport context in Canada and to provide an overview of recent studies that have examined Parasport coach development from the perspectives of coaches in this country. The paper concludes with some recommendations for Parasport coach developers.

Canadians with Disabilities

According to Statistics Canada (2012), people with disabilities represent approximately 14 per cent of the 35 million Canadians. Canada was the first country to award equal opportunities for persons with a disability in its 1982 Charter of Rights and Freedoms (Valentine & Vickers, 1996) which in theory would guarantee equal rights for all Canadians including the provision of government services such as the access to sports and recreational activities (Jaffer & Brazeau, 2012). However, only three percent of Canadians with a disability compared to 30 percent of able-bodied Canadians are enrolled in sport organizations (Canadian Heritage, 2006). The acknowledgment of people's rights is just the first step in achieving substantive equality. In order to make real changes, proactive steps need to be taken to minimize the barriers that create social disadvantages with the goal of making society more inclusive. Throughout time disparities have occurred, for instance the Canadian Sport Policy written in 2002 (Canadian Heritage, 2002) referred solely to able-bodied sport. Only in 2006 did Canada release a complementary policy specific for people with disabilities (Canadian Heritage, 2006). The 2002 omission was

corrected with the release of the most recent Canadian Sport Policy, which calls for barrier-free and relevant sport programming customized for "traditionally underrepresented and/or marginalized populations to actively engage in all aspects of sport participation" (Canadian Heritage, 2012, p. 10).

Coaching Parasport in Canada

As stated above, one of the barriers identified by the Canadian Policy on Sport for Persons with a Disability (Canadian Heritage, 2006) relates to the area of coaching in disability sport. The need to develop coaches is not novel. In 1986, the US Committee on Sports for the Disabled designated coaching a research priority (DePauw, 1986). More than a decade after DePauw highlighted the need for studies in coaching Parasport, Reid, and Prupas (1998) found that only five data-based articles on the topic had been published. Later, DePauw, and Gavron (2005) published a book on disability sports that continued to emphasize the need for studies and programs to develop coaches. Looking at the articles published after the year 2000 within Parasport coach development the contribution of Canadian researchers is noticeable. It is the Canadian perspective that will guide this chapter.

In able-bodied sport, the number of participants is such that we can often draw typical profiles of coaches at each of the recreational, developmental, and elite levels (Trudel & Gilbert, 2006). In Parasport, it is common to see a coach training athletes ranging from children to adults and recreational to elite levels, all in the same session (McMaster, Culver, & Werthner, 2012; Sawicki, 2008). To add to the complexity of the Parasport coach's role, the wide range of disabilities within the same sport (or event) requires coaches working with these athletes to not only acquire the sport specific and general coaching knowledge common to all coaches, but to also understand each athlete's specific disability and its influence on development and/or performance (Cregan, Bloom, & Reid, 2007; McMaster et al., 2012; Tawse et al., 2012). For instance, within disability sport two additional broad categories of classification exist: medical (i.e., type and level of disability) and functional (i.e., muscle strength, range of motion, co-ordination, and balance). Athletes compete against others with different disabilities but similar physical function (Athletics Canada, 2012; DePauw & Gavron, 2005). According to the IPC (2013), at the London 2012 Paralympic Games there were 29 gold medal winners for the individual 100-meter races, attributed by gender and class type.

The disability aspect adds a number of coaching challenges specific to Parasport (Burkett, 2013; Hanrahan, 2007). Considering that at the core of Parasport is the ability to adapt the rules, training, and equipment to allow for participation and fairness, a question that has intrigued researchers was:

How are coaches learning to work in Parasport? In order to provide the context for this question we will examine the literature on coach development in able-bodied sport. In support of this, Cregan and colleagues (2007) argued that a Parasport coach needs to train the athlete not the disability. This and the lack of supporting evidence related to Parasport, justifies a review of coach development in general.

Coach Development

Able-bodied sport coaching as an academic discipline has blossomed since the 1990s (Rangeon, Gilbert, & Bruner, 2012). New coaching journals have appeared such as the *International Journal of Sports Science and Coaching,* and just recently, the *International Sport Coaching Journal*. The research literature on coaching has shown that coaching is complex and it has been suggested that a one-size-fits-all approach is ineffective (Abraham & Collins, 1998; Cushion, Armour, & Potrac, 2003). This has stimulated efforts to understand how coaches are learning to solve issues that arise in their daily practices (Gallimore, Gilbert, & Nater, 2013; Gilbert & Rangeon, 2011). Researchers who sought to understand how coaches learned to become coaches found idiosyncratic pathways (Werthner & Trudel, 2006) in which the coaches learned from their athletic experience, from coach education, coaching courses and clinics, mentoring, informal learning situations, and learned by doing (Jones, Armour, & Potrac, 2003, 2004; Lemyre, Trudel, & Durand-Bush, 2007; Saury & Durand, 1998; Wright, Trudel, & Culver, 2007). A piece of research that shaped how coach development researchers have classified these many learning situations was written by Nelson, Cushion, and Potrac (2006; working from the seminal work of Coombs and Ahmeds, 1974). Nelson and colleagues (2006) proposed coaches learn through formal, non-formal, and informal learning. Next, we will look at the Canadian context of coach development through the lenses of these three learning situations, and highlight the few studies examining Parasport coaches in Canada.

Formal

Coombs and Ahmed (1974) defined formal learning situations as those in which learning occurs in an "institutionalized, chronologically graded and hierarchically structured education system" (p. 8). Formal educational programs follow guidelines such as a standardized curriculum and often offer coaches a certification. The Coaching Association of Canada (CAC) is the national sport governing body responsible for coaching education in Canada. CAC has operated the National Coaching Certification Program (NCCP) for upwards of four decades and has trained more than 1 million coaches (Werthner, Culver, & Trudel, 2012). Werthner and colleagues (2012) suggested NCCP trains around 50,000 coaches from

about 67 sports each year. Coach development agents from around the world have considered the NCCP a model for formal coach education. In 1997 the CAC did a thorough review of their programs, shifting thereafter from an approach that prioritizes 'what a coach knows' compared to 'what a coach can do'. Through this evolution the NCCP moved from a knowledge based program (Levels 1 to 5, based on a novice to expert continuum), to a competency-based program (three streams, instruction, competition, and instruction) that aims to develop the abilities required to coach specific groups of sport participants (Werthner et al., 2012). The NCCP's five core competencies are: Valuing, interacting, leading, problem-solving, and critical thinking. Coach training within the NCCP involves a theory component often delivered in a multisport setting, and a sport specific component. Currently, only half of the 27 NCCP partner sports providing a Paralympic program have developed a module of sport-specific training for coaches of athletes with a disability (Taylor, Werthner, & Culver, 2014).

Coach education programs have sparked different opinions regarding their value to coach development. Werthner and Trudel (2009) looked at 15 Canadian Olympic coaches' learning pathways and found that many cited formal coach training as useful to their development. Erickson, Bruner, MacDonald, and Côté (2008) studied 44 coaches from various sports found that NCCP courses were the third most frequently reported source of knowledge behind 'learning by doing' and 'by interacting with others'. For coaching athletes with intellectual disabilities, MacDonald, Beck, Erickson, and Côté (2015) mentioned the shortfalls of NCCP courses as being too generic and not addressing the needs of Special Olympic coaches. For Parasport, Duarte and Culver (2014) had similar findings as their participant stated the sport specific module was not tailored to athletes with a disability. On a more positive note, Taylor, Werthner, Culver, and Callary (2015) mentioned the new design of the NCCP to be conducive to reflection, an important ability to coaching.

Nonformal

Nonformal learning situations may include coaching conferences, seminars, and workshops. They are usually guided, voluntarily attended, and lie outside of formal education systems (Mallett, Trudel, Lyle, & Rynne, 2009). Nonformal situations are often opportunities for coaches to learn about a specific coaching topic of their choice. Considering that most coaches are volunteers, only a few of them devote time and money to such clinics (MacDonald et al., 2015; Nelson et al., 2006). Nonetheless, coach development administrators in Canada have recently embraced the concept of mandatory continuous professional development in order to maintain certification (e.g. Coaching Association of Canada, n.d.). This implies that

sport organizations will need to consider offering continued learning opportunities to their coaches at all levels (club, regional, national, international). While coaches in the Erickson et al. (2008) study voiced a preference for nonformal learning situations, they remarked that such opportunities are sparse. In Parasport, the participant in Duarte and Culver's (2014) research mentioned that early in her disability coaching career, she was fortunate to learn through numerous workshops that were provided by the clubs where she worked. While further evidence for nonformal learning opportunities in Parasport is lacking, Duarte and Culver's disability coach, based on her experience, has developed sport specific workshops for novice coaches in her Parasport.

Informal

Informal learning situations are linked to the concept of self-directed learning. The coach's desire to learn/solve a problem can spark a search for information/solution through books, videos, Internet sources, and discussions with others (Nelson et al., 2006; Winchester, Culver, & Camiré, 2012); mentoring (Nelson et al., 2006; Werthner & Trudel, 2009), and learning through personal experiences (Nelson et al., 2006; Wright et al., 2007). A number of studies have found that coaches emphasize the impact of informal learning experiences on their development (Cushion et al., 2003; Erickson et al., 2008; Lemyre et al., 2007; Mallett et al., 2009; Wright et al., 2007). While informal learning experiences encompass a variety of potential processes, interactions with others have been cited by coaches in able-bodied sports as an important means of learning (Erickson et al., 2008). In Canada, interactions with others seem to be of particular importance to coaches who coach athletes with disabilities (Duarte & Culver, 2014; McMaster et al., 2012). Recently, a study with 45 Special Olympic coaches cited learning by doing to be the most important source of knowledge (MacDonald et al., 2015). However, when asked about what would be the ideal sources of knowledge in addition to experiential learning, they referred to a combination of support from others such as coaches and mentors. The few published studies on Parasport coach development have highlighted the importance of learning from others (social learning) in a slightly different way than in able-bodied coaches (e.g., Cregan et al., 2007; McMaster et al., 2012).

Parasport coaches learn from mentors, peer coaches, their integrated support teams (ISTs), and others (Cregan et al., 2007; McMaster et al., 2012). All five coaches studied by McMaster et al. (2012) reported being mentors or mentees. Taylor et al. (2014) mentioned the mentorship of a Parasport coach by a former Olympic level coach. Duarte and Culver (2014) found many mentors in the story of a parasailing coach; interestingly

these mentors were not necessarily linked directly to the sporting context in which she coached, being, for instance, an administrator at an elementary school and an occupational therapist. Moreover, in able-bodied sports a novice coach will likely learn from a more experienced one, whereas within Parasport some coaches start with their first para athletes after having a lot of experience with able-bodied sport. Thus, Davey (2014) mentioned an experienced coach in able-bodied sailing who was able to learn from novice sailing coaches who were more knowledgeable than he about the Parasport context. Contrary to research that suggested coaches are not willing to share information with rival coaches (e.g., Lemyre et al., 2007; Wright et al., 2007), Duarte and Culver (2014) noted numerous interactions among an adaptive sailing coach and coaches from different sailing clubs. Taylor and colleagues (2014) mentioned interactions between the coach and peers from other disability sports. Tawse et al. (2012) found wheelchair rugby coaches engaging in constant interactions with IST members. Taylor et al. (2014) suggested the use of a physiologist by her elite coach whereas Duarte and Culver (2014) found the use of an occupational therapist by a developmental coach to address unique para athlete demands. Taylor et al. (2014) also mentioned collaboration with a university professor who taught adapted physical activity. Moreover, within Parasport others were shown to play relevant roles; these included the athletes, athletes' family members (Cregan et al., 2007; Tawse et al., 2012), and coaches' family members (Duarte & Culver, 2014; Taylor et al., 2014). Cregan et al. (2007) studied Paraswimming elite coaches, suggesting that athletes contributed equally to the coaching process, with the coach being the expert on technique, and the athlete being the expert on his or her own disability.

Besides considering from whom exactly coaches learn, a second social learning consideration relates to the contexts where social learning might occur. Duarte and Culver (2014) and Davey (2014) reported that at development sailing competitions (regattas) there is a tradition of pairing coaches and athletes from different clubs. Davey suggested that competitions aimed to be cooperative environments and seemed to promote knowledge construction of both coaches and athletes. Taylor et al. (2014) noted the mentorship that occurred at a camp initiated by the mentee.

Conclusions

As noted, coaching is a complex activity. The literature review above portrays Parasport coaching as being even more complex that able-bodied coaching, with relatively fewer formal and nonformal learning opportunities offered specifically for Parasport coaches. In this conclusion we will offer some ideas for Parasport organizations about moving forward

with Parasport coach development. For this we will refer further to the literature on able-bodied sport coach development and a study that examined what characteristics Parasport athletes say they want to see in their coaches. These suggestions build on the current disability sport coaching learning context in which the main source of knowledge of Parasport coaches comes from informal learning.

Recently, Trudel, Culver and Werthner (2013) recommended the creation of optimal learning environments in the hope of offering coaches meaningful learning opportunities. While the three learning situations (i.e., formal, nonformal, and informal) individually provide coaches with different avenues to development, using them in conjunction with each other could provide unique learning opportunities and magnify their potential impact. For instance, coach educators might structure a formal coach education module to present coaches with ideas on how to explore social learning skills. Interpersonal skills have been proposed as one of the three pillars of coaches' knowledge (i.e., interpersonal, intrapersonal, professional; Côté & Gilbert, 2009). The content of such a module could include ideas to nurture learning through interactions with others. Activities would help coaches understand how to optimize one's network, and build and sustain communities of practice. Sawicki (2008), an elite Parasport coach, suggested cross-context partnerships as a way to develop better coaches. Potential social learning spaces should consider linking high-performance coaches with development coaches to share knowledge, or even orchestrate Parasport coaches working with able-bodied sport coaches (Sawicki, 2008). Davey (2014) also pointed out the potential benefits of cross-context collaboration for coach development. Both Sawicki and Davey offer examples of how the boundaries between contexts are fertile grounds for knowledge creation (Wenger, 1998). In addition to developing interpersonal knowledge, this learning opportunity could allow Parasport coaches to supplement their professional knowledge in areas such as the large variety of disabilities that can reasonably be expected to be found in their athletes. As well, NCCP core competencies such as interacting, problem solving, and critical thinking would be developed.

The need for reflection in Parasport coaching was documented by Taylor et al. (2015) who found that Parasport coaches spent a lot of time reflecting on, for example, how to adapt equipment to fit the needs of their athletes. The ability to reflect is part of a coach's intrapersonal knowledge. No matter the learning situation, the Parasport coaches in the studies presented earlier in this chapter spoke of reflecting with a lens of adaptability, filtering information to best figure out how to apply it to their athletes' specific physical and mental needs, whether these were related to

equipment adaptations, or the adjustment of training programs determined in large part by the specific disabilities. Reflection was often engaged in with others including athletes, family members, and various healthcare experts, each of whom contributed to the co-construction of Parasport coaching knowledge.

Culver and Werthner (2017) asked athletes with disabilities about their ideal coach. The athletes said that Parasport coaches need to enhance certain crucial characteristics for effective coaching. In addition to qualities such as empathy, patience, good communication, adaptability, an understanding of the disability, the athletes stressed the ability to work *with* them. Athletes wanted coaches to engage in on-going conversations: As one athlete said, "Because, I'm doing the sports. I have some idea what is going on. And, I know myself" (Culver & Werthner, 2017, p. 5). Again we see an important need for Parasport coaches to develop their interpersonal knowledge, as well as their professional knowledge. Parasport coach developers should offer workshops in which coaches can try out some of the Parasports that they coach; to sit in a wheelchair and play basketball for example. This would help coaches to better understand the technical and tactical challenges of their athletes as well as to develop their empathy.

A final word is devoted to the promotion of the Internet as a medium for Parasport development. Canada and other large countries face obstacles when it comes to geography. The fewer numbers of Parasport coaches compared to coaches of able-bodied sport, means that interacting with other Parasport coaches face to face is problematic. However, Parasport coach developers could promote social learning spaces using such platforms as Adobe Connect, and Skype. With properly trained facilitators, these platforms can afford cost effective learning opportunities for the development of coaching effectiveness by helping coaches augment their professional, interpersonal, and intrapersonal knowledge.

Acknowledgements

References

1. Abraham, A., & Collins, D. (1998). Examining and extending research in coach development. *Quest, 50*, 59-79.
2. https://doi.org/10.1080/00336297.1998.10484264
3. Athletics Canada. (2012). Para classification background [Web pdf]. Retrieved from: https://www.athletics.ca/files/nationalteamprograms/eventgroups/speedwer/paraclassificationbackground.pdf
4. Banack, H. R., Sabiston, C. M., & Bloom, G. A. (2011). Coach autonomy support, basic need satisfaction, and intrinsic motivation of Paralympic athletes. *Research Quarterly for Exercise and Sport, 82* (4), 722-730. https://doi.org/10.1080/02701367.2011.10599809
5. Burkett, B. (2013). Coaching athletes with a disability. In P. Potrac, W. Gilbert, J. Denison. *Routledge handbook of sports coaching* (pp. 196-209). London, United Kingdom: Routledge.
6. Canadian Heritage. (2002). *The Canadian sport policy*. Retrieved from: http://sirc.ca/sites/default/files/content/docs/pdf/2002-the_canadian_sport_policy.pdf
7. Canadian Heritage. (2006). *Policy on Sport for Persons with a Disability.* Retrieved from: www.pch.gc.ca/pgm/sc/pol/spt/tdm-eng.cfm
8. Canadian Heritage. (2012). *Canadian Sport Policy 2012*. Retrieved from: http://sirc.ca/CSPRenewal/documents/CSP2012_EN.pdf
9. Canadian Sport Centres. (2012). *No Accidental Champions* (2nd ed.). Retrieved from:
10. http://canadiansportforlife.ca/sites/default/files/resources/No%20Accidental%20Champions.pdf
11. Coombs, P. H., &Ahmed, M. (1974). *Attacking rural poverty: How nonformal education can help*. Baltimore: John Hopkins University Press.
12. Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*, *4*(3), 307-323. https://doi.org/10.1260/174795409789623892
13. Cregan, K., Bloom, G. A., & Reid, G. (2007). Career evolution and knowledge of elite coaches of swimmers with a physical disability. *Research Quarterly for Exercise and Sport*, *78*(4), 339-350. https://doi.org/10.1080/02701367.2007.10599431
14. Culver, D. M., & Werthner, P. (2017). Voices: para athletes speak. *Qualitative Research in Sport, Exercise and Health*, 1-9. https://doi.org/10.1080/2159676X.2017.1393004
15. Cushion, C. J., Armour, K. M., & Jones, R. L. (2003). Coach education and continuing professional development: Experience and learning to coach. *Quest, 55*, 215-230. https://doi.org/10.1080/00336297.2003.10491800
16. Davey, J. (2014). *How do Novice Parasport Coaches Develop Their Knowledge? A Look at the Experiences of Para Sailing Coaches* (Master's thesis). Retrieved from:

https://ruor.uottawa.ca/bitstream/10393/30647/3/Davey_Jennifer_2014_thesis.pdf

17. DePauw, K. P. (1986). Research on sport for athletes with disabilities. *Adapted physical activity quarterly*, *3*(4), 292-299. https://doi.org/10.1123/apaq.3.4.292

18. DePauw, K. P., & Gavron, S. J. (2005). *Disability sport* (2nd ed.). Champaign, IL: Human Kinetics.

19. Duarte, T., & Culver, D. (2014). Becoming a coach in developmental adaptive sailing: A lifelong learning perspective. *Journal of Applied Sport Psychology,* *26*(4), 441-456. https://doi.org/10.1080/10413200.2014.920935

20. Eccles, L. (2012, August 21). Final ticket rush for London 2012: Games are just 200,000 tickets away from becoming first ever sold out Paralympics. *Mail Online.* Retrieved from: http://www.dailymail.co.uk/news/article-2191254/Final-ticket-rush-London-2012-Games-just-200-000-tickets-away-sold-Paralympics.html

21. Erickson, K., Bruner, M. W., MacDonald, D., & Côté, J. (2008). Gaining insight into actual and preferred sources of coaching knowledge. *International Journal of Sports Science & Coaching, 3*, 527-538. https://doi.org/10.1260/174795408787186468

22. Gallimore, R., Gilbert, W., & Nater, S. (2013). Reflective practice and ongoing learning: A coach's 10-year journey. *Reflective Practice*, *15*(2), 268-288. https://doi.org/10.1080/14623943.2013.868790

23. Gilbert, W., & Rangeon, S. (2011). Current directions in coaching research. *Revista Iberoamericana de Psicología del Ejercicio y el Deporte (RIPED), 6* (2), 217-236.

24. Hanrahan, S. J. (2007). Athletes with disabilities. In G. Tennenbaum & R.C. Eklund (Eds.), *Handbook of sport psychology* (3rd ed, pp. 845-858). Hoboken, NJ: John Wiley.

25. Hirst, M. (2012, August 13). Paralympic ticket sellout goal. *BBC News.* Retrieved from: http://www.bbc.co.uk/news/uk-19240972

26. International Paralympic Committee. (2013). *Athletics results.* Retrieved from: https://www.paralympic.org/athletics/results

27. Jaffer, M. S. B., & Brazeau, P. (2012). *Level the Playing Field: A Natural Progression from Playground Podium for Canadians with Disabilities*. Parliament of Canada. Retrieved from: https://sencanada.ca/content/sen/Committee/411/ridr/rep/rep07jun12-e.pdf

28. Jones, R. L., Armour, K. M., & Potrac, P. (2003). Constructing expert knowledge: a case study of a top-level professional soccer coach. *Sport, Education and Society, 8*(2), 213-229. https://doi.org/10.1080/13573320309254

29. Le Clair, J. M. (2011). Transformed identity: from disabled person to global Paralympian*. Sport in Society, 14*(9), 1116-1130. https://doi.org/10.1080/17430437.2011.614768

30. Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth-sport coaches learn to coach. *Sport Psychologist, 21*, 191-209. https://doi.org/10.1123/tsp.21.2.191

31. MacDonald, D. J., Beck, K., Erickson, K., & Côté, J. (2015). Understanding sources of knowledge for coaches of athletes with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 29*(3), 242-249. doi:10.1111/jar.12174

32. Mallett, C. J., Trudel, P., Lyle, J., & Rynne, S.B. (2009). Formal vs. informal coach education. *International journal of sports science and coaching, 4*(3), 326-334. https://doi.org/10.1260/174795409789623883

33. McMaster, S., Culver, D., & Werthner, P. (2012). Coaches of athletes with a physical disability: a look at their learning experiences. *Qualitative Research in Sport, Exercise and Health, 4*(2), 1-18. https://doi.org/10.1080/2159676X.2012.686060

34. Nelson, L. J., Cushion, C. J., & Potrac, P. (2006). Formal, non-formal and informal coach learning: a holistic conceptualization. *International Journal of Sports Science & Coaching, 1*, 247-259. https://doi.org/10.1260/174795406778604627

35. Rangeon, S., Gilbert, W., & Bruner, M. (2012). Mapping the world of coaching science: a citation network analysis. *Journal of Coaching Education, 5*(1), 83-113. https://doi.org/10.1123/jce.5.1.83

36. Reid, G., & Prupas, A. (1998). A documentary analysis of research priorities in disability sport. *Adapted Physical Activity Quarterly, 15,* 168-178. https://doi.org/10.1123/apaq.15.2.168

37. Saury, J., & Durand, M. (1998). Practical knowledge in expert coaches: On-site study of coaching in sailing. *Research quarterly for Exercise and Sport, 69*(3), 254-266. https://doi.org/10.1080/02701367.1998.10607692

38. Sawicki, O. (2008). Reflections on the 2008 Beijing Summer Paralympic Games – A Canadian Paralympic Committee perspective. *Coaches Plan, 15*(3), 37-39.

39. Spence, C. (2015). *Amazing London 2012 Paralympics Marketing Case!,*. Retrieved from: https://www.youtube.com/watch?v=BkEoeGWlJT8

40. Shikako-Thomas, K., & Law, M. (2015). Policies supporting participation in leisure activities for children and youth with disabilities in Canada: from policy to play. *Disability & Society, 30*(3), 381-400. https://doi.org/10.1080/09687599.2015.1009001

41. Statistics Canada (2012). *A profile of persons with disabilities among Canadians aged 15 years or older*. Retrieved from: http://www.statcan.gc.ca/pub/89-654-x/89-654-x2015001-eng.htm#n1

42. Taylor, S. L., Werthner, P., & Culver, D. (2014). A Case Study of a Parasport Coach and a Life of Learning. *International Sport Coaching Journal, 1*(3), 127-138. https://doi.org/10.1123/iscj.2013-0005

43. Taylor, S., Werthner, P., Culver, D., & Callary, B. (2015). The importance of reflection for coaches in parasport. *Reflective Practice, 16*(2), 269-284. http://dx.doi.org/10.1080/14623943.2015.1023274

44. Tawse H., Bloom, G. A., Sabiston, C. M., & Reid, G. (2012). The role of coaches of wheelchair rugby in the development of athletes with a spinal cord injury. *Qualitative Research in Sport, Exercise and Health, 4*(2), 206-225. https://doi.org/10.1080/2159676X.2012.685104

45. Topping, A. (2012). *Locog hails biggest and best Paralympics in history.* Retrieved from: https://www.theguardian.com/sport/2012/sep/06/paralympics-ticket-sales

46. Trudel, P., Culver, D., & Werthner, P. (2013). Looking at coach development from the coach-learner's perspective: considerations for coach development administrators. In: P. Potrac, W. Gilbert, & J. Denison, (Eds.). *Routledge handbook of sports coaching* (pp. 375-387). London: Routledge.

47. Trudel, P., & Gilbert, W. (2006). Coaching and coach education. In: D. Kirk, D. MacDonald, & M. O'Sullivan (Eds.). *Handbook of physical education* (pp. 516-539). Thousand Oaks, CA: Sage.

48. Valentine, F., & Vickers, J. (1996). Released from the yoke of paternalism and charity: Citizenship and the rights of Canadians with disabilities. *International Journal of Canadian Studies*, (14), 155-178.

49. Wenger, E. (1998). *Communities of practice: Learning meaning and identity*. New York, NY: Cambridge.

50. Werthner, P., & Trudel, P. (2006). A new theoretical perspective for understanding how coaches learn to coach. *The Sport Psychologist*, *20*(2), 198-212. https://doi.org/10.1123/tsp.20.2.198

51. Werthner, P., & Trudel, P. (2009). Investigating the idiosyncratic learning paths of elite Canadian coaches. *International Journal of Sports Science & Coaching, 4*(3), 433-449. https://doi.org/10.1260/174795409789623946

52. Werthner, P., Culver, D., & Trudel, P. (2012). An examination of a large-scale coach education program from a constructivist perspective. *Sport psychology insights*, 337-355.

53. Winchester, G., Culver, D., & Camiré, M. (2013). Understanding how Ontario high school teacher-coaches learn to coach. *Physical Education and Sport Pedagogy, 18*(4), 412-426. https://doi.org/10.1080/17408989.2012.690376

54. 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. https://doi.org/10.1080/17408980701282019

REVIEW PAPER

PLANNING AND MONITORING OF SPORTS TRAINING: WHAT IS IT AND HOW TO TEACH IT?

Martin Roy[1], Xavier Roy[2], Jonathan Chevrier[1], Charles Cardinal[3]

[1]Faculté des sciences de l'activité physique, Université de Sherbrooke, Canada.
[2]Département de Kinésiologie, Université du Québec à Montréal, Canada
[3]Département de Kinésiologie, Université de Montréal, Canada
E-mail: Martin.roy@usherbooke.ca

Abstract

Planning training is an important sport coaching topic. It is frequently taught in large-scale education programs targeting coaches with various profiles and experience. However, there are different ways of delivering planning training, and there is a need to question the content and teaching methods used in workshops that offer education on this topic. The objectives of this article are (a) to present definitions and models related to planning and monitoring training, (b) to present the results of a case study on coaches' experience while participating in workshops that teach planning training, and (c) to reflect on an approach to teaching planning training that is based on reflective practice and critical thinking. The participants were thirteen coaches who attended workshops on planning training. Interviews were conducted with each coach before and after their respective workshops. These coaches also created training plans before and after their workshops, and these were analysed to understand what coaches had learned and what modifications have been brought to their plan. Overall, the workshops were evaluated as being useful, for various reasons. It was difficult to determine precisely what the coaches have learned during the workshops. Results confirmed the conclusions of many authors about the impact of large-scale coach education programs: education on planning training should be tailored on the coaches' profiles and needs, and this education should follow a socioconstructivist approach, emphasizing an experiential and reflective approach.

Key words: *Training, Planning, Monitoring, Coach Educatio*

Introduction

Planning training in sport dates back as far as Greco-Roman antiquity (Issurin, 2010). The goal was to sequence training content and training loads in preparation for the Olympic Games (Issurin, 2010; Siff, 2003). More modern foundations of training plans date back to the Soviet Revolution. Other countries such as Finland and Germany (*German Democratic Republic*) also contributed to this literature. Frequently quoted authors are often of Soviet origin (*Ozolin, Letunov, Yakolev, Matveiev*) and their work on periodization (*periods/cycles organization*) dates back to the 1950s (Issurin, 2010; Siff, 2003). In the West, planning training began around the late 1940s in England, where work inspired by the Eastern countries included a review of training phases (Siff, 2003).

In the 21st century, planning training is still an important task for a sport coach (Lyle, 2002) but it remains a complex, time consuming and often an unrewarded task. Often, coaches either do not engage in it, or, if they do, do not do it particularly well (Abraham et al., 2015). Many strength and conditioning coaches in North American professional sports (*National Hockey League - Ebben, Carroll, & Simenz, 2004; National Basketball Association - Simenz, Dugan, & Ebben, 2005; Major League Baseball – Ebben, Hintz, & Simenz, 2005; National Football League – Ebben, & Blackard, 2001*) plan training, but little is known about (a) what sport coaches plan, (b) what concepts of planning are coaches taught, (c) what teaching methods are used to teach planning and monitoring, (d) how coaches learned to plan, and (e) what barriers may exist to coaches' engagement in planning (*e.g., lack of knowledge, etc.).*

This paper is divided into two sections. In the first section the topics of planning and monitoring sports training are discussed. This section presents definitions, theoretical concepts, principles and models related to planning training. Monitoring training from three different approaches is presented as well. In the second section, the topic of how to teach planning and monitoring to coaches is discussed. A case study is presented to answer the following research questions: What coaching education format is used to teach planning training? What are the outcomes of the education format used? What are the limits of this approach? Finally, a reflection on potential suggestions to train coaches on planning and monitoring training is presented. It is suggested that planning and monitoring training should complement one another (Lyle, 2002), not only to help athletes to achieve their goals, but also to help coaches who aspire to improve their planning and monitoring skills.

Planning and Monitoring Sports Training

Planning Training. Definition of planning training and rationale for its use. Based on definitions from several authors, planning training is a predictive process based on experience and scientific knowledge aimed at rationally, systematically, and sequentially organizing training tasks and the recovery process in order to reach performance goals at specific times. This process is dictated by (a) the athlete's profile (*training and competition experience*), (b) his training context, and (c) the requirements of the tasks to be performed (Gambetta, 2007; 2015; Issurin, 2010; Kiely, 2011; Lyle, 2010; Plisk & Stone, 2003; Siff, 2003; Smith, 2003; Turner, 2011; Weineck, 1997). It is often referred as periodization of training (Bompa, 1999ab).

There are many reasons that justify the importance of planning training. First, the reflective effort to produce a plan should provide a global vision to everyone concerned by the training process and guide its implementation. It should help to keep the training goals and priorities in perspective (Gambetta, 2007), without losing sight of its purpose. This reflective effort should involve the contribution of everyone involved in the training process such as coaches, assistants, specialists (*integrated support team - IST*), and athletes (*according to the maturity level of the latter*). The goal is to make sure that everyone involved with the athletes is on the same page and moving forward together in the direction set by the coach. Therefore, the integration of many training components such as physical, technical, tactical and mental skills is required (Plisk & Stone, 2003). This joint reflection should ensure that training tasks fit well together to optimize the cumulative and interactive effects of the different methods (e.*g., physiological and motor adaptations*) to achieve the highest level of preparation for the selected events such as training camps and competitions (Hartmann et al., 2015; Weineck, 1997). It could also help to manage fatigue by integrating recovery strategies, and prevent, as much as possible, training plateaus, overtraining symptoms, and, injuries (Brown & Greenwood, 2005; Issurin, 2010; Rhea & Alderman, 2004; Siff, 2003).

Overview of the planning models. The classical (*linear*) model of planning (Bompa, 1999a; Gamble, 2006; Issurin, 2010; Matveiev, 1983; Weineck, 1997) is still presented in much of the literature concerning planning training. The model proposes a progressive arrangement across training cycles (e.*g., macrocycle, periods, phases, mesocycles, microcycles*) which involves: (a) preparation (*general and specific*), (b) competition (*precompetition and main competition period*) and (c) transition (Matveiev, 1983). The start of the preparation period focuses on foundations of basic physical skills (*e.g., endurance, strength and flexibility*), through

high volume, then intensive training, and specific training before the main competition period. In Matveiev's model, the volume and the intensity increases gradually and regularly in the general preparatory phase. In the specific preparatory phase, the volume is reduced from optimal to medium, while the intensity increases to the optimal level. Then, in the main competition phase, the volume fluctuates from high to medium while the intensity varies from high to optimal related to the performance competitions. The model also allows time for recovery as the athlete progresses forward the main competition period or as training becomes more specific (Brown, 2001; Issurin, 2010, Kiely, 2012; Matveiev, 1983).

Many authors have since adapted the cyclical concepts from the classical model of planning. At the microcycle level for example, Issurin (2008) uses the following terminology to define the general objective of a microcycle: (a) adjustment, (b) loading, (c) impact, (d) pre-competitive, (e) competitive, and (f) restoration. At the mesocycle level, authors such as Issurin (2008), and Zatsiorsky and Kraemer (2006) use the terms (a) accumulation, (b) transmutation, and (c) realization while Dick (2007) uses the following terminology for the macrocycles: (a) preparation (*adaptation*), (b) competition (*application*), and (c) transition (*regeneration)*.

Sport scientists and practitioners have expressed concern regarding to the use of the classical model. They have claimed that such a model does not apply to today's high level/professional sport, since the athletes' contextual reality involves an extended period of competitions (Gambetta, 2015; Gamble, 2006; Siff, 2003). Enduring a low to medium volume of training for these extensive periods, which are devoted to maintain previously developed skills, could prevent athletes from achieving peak performance for critical events that occur at the end of the main competition period. The training load and the importance of various competitions are also likely to change during the competitive season, based on on-going results, injuries, opponents and breaks. In such contexts, technical and tactical skills and strategies can still be improved during the competitive season. A clear distinction between preparation and competitive periods thus seems unrealistic. It is also irrelevant to start the short training season (*preparation period*) of high level athletes with a long period of progressive volume of training, with low-intensity training loads used for general methods and exercises. Such prescriptions do not apply to high level athletes who have been training year-round for several years. These athletes could rather benefit from high intensity and specific training methods early in their preparation, as their training backgrounds allow them to handle such training regime (Issurin, 2010; Siff, 2003; Thibault, 2009). Other limitation

of the model is the oversimplification of the model, which emphasizes the training volume and intensity of physical training. It also targets sports where performance relies heavily on physical skills, such as swimming, weightlifting, and athletics, with less regard to sports in which technical and tactical skills may have an impact on performance.

Recently, many models related to planning training have been suggested. Most of them apply to physical skills and are particularly relevant to strength and conditioning coaches. First, there is the nonlinear (*wavelike or undulating*) model of planning (Brown, 2001; Gamble, 2006; Issurin, 2010; Kiely, 2012). It proposes that the training load (*volume, intensity*) varies significantly from microcycle (*week*) to microcycle or from session to session within a week to favor recovery between training (Brown, 2001). For example, series of 8 repetitions at a medium intensity level could be performed on day 1, series of 4 repetitions at a high intensity on day 2 and series of 12 to 15 repetitions on day 3 at a lower intensity. Second, the "Block Periodization" model consists of blocks of training (*mesocycles of 2 to 6 weeks*) where trainings tasks are specific and focused on a minimum set of skills/abilities to prevent interference (Issurin, 2010; Loturco & Nakamura, 2016). For example, during a "block" of training, power and speed (*high intensity training*) could be developed and prioritized while other less important or less specific skills can be maintained for the same time period. The combination of cycles takes into account the "cumulative" effects (*adaptations following a planned, sustained and monitored training*) and "residual" effects (*retention of adaptations, following a systematic and prolonged training after interruption of training*). The coach must therefore know the residual effects of the trained skills (Issurin, 2010). Third, there is the *"Fractal Periodization"* model. This model simply consists of repeating and magnifying a similar training load structure, in this case, volume and intensity over a long time period (Brown & Greenwood, 2005). Fourth, the *"Conjugate Sequence System"* aims to exploit the effects of fatigue and fitness by arranging consecutive mesocycles (*approximately one month*) where the focus is placed alternately on different skills to create deferred adaptations (Gamble, 2006; Plisk & Stone, 2003; Turner, 2011).

Finally, the "Tactical Periodization" model applies to train athletes/teams participating in sports for which technical and tactical skills prevail (Crespo, 2011; Delgado-Bordonau & Mendez-Villanueva, 2012). This is an integrated coaching approach where the coach assists the athlete in training and competition through training goals and methods that converge on the tactical component of the sport. The model postulates that methodologies and training systems must converge on the organization,

structure, style of play that the coach wants the athletes to adopt, and this, taking the context into account (*level, resources, schedule, etc.).* The tactical dimension is at the heart of planning and defines technical, physical, and mental training. The different skills and abilities are trained simultaneously. In each task, multiple skills are solicited. The technical, muscular, speed and endurance components must not be trained in isolation, out of context, but rather using modified play. The training sessions must aim at the quality of execution, the concentration, the cognitive effort through the proposed exercises. The intensity (*physical and cognitive*) is essential, leading the athlete to be prepared for game situations. The volume applies for high intensity exercises. There is no significant variation of "volume" and "intensity". Physical skills must be optimal and functional over a long time period. Planning must be able to adapt to the unpredictable aspect of the game. There is no longer a peak performance to reach, but rather a high level of performance to maintain. This approach seems to be applicable to sports such as soccer (Delgado-Bordonau & Mendez-Villanueva, 2012) and tennis (Crespo, 2011).

Training principles. The purpose of presenting the preceding models was not to convince coaches to adopt one for their own practice. Rather, from a coach education standpoint, the models were presented in order to borrow ideas and concepts from these models to be adopted in their own practice. Coaches should be able to understand to which athletes and contexts these ideas can be applied, for which skills, and to attain which goals? What resources are necessary for their implementation?

Although these models are different from one another, they are all based on the implementation of training principles. In this paper, we list 12 important training principles that should guide the coach in planning training. Coaches should be encouraged to be creative and competent in implementing key training principles. Full understanding and competent application of these 12 principles are a prerequisite for the development of any training plans. They should be part of the learning objectives of any coach undertaking professional development on planning training, regardless of his/her profile.

1-Individualization: The training load must be based on the athlete's actual state of training (*physical, motor and psychological*), training and competition experience, potential, characteristics and needs (Bompa, 1999b; Kurz, 2001; Norris & Smith, 2002; Weineck, 1997; Zatsiorsky, 1995).

2-Specificity: The effects sought (*adaptations*), and consequently the tasks and training loads, are determined by the physiological, motor and cognitive demands of the sport (Bompa, 1999b; Gambetta, 2007; Kurz, 2001; Norris & Smith, 2002; Saury & Sève, 2004; Siff, 2003;

3-Thibault, 2009; Weineck, 1997; Zatsiorsky, 1995). It is call the SAID principle (*specific adaptations to imposed demands*).

4-Overload: The training load (*determined by the nature, intensity, volume, density and frequency of administration of the stimulus*) must be sufficient (*above a certain threshold*) to cause a temporary decrease in the functional level of the athlete's body (*fatigue*) according to his/her profile, and then, to increase his/her performance (Bompa, 1999b; Gambetta, 2007; Norris & Smith, 2002; Rhea & Alderman, 2004; Thibault, 2009; Weineck, 1997; Zatsiorsky, 1995).

5-Recovery: The state of supercompensation/improvement following a training load is only possible if the organism has the possibility of recovering enough from fatigue or the decrease of its functional level (Gambetta, 2007; Saury & Sève, 2004; Thibault, 2009). A recovery phase is important to restore the athlete's work capacity before a new stimulus is introduced again.

6-Progression: The load and training methods must be respectively increased and adjusted in a progressive and rational way over time for the athlete and his level of development in order to achieve the desired adaptations (*training effects*) (Bompa, 1999b; Gambetta, 2007; Norris & Smith, 2002; Saury & Sève, 2004; Weineck, 1997).

7-Cyclic Character of the Training Process*:* The training load (*tasks, loads, and recovery*) must be planned according to an arrangement of cycles so that the athlete reaches the optimal sport shape/form at the decisive competitions (Issurin, 2010; Kurz, 2001; Norris & Smith, 2002; Saury & Sève, 2004; Weineck, 1997). Therefore, the macrocycle is broken down into periods, phases, mesocycles and microcycles.

8-Variety: The training loads, methods and exercises (*angles of movement, apparatus to be used, etc.*) must be periodically adjusted and diversified to achieve maximal adaptations and prevent the athlete from staleness or becoming saturated (Bompa, 1999b; Gambetta, 2007; Zatsiosky, 1995).

9-Balance: The whole body must be trained to develop strength for the agonist and antagonist muscles thus reducing the risks of injuries.

10-Accommodation or accumulation: The administration of a repetitive stimulus induces adaptation (*habituation*) of the body so that it becomes more resistant to the stimulus which can help inhibit disruption on subsequent exposures (Thibault, 2009; Zatsiosky, 1995). Adaptation requires a sufficient load in terms of intensity, volume, and frequency to stay within the optimal training effect range (Gambetta, 2007; Kurz, 2001).

11-Regressive improvement: Adaptations do not occur in a linear and predictable way over time. They are fast at the beginning of a program,

12-but can also stagnate after a certain period of training (Gambetta, 2007). For a given training stimulus, the increase in the level of development of physical fitness or motor skill decreases as the cumulative amount of training devoted to it increases (Thibault, 2009). Thus as the training experience progresses, the potential for performance improvement is reduced.

13-Reversibility: Adaptations (*changes in the body resulting from training*) are not permanent. If training is not frequent or difficult enough, there is a detraining phase (*loss of conditioning*) (Norris & Smith, 2002).

14-Interference: In some cases, the training of a particular physical skill may temporarily or permanently affect the expression of the performance of another skill. For example, high volume of endurance can interfere with hypertrophy if they are trained in the same microcycle. It is therefore important to optimally organize training tasks to reduce negative interactions between the trained skills (Saury & Sève, 2004).

Monitoring Training. Sport coaches find it important to see the outcomes of their planning. We may then wonder: do they have to wait until the most important events of the season to answer the question? Obviously not. As Lyle (2010) claims, planning training should be seen as an iterative and cyclical process that involves systematic evaluation. This evaluation can be achieved through monitoring training, which means adapting to the reality of what has been planned from measurements of different training variables and responses of the athlete following training (Krantz & Dartnell, 2007). The literature suggests that the external training load and internal training load are measured and quantified to monitor training. The external training load is defined as the work completed by an athlete measured independently of his/her internal characteristics (Scott, Black, Quinn, & Coutts, 2013; Wallace, Slattery, & Coutts, 2009). The number of sets, repetitions, intensity of effort and duration of recovery between sets and exercises are all parts of the external training load. On the other hand, the internal training load is the relative physiological stress imposed on the athlete (Wallace, Slattery, & Coutts, 2009), the athlete's response (*heart rate, fatigue perception-RPE, etc.)* to the external training load (Akubat, Barrett, & Abt, 2014; Impellizzeri, Rampinini, Coutts, Sassi, & Marcora, 2004; Scott et al., 2013). It is important to measure the internal training through the monitoring of training since it expresses the athlete's ability to adapt to the external training load (Impellizzeri et al., 2004; Viru & Viru, 2000). Planning and monitoring are then highly related since the monitoring may provide to the coaches relevant information about the training plan and its development, then allowing coaches to adjust accordingly (Norris & Smith, 2002; Roy, Chevrier, Nadeau, & knowledge

Spallanzani, 2016). The information gathered by regularly monitoring the athletes throughout the sport season should help to improve the training process by potentially: (a) improving the chances of achieving the desired performance (*reaching a peak performance*) at a specific time, (b) identifying athletes who may not tolerate the stress of training load and potentially reduce the risk of over training or injury, (c) stimulating reflection, for both athletes and coaches, which can help them to find solutions to their training problems, and (d) providing material for discussion between coaches and their athletes (Borresen & Lambert, 2008; Casamichana, Castellano, Calleja-Gonzalez, San Roman, & Castagna, 2013; Lyle, 2010, Robson-Ansley, Gleeson, & Ansley, 2009; Roy, Chevrier, Nadeau, & Spallanzani, 2016; Smith, 2003). Teaching how to monitor sport training is a topic as important as the planning process itself.

The figure 1 below illustrates the training process, integrating planning and monitoring training. First, planning training is based on knowledge of (a) the sport requirements, (b) the athlete's profile, and (c) the context. With these information, the coach can set training objectives to give direction to the training plans that will be implemented using appropriate training methods, exercises and loads.

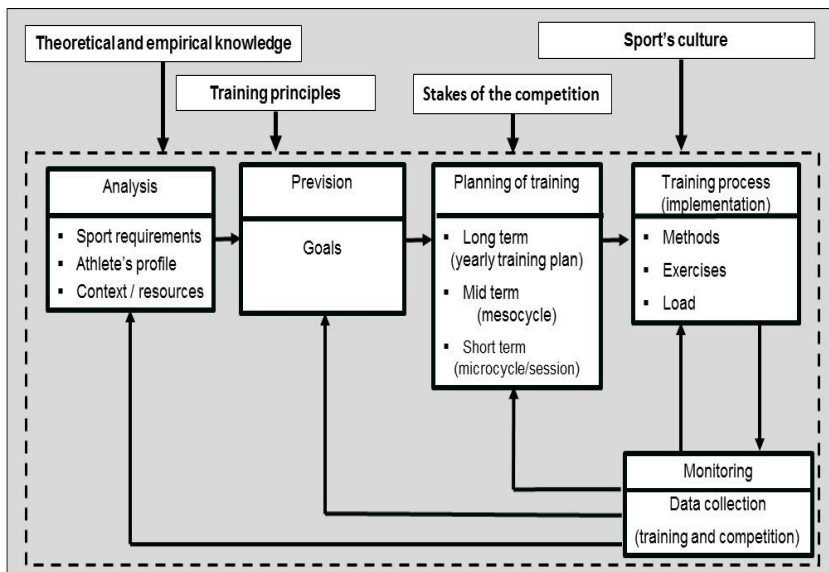Figure 1. Model of planning and monitoring of training (inspired by Roy, Chevrier, Nadeau & Spallanzani, 2016).

The use of instruments to collect data (*see approaches presented below*) on the athlete's response to training will help the coach to analyze and adjust the training process accordingly. The whole training process is determined by variables such as: (a) the coach's theoretical and empirical

on training, (b) the application of training principles, (c) the stakes of the competition, and (d) the sport's culture (values, habits, etc.).

Monitoring training is based on the use of systems or instruments that help coaches to best measure the internal training load (Robson-Ansley, Gleeson, & Ansley, 2009; Norris & Smith, 2002). Three approaches are proposed in the literature: (a) the objective approach, (b) the physiological approach, and (c) the subjective approach (Borresen & Lambert, 2008; 2009; Foster & McGuigan, 2004; Kelly & Coutts, 2007; Richard, 2011; Robson-Ansley, Gleeson, & Ansley, 2009; Wallace, Coutts, Bell, Simpson, & Slattery, 2008).

The objective approach is based essentially on observation and collection of objective measurements on variables such as (a) volume of training achieved (*number of sets, repetitions*), (b) load lifted, (c) speed, (d) motion analysis, and (e) various sport statistics. This approach may be demanding since it may require (a) to access the training/competition site, (b) to collect real time data or to execute retrospective analysis on data recorded, and (c) to collect and to analyse data for a large group of athletes (Borresen & Lambert, 2009; Deutsch, Kearney, & Rehrer, 2007; Richard, 2011; Robson-Ansley, Gleeson, & Ansley, 2009).

The physiological approach is based on the measurement of various variables related to the functioning of the human body to obtain information about intensity of effort and the physiological adaptation of the athletes. Data that are collected may include (a) heart rate during exercise, (b) oxygen consumption, (c) concentration of blood lactate, etc. Even if those data may be highly valuable, the validity of the measurements and the accuracy of data may be limited by the protocols and devices used and the goals pursued by the training. For example, there may not be any relevance to the assessment of heart rate in very short and intense efforts (*sprint, weightlifting*) or intermittent efforts. Such rigid protocols may require expensive materials and qualified personnel to collect and analyse data. Moreover, all those resources may not be accessible to all coaches and their contexts, particularly for large groups of athletes. Finally, those protocols may be difficult to implement during training sessions or competitions (Borresen & Lambert, 2009; Clarke, Farthing, Norris, Arnold, & Lanovaz, 2013; Foster & McGuigan, 2004; Impellizzeri et al., 2004; Lambert & Borresen, 2010; Little & Williams, 2007; Minganti et al., 2010; Richard, 2011; Robson-Ansley, Gleeson, & Ansley, 2009; Wallace, Coutts, Bell, Simpson, & Slattery, 2008).

The subjective approach aims to describe qualitatively, from the athletes' perspective, the effort or the effects caused by an external training load from various instruments such as (a) training logs, (b) questionnaires

and (c) rating scales (*rate of perceived effort – RPE*). The relevance of this approach lies in its potential application to different types of sports or efforts. Overall, it is a more user-friendly approach for data entry and data analysis. Such instruments can be used for (a) team sports, (b) endurance sports, (c) intermittent efforts, and (d) to assess the athletes' cognitive effort (*tactical sports – decision making*). They are potentially user-friendly since they do not interfere with the course of training sessions and they do not require complex devices or expert analysis. They only require the use of precise guidelines, wording, and references to help the athletes provide reliable information. It is also important that the collected data are compared to those of the same athlete rather to those of others, since the meaning of a "difficult or hard training" may not have the same meaning for every athlete (Borg, Hassmen, & Langerstrom, 1985; Borg & Kaijser, 2006; Foster & McGuigan, 2004; Larue, 2002; Noble, Borg, Jacobs, & Kaiser, 1983; Richard, 2011; Robson-Ansley, Gleeson, & Ansley, 2009; Swank, Steinel, & Moore, 2003; Wallace, Coutts, Bell, Simpson, & Slattery, 2008).

Overall, the use of practical tools to properly monitor training to plan and determine the training load is essential to optimize the training process. The monitoring tools must be user-friendly for both the coach and the athlete, easily understandable (*instructions adapted to the participants, wording of the instruments, etc.*), and accessible (*material used, speed of access*), both for data entry and analysis. The confidentiality of the data is important (Roy, Chevrier, Nadeau, & Spallanzani, 2016); athlete's data should only be known by the concerned athlete and his/her coach. Knowing other athletes' scores may influence someone to provide biased data to be perceived favorably by the coach. For example, if an athlete knows his/her teammates assess the training as of "moderate difficulty", he/she may be tempted to provide the same rating, despite he/she thinks it was a tough one; an unfavourable rating that may be perceived negatively by the coach, maybe as an "out-of-shape" athlete. The athlete must be aware of the potential impact of the information provided for future training plans and be reminded that wrong information is potentially more harmful than lack of information. Data provided may be valuable for the athlete (*training progression*) and for the professional development of the coach. The coach becomes more knowledgeable about the athletes' reaction to various training loads. The benefits of the monitoring protocol depend on the commitment of the coaches to (a) encourage athletes to provide information, (b) analyze the information received, and (c) ensure follow-up during training. The usefulness of the instruments and data collected may differ from one coach to another, whether it is to (a) monitor training, (b) confirm coaches' perceptions, or (c) reflect on the training situation (Richard, 2011;

Robson-Ansley, Gleeson, & Ansley, 2009; Roy, Chevrier, Nadeau, & Spallanzani, 2016). Given the uncontrollable nature of several contextual factors influencing the training process, monitoring training through collected data obtained from the previous approaches is a very important coaching skill (Richard, 2011; Siff, 2003).

Teaching Planning and Monitoring to Coaches. After our presentation of definitions and models, this paper explores how planning and monitoring training should be taught to coaches. For more than 30 years, coaching education programs have been developed to increase coaches' knowledge and, consequently, to improve the quality of coaching. The definition of learning that is used in the following text is based on Hayes (2010): learning can be described as the process that allows the learner to make sense of the information received and to create something new from it; learning transforms and enriches one's current understanding; learning uses the knowledge and new understandings developed through one's experiences to respond more effectively to new situations; learning allows learners to step out of their comfort zone and explore new pathways. Given this definition, it is warranted to explore what coaches learn about planning and monitoring training, and how they learn it.

Planning and periodization of training is a topic covered in large-scale coach education programs (Campbell, 1993). Such education programs are categorized as formal learning situations, which are supervised by institutions where teaching is curriculum-driven (*selection of learning goals, content selection, pedagogical methods, etc.*), and achievement in learning is acknowledged with grades or certifications (Trudel, Gilbert & Werthner, 2010). The teaching paradigm follows mostly a positivist approach: the Learning Facilitator (LF) presents theoretical frameworks or frames of references that must be known by the coaches. Large-scale education can be limited mostly because the content delivered does not meet the coaches' needs, or is not readily applicable to their own context (Gilbert & Trudel, 1999; Trudel, Gilbert, & Werthner, 2010). A major shift was made in Canada in 2005 to restructure the coaching education program (*National Coaching Certification Program – N.C.C.P.*), from a progressive level approach to a contextual approach, according to coaching contexts such as: (a) community sport stream (*initiation, ongoing participation*), (b) competition stream (*introduction, development, high performance*), and (c) instruction stream (*beginners, intermediate, advanced performers*) (Roy, Beaudoin, & Spallanzani, 2010). The new teaching approach is based on "learning by doing". This change may be promising, but coaches involved in the same stream, but coming from different sports, may have different educational needs. Grouping coaches from the same sport may be a valuable

option, since they may experience the same coaching challenges. However, a limitation then may be that coaches would not be willing to share their knowledge with possible opponents (Culver & Trudel, 2008). Despite this adjustment, instruction on planning training has traditionally be limited to informing the coaches on how to design a plan. Building a seasonal/yearly training plan is often a required task. Many concepts taught come from the classical or linear model of periodization (Matveiev, 1983). We may then wonder: Do coaches really need to know how to design a seasonal/yearly plan of training, particularly the volunteer coaches, who work a few hours per week with young athletes? At the "Introduction to Competition" stream, the coaches learn "How to design a practice". However, this module does not deal with the pursuit of multiple objectives in a training session. Would it be more useful for beginner coaches to fully understand and able to implement competently the training principles presented earlier?

A Case Study

Roy, Beaudoin, and Spallanzani (2010) have studied learning outcomes for coaches who attended a module on designing a sport program (*planning training*) from the Coaching Association of Canada. The module was designed for coaches who work with children and/or adolescents who learn basic athletic and athletic skills in a fun and safe environment, where they are usually trained to participate in local and/or regional competitions (Roy, Beaudoin, & Spallanzani, 2010). The module is taught throughout a 3.5 hour workshop. The learning goals of the workshop were to: (a) specify the structure of the coach's program based on the training and competition events it contains, (b) compare the main directions of the coach's program to those proposed by the N.C.C.P. for long-term athlete development, (c) evaluate the athletic development possibilities of the coach's program, (d) identify some possible solutions to increase the athletic development opportunities of coach's program, (e) interpret the information contained in a typical program pertaining to the coach's sports family to identify training priorities and goals at different times, and (f) set training program priorities and objectives in relation to the content of the training sessions on a weekly and daily basis. The goals of this study were to: (a) describe the profile of coaches participating in three "Introduction to Competition - Part B" workshops, on their training context, their planning training practice, and their knowledge and sources of knowledge about the subject, (b) document the coaches' evaluation of the workshop (*perceived usefulness and limits*), and (c) identify benefits of the coaching learning workshop (*what did they learn? Has their way of planning training changed?).*

Methods and Materials

Thirteen coaches from three workshops have participated in the study. A semi-structured interview was first conducted with each coach prior to each workshop to learn about (a) his/her coaching status, (b) his/her knowledge of planning training, and (c) their sources of knowledge about the subject. Each coach also had to submit a training plan for the first interview. No framework or presentation format has been proposed to respect the usual practices of coaches. In the weeks following the workshop, a second semi-structured interview was conducted with each coach. This time, the objective was to collect the perceptions of each coach in relation to the workshop, to know (a) what was his/her evaluation, (b) what was the perceived usefulness of the workshop, and (c) what learning had been achieved during the workshop. Each coach resubmitted a training plan *(no predetermined frame)* for the researchers to determine if there were any differences from the training plan that was initially provided. This process was repeated in the months following the workshop in order to explore the long-term effectiveness of the workshop (*exploring if coaches' evaluations of the workshop had changed, if their learning was sustained, and if their training plans had changed*).

Results and Discussion

Coaches' profiles – their coaching context and knowledge. Results show that even if one of the objectives of the Coaching Association of Canada, when reviewing the N.C.C.P., was to bring coaches together according to the reality of their coaching context, coaches who participated in the study were quite different on a number factors. The sample of 13 coaches differed from one another in age (*ranging from 18 to 65 years old*) and experience (*ranging from 2 to 12 years*), worked in nine different sports (*both team and individual sports*), and some trained more than one team or several groups of athletes if working in individual sport. Coaches also differed from one another on status: some were head coaches, others were assistants; some coaches occupied both these positions. This also contributed to the time spent on coaching, which varied from coach to coach (*ranging from 4 to 40 hours per week*). The amount of time devoted to planning training was also different from coach to coach. This result also varied according to the time of year. The athletes coached by these coaches were also different from one another, by age, level of performance, or participation in competitive or recreational contexts. .

Eleven of the 13 coaches submitted training plans. Some did long-term planning at the beginning of the season and spent little to no time on this task during or after the season. For the most part, a few hours of

planning were done per week, mostly focusing on individual practices or weekly training plans (*microcycle*). Two coaches provided seasonal plans for their athletes. One coach submitted an annual training plan before the start of the workshop. Some coaches lead their practice based on routines, without necessarily writing their plan down. Coaches who devoted more time to planning were essentially those who devoted more time to coaching in general. It is important to mention that coaches spoke about planning using their own set of sports terminologies. Therefore, the terminology used varied from one coach to another. For instance, while the terminology used for features of training load (*volume, intensity, etc.)* were relatively well-known by the coaches, the same terms did not have the same meaning for everyone; the meanings being dependent on the coach's discipline and sport context. This may be a reason why some coaches preferred to be in sport-specific groups for such workshops, as they could communicate through a shared and meaningful vocabulary. The terminology related to cyclical organization of training was lesser known, except for the university students in physical education and kinesiology.

Prior to starting the training workshop, the coaches' knowledge on planning training was already strong. Many coaches knew more about it than they had initially suggested in their pre-interviews. All coaches understood that planning training involves a combination of different training tasks over time in order to achieve goals at specific moments and events. At least ten coaches recognized that these training tasks must consider the participant's profile. Ten coaches also spoke about ensuring the modulating of load and training tasks over time, depending on the importance of the events. Beyond the profile of the participants, nine coaches know that the planning process is initiated by an accurate assessment of the participants, their strengths and weaknesses, as well as their needs. Eight coaches were also aware that fatigue and recovery are factors to consider in planning training, to be ready to perform at important events. Eleven coaches also elaborated on the sequence of different training tasks during their sessions.

The coaches' extensive knowledge on planning training comes from a multitude of sources. For all coaches, knowledge was acquired through interaction with others: (a) coaches of different levels, (b) strength and conditioning coaches, (c) friends, (d) athletes' parents, etc. Knowledge being acquired through experience, especially as an athlete, is mentioned by 11 coaches. The technical workshops offered by the sports' federations were also recognized as significant since ten coaches reported having learned about planning training through this source. Nine coaches also learned about this topic through workshops offered by the N.C.C.P. Three coaches also

participated in other coaching clinics. Five coaches also had taken steps to consult various documents, such as (a) books, (b) DVDs, or (c) websites. Four coaches had also completed, or were enrolled at the time of the study, in a university program that combined the practice of physical activity and sport, namely physical education or kinesiology. Each coach identified at least two significant sources of knowledge about planning training. Overall, informal sources of knowledge predominated other sources. Use of informal sources is dependent on the initiative of coaches, outside institutionalized activities (s*uch as discussions with colleagues*), experience as an athlete and coach, and document retrieval. The results confirmed the conclusions of the research on the contribution of these sources of knowledge (Lemyre & Trudel, 2004; Lyle, 2002; Sage, 1989; Trudel, 2008; Trudel & Gilbert, 2006) and their complementarity, whether formal, non-formal, or informal (Nelson, Cushion, & Potrac, 2006).

   Coaches' global evaluation of the workshop. The evaluations of the workshops that were received were favourable. Nineteen of the 23 ratings (82.3 %) were either "very useful", "useful" or "somewhat useful". Coaches rated the evaluation most frequently as "Somewhat useful" (39.1 %). University students in physical education or kinesiology had a favorable opinion of the workshop even if they had already been taught the content in their classes. In-depth analysis of the results revealed that the coaches who spent the most time on coaching perceived the workshop as "very useful". Despite the changes made in the training approach of the NCCP, the limitations raised during the analysis of the workshops are similar to those raised in the literature. First, it is questionable whether teaching "planning training" is a relevant or applicable topic (Abrahams & Collins, 1998) for coaches dealing with young athletes or older participants, who are not aiming to achieve high performance. If the subject taught is not applicable, the workshop may not meet the knowledge needs of coaches (Douge & Hastie, 1993, Haslam, 1990). Second, six coaches discussed how there was too much information presented in a short period of time, a finding also noted in the literature (Lemyre, Trudel, & Durand-Bush, 2007; Trudel & Gilbert, 2006). For one coach who had taken a university course on planning training, his or her perception is different. The short duration of the training activity did not have as great an impact on coach's knowledge as the four-month university course that the coach had taken. Finally, four of the 13 coaches interviewed expressed a preference to have participants in the training workshop be grouped by sport, or by families of sports (*team sports; endurance sports; etc*.), to have training that would meet their needs.

   The limitations raised could be explained by the vast diversity of coaching profiles across nine different sports. The profiles of the athletes

they worked with were also different from one another, and each coach had different coaching education experiences. It can be difficult for the course facilitator to provide examples that could reach all coaches, and even more difficult to deepen the content of the course to meet everyone's expectations and needs. This task may be easier in "integrated" training workshops where coaches come from the same sport backgrounds. It would be interesting to analyze the perceived usefulness and benefits of "integrated" training workshops that are currently offered by sport federations.

These results lead to questions such as: what content is relevant to teach about planning training (*e.g., the yearly training plan*)? Is the classical periodization model the only one to be presented to coaches? Is it more useful to teach how to design other types of plans such as monthly (*mesocycle*) or weekly (*microcycle*) training plans, as they may be more applicable for the coaches in training? How detailed should the training plan be? Is it more relevant to teach training principles that can be applied to various types of planning (*mesocycle, microcycle, etc.*) (Kurz, 2001; Weineck, 1997; Zatsiorsky, 1995)?

What coaches have learned and/or changed. The benefits of the workshops that were discussed by coaches varied greatly from one coach to another, a finding that is held true even if the coaches attended workshops covering the same content. These findings support the idiosyncratic nature of knowledge (Lemyre, Trudel, & Durand-Bush, 2007; Mallett, 2010; Werthner & Trudel, 2009). These findings could be explained by the variance in profiles of the coaches: (a) their different educational backgrounds, (b) their different coaching status (e.g., part time vs. full time), (c) the different sport cultures (*e.g., values, backgrounds*), (d) the various requirements of the sport being coached, etc.

For ten coaches, the workshop was an opportunity to confirm or review their actual state of knowledge, such as the skills progression to be trained and the breakdown of the yearly training plan. Ten coaches also alluded to the usefulness of the documentation handed out in class. Several intended to consult it later. Three of the four students with physical education or kinesiology backgrounds took the opportunity to network with other coaches (*even those beyond their own sports*). It would be interesting to explore the profile of coaches who were willing to share their knowledge with coaches of other sports. Would they be more able to conceptualize shared information, and thus be able to draw parallels with other sports? Would they be more curious? Would they be more confident in their knowledge? These findings are contrasted with one young coach who did not have the same academic training and who preferred to participate in workshops targeting coaches in her sport. More precisely, Roy, Beaudoin, &

Spallanzani (2010) wanted to know what were the learnings acquired by the coaches participating in the workshops. Unfortunately, the data obtained did not provide a clear answer to this question. Indeed, it had been difficult for coaches to clearly determine, beyond any doubt, where their actual state of knowledge came from, and under what circumstances was it acquired. The results could therefore confirm Jarvis' theory (2006) that learning is a process that continues over a lifetime. Since it was difficult from the interviews for the researchers to clearly identify what was learned during the workshop, a description of what the coaches discussed when asked about what they learned from the workshops was developed. Overall, nearly 25 different topics were discussed to express what had been learned during the workshops. The topics that were identified are similar to what had already been mentioned in the pre-workshop interview. Here is list of these topics:

- All coaches (n=13) spoke about training evolution or development that moves from general to specific or the sequencing of training tasks in the long term;
- Twelve coaches talked about the cyclical organization of training;
- Eleven coaches developed the sequencing of tasks, objectives, and priorities during a single training session;
- Ten coaches raised the importance of tasks and athlete analysis;
- Ten coaches discussed physical fitness training (*conditioning*);
- Nine coaches considered the athlete's developmental level to plan training;
- Eight coaches addressed the structure and time breakdown of the training session as well as the training load;
- Five coaches mentioned topics that were not included in the training program and were actually addressed, as confirmed by the observation of each of the three workshops. For example, young coaches in gymnastics have found it useful to work with a training diary and develop tools to appreciate the attitude and presence of their athletes in the training environment. It is worth asking if it was really a limitation of a training workshop to have a course leader who takes the initiative to provide examples and additional information that meets the needs of the participants. This result confirms that the material presented is not standardized from one workshop to another (Gilbert & Trudel, 1999).

The coaches' comments revealed that the workshop did not significantly change their planning practice. In addition to the data that were collected during the interviews, the training plans produced by the coaches were identified as significant sources of information which supplemented and further appreciated the coaches' knowledge on planning training and the impact of the training workshops. The workshop was an opportunity that

allowed coaches to confirm what they were already doing. There were coaches for whom the workshop had not significantly changed their planning practice. This was the case for two coaches who were experienced and who were pursuing their studies in a physical education or kinesiology program and for another coach. There was also a coach who had not changed his planning training practice but he realized that the number of competitions for his team were insufficient, and that he needed to find solutions to develop the athletes he coached. However, these comments suggested that one of the objectives of the workshop was achieved: "Evaluate the athletic development possibilities of your program". There were other coaches who slightly changed the way they plan training. Such changes included: (a) identification of the allocated time within the sessions (*start and end times*), (b) identification and brief description of the training tasks (*skills to be trained*), (c) identification of the duration and sequencing of training tasks, (d) identification of the objective of the session and (e) information on the training load (*volume-number of repetitions to be performed and intensity*).

There were also coaches for whom the workshop had been very helpful. The one for whom the workshop was certainly the most beneficial was a full time soccer coach and a municipal technical director. He devoted 40 hours a week to coaching. From the first interview, he had already developed a yearly training plan. The plan indicated different training topics that needed to be addressed at different dates. Another portion of the coach's plan revealed the frequency of training, the topics to be addressed, and specified the physical, technical and tactical skills to train. His learning required a continued effort to return to the information in the reference documents. He also claimed to have developed confidence in his knowledge - one of the goals sought by coaches' education programs (Douge & Hastie, 1993). Finally, the main contribution of the workshop for a young coach in gymnastics was to help her learn how to produce plans that can help her better manage the attitude and participation of her athletes. This was content that was not part of the original workshop program. These issues may have been brought up as a result of the learning facilitator's initiative to address a discussion about this topic. Finally, beyond the documents collected during the study, two coaches had become aware, after the workshop, that their training context did not provide ideal conditions for developing young athletes; because of this awareness the coaches began considering solutions to these issues.

It was very difficult to judge whether the documents produced by the coaches were high quality training plans and whether training goals that were chosen were appropriate. Even though the researchers were able to

interview the coaches and receive their training plans, there are still questions concerning the evaluation of short, medium and long term outcomes of the training plans, such as (a) the progress made by the athletes, (b) the extent to which they reach their objectives or (c) their perceptions about the training process. Like Trudel and Gilbert (2006), we believe that to be credible and valid, this evaluation must be done in the field, in the real training context. Therefore, it would be interesting for future research to combine the use of systematic observation of training sessions designed by coaches who participated in the workshops with the analysis of their training plans, and perhaps add interviews with the persons involved in the training to help answer these questions. Conducting interviews using technical devices such as video recordings that help access the context of the coaches' interventions (*stimulated recall, etc.)* (Roy, Beaudoin, Perreault, Turcotte, & Spallanzani, 2010; Tochon, 1996) could also be used to explore the rationale underlying the implementation of training plans and actual knowledge on the subject. With all these research methodologies, it may be possible to answer the following questions: Do the training methods favoured by the coaches allow athletes to reach their training goals? Are the methods relevant to the participants' level and profile? The use of mixed-methods approaches (Cresswell, 2014) would make it possible to determine the degree of concordance between (a) the coaches' knowledge, (b) the training plans, and (c) the training conditions offered *(e.g., goals pursued, exercises or drills implemented, training loads, etc.)*.

The purpose of this case study was not to evaluate the quality of the workshops. It seemed however that the workshops had - at various levels - achieved their previously stated goals. For instance, all coaches discussed the fact that the training process must take into account the competitions and important events of the sport season. As well, in their interviews, several coaches referred to the content included in the material that was provided during the workshop, but they did not identify exactly what they picked up from the documents. Some people remembered that the information that was presented in the document tables was complex and that a revision of these would be necessary. Other coaches discussed some of the challenges in their coaching context, including their lack of preparation prior to starting competitions and their lack of competition. It remained to be seen whether these coaches would propose solutions to these problems in the future. The answers of several coaches seemed to suggest that they knew what the training goals and priorities were, in accordance with the different training periods, and coaches were able to schedule workouts, and identify priorities and goals for these workouts. Almost all the documents handed-in by the coaches were session plans. Therefore, the question is whether long-term

planning of training *(seasonal plans or an annual plan)* is relevant for those coaches who work in often uncompetitive contexts. Long-term planning of training can be a time-consuming job (Abraham et al., 2015) and it is questionable whether these volunteer coaches, who - for the most part - spend little time in training, have enough time to spend on this task. Regardless of the type of planning taught, coaches should be aware of the iterative nature of planning, based on monitoring.

Finally, it is important to remember that the conclusions of this research came from coaches who worked in part-time capacities with young, developing athletes. The results may have been different if different profiles of coaches had participated in the study. To have a better understanding of the outcomes of coaches' education programs or learning situations, related to planning training, more research is needed, with different coach's profiles and using various methods. The next section will address different strategies for coaches' education, particularly on the topic of planning and monitoring training.

Conclusions

Reflection on How to Teach Planning and Monitoring Training to Coaches. Despite the content's importance, the format used to teach the planning and monitoring of sports training is an extremely important matter. This may beg the question: what are the most relevant strategies, or learning situations, to teach planning and monitoring training? It must be kept in mind that these coaching tasks are complex (Abraham et al, 2015) because preparing to reach performance involves the integration of many variables, such as the physiological, psychological, technical, and tactical requirements of the sport (Smith, 2003); the specific particularities of the training context such as the athletes' profiles and level of development; and the resources available (Côté, Salmela, Trudel, Baria, & Russell, 1995). The reflection needed to integrate all these variables into a plan may justify why planning and monitoring training is important. However, what is the best way to facilitate this reflection, to acquire meaningful learning? To what extent can large-scale training programs contribute to improvement in planning training? It will depend on the objectives pursued by these learning situations and the profile of the candidates who participate in the workshop. The previous sections have demonstrated the benefits of a large-scale education program on planning training, which targeted mainly part-time coaches who worked with young athletes in development. Essentially, the findings of the work summarized above revealed that this type of program can certainly be useful in the initial stages of coaches' education to (a) emphasize the importance of planning and monitoring training,

(b) introduce new materials, such as training principles, (c) validate some of their knowledge, (d) transform and enrich their understanding of the concepts taught (Hayes, 2010) that are applicable to several contexts and (e) for some coaches, to change their practice related to planning. However, the consequences were somewhat limited and less significant because the information conveyed did not necessarily meet their specific needs, which may have made them less prone to question their practice. Thus, it is necessary to question the motivation level of coaches when they attend activities of a large-scale education program. Coaches may be motivated to attend because the course is mandatory, and they may receive certification which would improve their professional status. The main challenges for large-scale learning situations are (a) to bring coaches with similar profiles or needs together, and (b) to present well-targeted content to meet the needs of these coaches. As noted and mentioned in the literature, these learning situations should continue to allow coaches to interact with each other because they can possibly share useful and relevant knowledge. It remains to be seen whether if in such groupings, coaches would be inclined to share their knowledge with potential rivals (Culver & Trudel, 2008). It could then affect their chances of success, if it were determined by competitive criteria, such as win-loss record.

The learning of planning and monitoring training that leads to a higher level of competence would benefit from learning situations that are grounded in the coaches' contextual reality and rely on coaches taking their own initiative. Non-formal situations - training situations essentially offered from the perspective of ongoing education in the form of clinics or short-term workshops, where participation is based on a voluntary basis, without any prior requirements - and informal situations - situations outside the coaching system, such as interaction with colleagues, search for information on the internet, etc. – have proved to be potentially significant learning situations (Trudel, Gilbert, & Werthner, 2010). Coaching education on planning and monitoring training should not be limited to a better understanding of the concepts taught. Learning situations should lead the coach to (a) use the new knowledge and understandings developed through experiences to respond more effectively to new challenges, (b) create something new from the learning situation, (c) step out of their comfort zone and explore new pathways to move beyond their actual practice, and (d) innovate, to experiment, to adapt, to reflect and to build their own training plans and monitoring systems (Hayes, 2010; Lyle, 2002).

The most promising avenue to teach coaches planning and monitoring of sports training should be part of a constructivist approach (Trudel, Culver, & Werthner, 2013) where coaches "build" their knowledge

as a result of doing, thinking and feeling (Jarvis, 2006) - starting from their actual knowledge base and previous conceptions (Vienneau, 2017). This knowledge can be (a) declarative *(knowing the theory, planning models, training principles, etc.),* (b) procedural *(knowing how to design a plan, based on theoretical knowledge)* or (c) contextual *(knowing when to prescribe various trainings, to whom, when, etc.)* (Tardif, 1997; Tochon, 2002). Moreover, learning will be part of the socio-constructivist approach (Vienneau, 2017) when learning is built by the coach, but this time, through socio-cognitive interaction with significant persons such as training specialists, mentors (Bloom, 2013), or with other competent coaches who are willing to share their knowledge and experience.

Who can play the role of learning facilitator (LF) or mentor? What characteristics, knowledge and skills should the LF possess? Note that this role can be played by more than one person to make learning situations more meaningful, and more conducive to learning. The LF must be a credible person in the eyes of the coach. He/she is ideally a recognized expert in the field of coaching, so that a climate of trust can be established between the two parties. Hopefully in one-on-one situations, the interaction between the LF and the coach should facilitate openness to learning and motivation to change his or her cognitive structure (Rodrigue, He, & Trudel, 2016; Trudel, 2008). The LF has to be someone who knows the subject matter *(planning and monitoring)* and its practical challenges, so that they can share their knowledge and experience that is relevant to the needs of the coach in training. Finally, the LF has to be someone who understands the requirements of the sport discipline in terms of physical, technical, tactical, strategic, and psychological factors, in order to guide the coach in the methodology of training (*e.g, what, when, and how to train?*).

Just as important as training and sport knowledge, the LF benefits from having pedagogical knowledge (Shulman, 1987). The process should be part of an experiential process (Nelson, Groom, & Potrac, 2016). Practical experience is necessary but must be complemented by LF teaching skills. Along with this "lived experience", there must be the continued use of a reflexive process (Bourassa, Serre, & Ross, 2007). Reflection leading to learning must be systematic and well-coached. The LF and the coach both have major roles in this process. The LF must guide the coach's reflection and develop his or her skills and competencies by proposing relevant problems, and exposing challenging situations taking into account his or her previous experiences and biography (Jarvis, 2006). The LF must avoid providing coaches with someone else's "recipes". Rather, the LF should be supporting coaches to (a) solve relevant problems through feedback and questions to stimulate thinking, (b) develop functional tools for specific

training contexts, and (c) solve problems and bring the coach out of their comfort zone to explore new pathways (Hayes, 2010). The coach must apply the LF lessons to their contextual reality. He/she must also solve problems, think, and analyze their actual practice to (a) break habits, (b) create knowledge, (c) conceptualize and structure his or her practice and (d) transform his experience into knowledge through affective and cognitive transactions within the training context (Day & Newton, 2016, Nash, 2016).

Different models can inspire both the learning process and the understanding of reflective practice, including Kolb's (1984) four-step cyclic experiential learning model. Table 1 illustrates the four stages of his model and potential questions related to this topic in order to guide reflective practices of the coach. As mentioned earlier, planning training is an iterative process, hence the importance of monitoring training. The questions proposed in Table 1 imply the use of data collected by the coach during the training process (*monitoring*).

The data collected would then help the coach to achieve his or her goals, by making adjustments to his or her plan, but would also contribute to his or her learning.

Table 1

Reflection on planning and monitoring of training, based on Kolb (1984) cycle of experiential learning

Stages	Possible questions
Concrete experience - the coach performs a task, lives a coaching experience and mobilizes her/his knowledge. Possible emergence of a problem to be solved.	▪ What are the objectives pursued? ▪ What is the problem? ▪ Why is this a problem? ▪ What factors explain this situation?
Reflective observation - the coach observes, interprets, reflects on the lived experience, its meaning and analyze her/his experience.	▪ What did / did not work? ▪ Why?
Abstract conceptualization - the coach conceptualizes, structure and builds his knowledge, resulting from his experience.	▪ What are the indicators (resulting from the monitoring) which allow you to answer this? ▪ What concepts, what principles of training are at stake?
Active experimentation - the coach confronts her/his knowledge with reality, deduces hypotheses of action, verifies his conceptions by active experimentation (problem solving).	▪ What solutions (exercises, methods, loads, etc.) are envisaged? ▪ What to do? What not to do? ▪ What will be your plan for next time?

The model of Gilbert and Trudel (2001) also proposes an interesting and complementary approach to better understand the reflexive approach, through a reflexive conversation. The authors explain that the coach is confronted with one or more problems that he must solve, in light of his frame of reference. The coach starts off by identifying the problem, alone or

with the help of colleagues. He/she follows-up with a strategy or solution to solve his/her problem either by (a) creating it, (b) finding an answer with the knowledge he/she has or (c) consulting various resources. The coach then implements the strategy or solution in the "*real*" or "*virtual*" world. He/she then evaluates it, and according to his/her analysis, decides if it can be integrated into his/her repertoire of solutions or knowledge. In addition to making the coach competent in planning and monitoring training, the reflexive approach can ultimately lead the coach to develop an important competency that should become a priority in any coaching education situation: critical thinking (Gilbert & Trudel, 2013; Hickson, 2011; Trudel & Gilbert, 2013; Willingham, 2008). It is defined as an evaluative practice based on a reflexive, self-critical, or even self-correcting approach. It involves the use of different resources (*knowledge, thinking skills, attitudes, people, information, material*) to determine what is reasonable to believe (*epistemological conceptions*) or to do (*methodological and ethical interventions*) by carefully considering the criteria to choose and contextual diversities (Gagnon, 2010). Getting information on the impact of training plans is a priority. However, the coach must know how to analyze and use information carefully when it comes to planning and monitoring training. It is a particularly important competency in the present era where information is circulating rapidly and where coaches are looking for immediate solutions, without always rigorously analyzing the rationale behind the proposed potential solutions. The solutions adopted are often dependent on the reputation of the authors. Many coaches only replicate their colleagues' practice, embedded in their sport culture or what they have done previously as athletes (Trudel & Gilbert, 2006). Being competent in planning and monitoring training coupled with critical thinking requires, beyond a knowledge of the different models presented above: (a) patience and resilience, because training plans are often a "work in progress", constantly adjusted and nuanced experiences, (b) humility, as there is no guarantee that the plan will achieve the desired results, even if the same plan has worked well in the past, in similar or different contexts - training applies to the human being with all its complexity and (c) open-mindedness to new emerging elements of solution. Once the coach has developed this critical thinking skill, then perhaps one could hope for a transformative learning experience with regards to planning and monitoring training: "The process by which we transform problematic frames of references (*mindsets, habits of mind, meaning perspectives*) – sets of assumptions and expectations – to make them more inclusive, discriminating, open, reflective and emotionally able to change" (Mezirow, 2009, p. 92).

The researchers of this study wanted to let the reader determine if the proposed solutions to coaches' education on planning and monitoring training are relevant and if they could be applied in their own context. While the researchers emphasize their awareness of the idea that large-scale education programs allow for the teaching of many coaches, more individualized learning situations that emphasize reflective practice, are likely to be more relevant for a limited number of coaches who aim to pursue full-time or high level coaching. However, this is with recognition that an individualized approach may require more time and resources (*e.g., access and availability of learning facilitators, etc.*). The proposed solutions in this paper to develop coaches' learnings on planning and monitoring training, could be applied to many sport coaching tasks, beyond planning and monitoring training**.**

References

1. Abraham, A., & Collins, D. (1998). Examining and extending research in coach development. *Quest*, *50*, 59-79.
2. Abraham, A., Jiménez Saiz, S. L., McKeown, S., Morgan, G., Muir, B., North, J., & Till, K. (2015). Planning your coaching – A focus on youth participant development. In C. Nash (Ed.), *Practical Sports Coaching* (pp. 16-53). New York, NY: Routledge.
3. Akubat, I., Barrett, S., & Abt, G. (2014). Integrating the internal and external training loads in soccer. *International Journal of Sports Physiology and Performance, 9,* 457-462.
4. Bloom, G.A. (2013). Mentoring for sport coaches. In P. Potrac, W. Gilbert & J. Denison (Eds.). *The Routledge Handbook of Sports Coaching* (pp. 476-485*).* New York, NY: Routledge.
5. Bompa, T. O. (1999a). *Periodization: Theory and methodology of training* (4th Ed.). Champaign, IL: Human Kinetics.
6. Bompa, T. O. (1999b). *Periodization*: *Training for sports*. Champaign, IL: Human Kinetics.
7. Borg, G., Hassmen, P., & Langerstrom, M. (1985). Perceived exertion in relation to heart rate and blood lactate during arm and leg exercise. *European Journal of Applied Physiology, 65*, 679–685.
8. Borg, E., & Kaijser, L. (2006). A comparison between three rating scales for perceived exertion and two different work tests. *Scandinavian Journal of Medicine & Science in Sports, 16*, 57-69.
9. Borresen, J., & Lambert, M. I. (2008). Quantifying training load: A comparison of subjective and objective methods. *International Journal of Sports Physiology and Performance, 3,* 16-30.
10. Borresen, J., & Lambert, M. I. (2009). The quantification of training load, the training response and the effect on performance. *Sports Medicine*, *39*(9), 779-795.

11. Bourassa, B., Serre, F., & Ross, D. (2007). *Apprendre de son expérience.* Ste-Foy, Canada: PUQ.
12. Brown, L. E. (2001). Nonlinear versus linear periodization models. *Strength and Conditioning Journal* 23(1), 42-44.
13. Brown, L. E., & Greenwood, M. (2005) Periodization essentials and innovations in resistance training protocols. *Strength and Conditioning Journal*, *27*(4), 80-85.
14. Campbell, S. (1993). Coaching education around the world. *Sport Science Review*, *2*(2), 62-74.
15. Casamichana, D., Castellano, J., Calleja-Gonzalez, J., San Roman, J. & Castagna, C. (2013). Relationship between indicators of training load in soccer players. *Journal of Strength and Conditioning Research, 27*(2), 369-374.
16. Chiu, L. Z. F., & Barnes, J. L. (2003). The fitness-fatigue model revisited: Implications for planning short- and long-term training. *Strength and Conditioning Journal, 25*(6), 42-51.
17. Clarke, N., Farthing, J. P., Norris, S. R., Arnold, B. E., & Lanovaz, J. L. (2013). Quantification of training load in Canadian football: Application of session-RPE in collision-based team sports. *Journal of Strength and Conditioning Research*, 27(8), 2198–2205.
18. Côté, J., Salmela, J, Trudel, P., Baria, A., & Russell, S. (1995). The Coaching model: A grounded assessment of expert gymnastic coaches' knowledge. *Journal of Sport and Exercise Psychology*, *17*(1), 1-17.
19. Crespo, M. (2011). Tactical periodisation in tennis: An introduction. *ITF Coaching and Sport Science Review, 53* (19), 16-18.
20. Creswell, J. W. (2014). Research Design: Qualitative, Quantitative and Mixed Methods Approaches (4th ed.), Thousand Oaks, CA: Sage.
21. Culver, D., & Trudel, P. (2008). Clarifying the concept of communities of practice in sport. *International Journal of Sports sciences and Coaching, 3*(1), 29-32.
22. Day, D., & Newton, J. (2016). John Dewey – Experience, inquiry, democracy, and community in coaching. In L. Nelson, R. Groom & P. Potrac (Eds.), *Learning in Sports Coaching: Theory and Application (pp. 37-48).* New York, NY: Routledge.
23. Delgado-Bordonau, J. L., & Mendez-Villanueva, A. (2012). Tactical periodization: Mourinho's best-kept secret? *Soccer Journal*, (May/June), 29‑34.
24. Deutsch, M. U., Kearney G. A., & Rehrer N. J. (2007) Time – motion analysis of professional rugby union players during match-play. *Journal of Sports Sciences*, *25*(4), 461-472.
25. Dick, F. W. (2007). *Sports training principles (5th ed.),* London, UK: A & C Black.
26. Douge, B., & Hastie, P. (1993). Coach effectiveness. *Sport Science Review*, *2*(2), 14-29.

27. Ebben, W. P., & Blackard, D. O. (2001). Strength and conditioning practices of National Football League strength and conditioning coaches. *Journal of Strength and Conditioning Research, 15*(1), 45-58.

28. Ebben, W. P., Carroll, R. M., & Simenz, J. C. (2004). Strength and conditioning practices of National Hockey League strength and conditioning coaches. *Journal of Strength and Conditioning Research*, *18*(4), 889-897.

29. Ebben, W. P., Hintz, M. J., & Simenz. C. J (2005). Strength and conditioning practices of Major League Baseball strength and conditioning coaches. *Journal of Strength and Conditioning Research*, *19*(3), 538-546.

30. Foster, C., & McGuigan, M. R. (2004). A new approach to monitoring resistance training. *Strength and Conditioning Journal, 26*(6), 42-47.

31. Gagnon, M. (2010). Regards sur les pratiques critiques manifestées par des élèves du secondaire dans le cadre d'une réflexion éthique menée en îlot interdisciplinaire de rationalité. *McGill Journal of Education, 45*(3), 463-494.

32. Gambetta, V. (2007). *Athletic Development – The art and science of functional sports conditioning*. Champaign, IL: Human Kinetics.

33. Gambetta, V. (2015). *Periodization – Myths and reality, a coach's perspective*. Retrieved from <http://www.hmmrmedia.com/2015/08/periodization-myths-reality-a-coaches-perspective/>.

34. Gamble, P. (2006). Periodization of training for team sports athletes. *Strength and Conditioning Journal, 28*(5), 56-66.

35. Gilbert, W., & Trudel, P. (1999). An evaluation strategy for education program. *Journal of Sport Behavior, 22*(2), 234-250.

36. 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.

37. Gilbert, W., & Trudel, P. (2013). The role of deliberate practice in becoming and expert coach: Part 2 - reflection. *Olympic Coach Magazine*, *24*(1), 35‑44.

38. Hartmann, H., Wirth, K., Keiner, M., Mickel, C, Sander, A., & Szilvas, E. (2015). Short-term periodization models: Effects on strength and Speed-strength Performance. *Sports Medicine*, *45*, 1373–1386.

39. Haslam, I. R. (1990). Expert assessment of the National Coaching Certification Program (N.C.C.P.) theory component. *Canadian Journal of Sport Sciences*, *15*, 201-212.

40. Hayes, D. (2010). *Encyclopedia of primary education.* New York, NY: Routledge.

41. Hickson, H. (2011). Critical reflection : reflecting on learning to be reflective. *Reflective Practice*, *12*(6), 829‑839.

42. Impellizzeri, F. M., Rampinini, E., Coutts, A. J., Sassi, A., & Marcora, S. M. (2004). Use of RPE-based training load in soccer. *Medicine and Science in Sports and Exercise, 36*(6), 1042-1047.

43. Issurin, V. B. (2008). *Block Periodization Breakthrough in Sports Training*. Michigan, USA: Ultimate Athlete Concepts.
44. Issurin V. B. (2010). New horizons for the methodology and physiology of training periodization. *Sports Medicine, 40*(3), 189-206.
45. Jarvis, P. (2006). *Towards a comprehensive theory of learning*. London: Routledge.
46. Kelly, V. G., & Coutts, A. J. (2007). Planning and monitoring training loads during the competition phase in team sports. *Strength and Conditioning Journal*, *29*(4), 32-37.
47. Kiely, J. (2011). Planning for physical performance: the individual perspective: Planning, periodization, prediction and why the future ain't what it used to be! In D. Collins, A. Button & H. Richards (Eds.), *Performance Psychology: A practionner's guide* (pp. 139-160). London, UK: Churchill Livingstone-Elsevier.
48. Kiely, J. (2012). Periodization paradigms in the 21st century: evidence-led or tradition-driven? *International Journal of Sports Physiology and Performance, 7*, 242-250.
49. Kolb, D. A. (1984). *Experiential Learning*. Englewood Cliffs, NJ: Prentice-Hall.
50. Krantz, N., & Dartnell, L. (2007). *Les experts en question – Savoirs professionnels en matière d'entraînement*. Collection entraînement. Paris, France: INSEP Publications.
51. Kurz, T. (2001). *Science of sports training: How to plan and control training for peak performance*. Island Pond, VT: Stadion Publishing.
52. Lambert, M. I., & Borresen, J. (2010). Measuring training load in sports. *International Journal of Sports Physiology and Performance, 5*, 406-411.
53. Larue, J. (2002). La charge mentale de travail. In D. Lehénaff & P. Fleurance (Eds.). *La charge de travail en sport de haut niveau* (n. 33) (pp. 99-114). Paris, France : INSEP.
54. Lemyre, F., & Trudel, P. (2004). Le parcours d'apprentissage au rôle d'entraîneur bénévole. *Avante*, *10*, 40-55.
55. Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth-sport coaches learn to coach. *The Sport Psychologist,* 21, 191-209.
56. Little, T., & Williams. A.G (2007). Measures of exercise intensity during soccer training drills with professional soccer players. *Journal of Strength and Conditioning Research*, *21(2), 367-371.*
57. Loturco, I., & Nakamura, F. Y. (2016). Training periodisation: an obsolete methodology. *ASPETAR - Sport Medicine Journal*, 110-115.
58. Lyle, J. (2002). *Sports coaching concepts: A framework for coaches' behaviour.* London, UK: Routledge.
59. Lyle, J. (2010). Planning for team sports. In J. Lyle & C. Cushion (Eds.), *Sports coaching – professionalisation and practice* (pp. 85-98). London, UK: Churchill Livingstone-Elsevier.
60. Mallett, C. J. (2010). Becoming a high performance coach: pathways and communities. In J. Lyle & C. Cushion (Eds), *Sports coaching –*

professionalisation and practice (pp. 119-134). London, UK: Churchill Livingstone-Elsevier.

61. Matveiev, L. P. (1983). *Aspects fondamentaux de l'entraînement*. Paris, France: Vigot.

62. Mezirow, J. (2009). An overview on transformative learning. In K. Illeris (Ed.), *Contemporary theories of learning – learning theorists… in their own words (pp. 90-105).* New York, NY: Routledge.

63. Minganti, C., Capranica, L., Meeusen, R., Amici, S., De Pero, R., & Piacentini, M. F. (2010). The validity of session–rating of perceived exertion method for quantifying training load in teamgym. *Journal of Strength and Conditioning Research*, *24*(11), 3063-3068.

64. Nash, C. (2016). Donald Schön – Learning, reflection and coaching practice. In L. Nelson, R. Groom & P. Potrac (Eds.), *Learning in sports coaching: Theory and application (pp. 49-59).* New York, NY: Routledge.

65. Nelson, L., Groom, R., & Potrac, P. (2016). *Learning in sports coaching: Theory and application.* New York, NY: Routledge.

66. Nelson, L., Cushion, C. J., & Potrac, P. (2006). Formal, nonformal, and informal coach learning: A holistic conceptualisation. *International Journal of Sport Sciences and Coaching*, *1*, 247-253.

67. Noble, B. J., Borg, G., Jacobs, I., Ceci, R., & Kaiser, P. (1983). A category-ratio perceived exertion scale: Relationship to blood and muscle lactate and heart rate. *Medicine and Science in Sports and Exercise*, *15*, 523–528.

68. Norris, S. R., & Smith, D. J. (2002). Planning, periodization, and sequencing of training and competition: the rationale for a competently planned, optimally executed training and competition program, supported by a multidisciplinary team. In M. Kellmann (Ed.). *Enhancing recovery: Preventing underperformance in athletes* (pp. 121-141). Champaign. IL: Human Kinetics.

69. Plisk, S. S., & Stone, M. H. (2003). Periodization strategies. *Strength and Conditioning Journal*, *25*(6), 19-37.

70. Rhea M. R., & Alderman B. L. (2004). A meta-analysis of periodized versus nonperiodized strength and power training programs. *Research Quarterly for Exercise and Sport*, *75*(4), 413-422.

71. Richard, P. T. (2011). *Analyse d'une procédure de gestion de la charge d'entraînement en natation.* Master thesis unpublished, Université Laval, Québec, Canada.

72. Robson-Ansley, P. J., Gleeson, M., & Ansley, L. (2009). Fatigue management in preparation of Olympic athletes. *Journal of Sports Sciences*, 1-12.

73. Rodrigue, F., He, C., & Trudel, P. (2016). Concept mapping: Its use for High-Performance sport coach development. In P. Davis (Ed.). *The psychology of effective coaching and management* (pp. 71-90). New York, NY: Nova Publishers.

74. Roy, M., Beaudoin, S., Perreault, G., Turcotte, S., & Spallanzani, C. (2010). Formation à la communication pédagogique en entraînement sportif par la réflexion partagée s'inscrivant dans des démarches de supervision clinique et d'autosupervision. In C. Amans-Passaga, N. Gal-Petitfaux, P. Terral, M. Cizeron, M.-F. Carnus (Eds), *L'intervention en sport et ses contextes institutionnels : cultures et singularité de l'action* (pp. 103-110). France : Édition Presses du Centre Universitaire Champollion.

75. Roy, M., Beaudoin S., & Spallanzani C. (2010). *Analyse des connaissances des entraîneurs inscrits à une formation « Introduction à la compétition – Partie B » en matière de planification d'entraînement*. Research report presented at the Coaching Association of Canada.

76. Roy, M., Chevrier, J., Nadeau, L., & Spallanzani, C. (2016). Protocole destiné à mesurer la charge d'entraînement : perceptions quant à son utilité pour assurer un encadrement de qualité. In B. Lenzen, D. Deriaz, B. Poussin, H. Dénervaud and A. Cordoba (Eds.). *Temps, temporalités et intervention en EPS et en sport* (pp. 283-303). Berne, Switzerland: Peter Lang.

77. Sage, G. H. (1989). Becoming a high school coach: From playing sports to coaching. *Research Quarterly for Exercise and Sport, 60*(1), 81-92.

78. Saury, J., & Sève, C. (2004). *L'entraînement*. Paris, France : Éditions Revue E.P.S.

79. Scott, T. J., Black, C. R., Quinn, J., & Coutts, A. J. (2013). Validity and reliability of the session-RPE method for quantifying training in Australian football: a comparison of the CR10 and CR100 scales. *Journal of Strength and Conditioning Research, 27*(1), 270-276.

80. Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-21.

81. Siff, M. C. (2003). *Supertraining* (6th Ed). Denver, CO: Supertraining Institute.

82. Simenz, C. J., Dugan, C. A., & Ebben W. P. (2005). Strength and conditioning practices of National Basketball Association strength and conditioning coaches. *Journal of Strength and Conditioning Research, 19*(3), 495-504.

83. Smith, D. (2003). A framework for understanding the training process leading to elite performance. *Sports Medicine*, *33*(15), 1103-1126.

84. Swank, A. M., Steinel, L., & Moore, A. (2003). Strategies for effectively using ratings of perceived exertion. *Strength and Conditioning journal*, *25*(4), 23-25.

85. Tardif, J. (1997). *Pour un enseignement stratégique : L'apport de la psychologie cognitive*. Montréal, Canada : Les Éditions Logiques.

86. Thibault, G. (2009). *Entraînement cardio- Sports d'endurance et performance.* Québec, Canada : Vélo Québec Éditions.

87. Tochon, F. V. (1996). Rappel stimulé, objectivation clinique, réflexion partagée. Fondements méthodologiques et application pratique de la

rétroaction vidéo en recherche et en formation. *Revue des sciences de l'éducation*, *23*(3), 467-502.

88. Tochon, F. V. (2002). *L'analyse de pratique assistée par vidéo*. Université de Sherbrooke, Faculté d'éducation : Éditions du CRP.

89. Trudel, P. (2008). L'appropriation des connaissances scientifiques et des connaissances d'expérience par les entraîneurs. In N. Wallian, M.-P. Poggi & M. Musard (Eds.). *Co-construire des savoirs – Les métiers de l'intervention en APSA* (pp. 103-114). Actes du Colloque Aris. Université de Franche-Comté, Presses universitaires de Franche-Comté.

90. Trudel, P., Culver, D., & Werthner, P. (2013). Looking at coach development from the coach-learner's perspective – Considerations for coach development administrators. In P. Potrac, W. Gilbert & J. Denison (Eds). *The Routledge handbook of sports coaching* (pp. 375-387). New York, NY: Routledge.

91. Trudel, P., & Gilbert, W. (2006). Coaching and coach education. In D. Kirk, D. Macdonald & M. O'Sullivan (Eds.). *The Handbook of Physical Education* (pp. 516-539). Thousand Oaks, Ca: Sage.

92. Trudel, P., & Gilbert, W. (2013). The role of deliberate practice in becoming an wxpert coach : Part 3- creating optimal settings. *Olympic Coach Magazine*, *24*(2), 15‑28.

93. Trudel, P., Gilbert, W., & Werthner, P. (2010). Coach education effectiveness. In J. Lyle & C. Cushion (Eds.). *Sports Coaching Professionalisation and Practice* (pp.135-152). London, UK: Churchill Livingstone-Elsevier.

94. Turner, A. (2011). The Science and practice of periodization: A brief review. *Strength and Conditioning Journal*, *33*(1), 34-46.

95. Vienneau, R. (2017). *Apprentissage et enseignement – Théories et pratiques* (3e éd.). Montréal, Canada : Gaëtan Morin.

96. Viru, A., & Viru, M. (2000). Nature of training effects. In W. E. Garret & D. T. Kirkendall (Eds.). *Exercise and Sport Science* (pp. 67-95). Philadelphia, PA: Lippincott Williams and Wilkins.

97. Wallace, L., Coutts, A., Bell, J., Simpson, N., & Slattery, K. (2008). Using session-RPE to monitor training load in swimmers. *Strength and Conditioning Journal*, *30*(6), 72-76.

98. Wallace, L. K., Slattery, K. M., & Coutts, A. J. (2009). The ecological validity and application of the session-RPE method for quantifying training loads in swimming. *Journal of Strength and Conditioning Research*, *23*(1), 33‑38.

99. Weineck, J. (1997). *Manuel d'entraînement (4e édition révisée et augmentée)*. Paris, France: Vigot.

100. Werthner, P., & Trudel, P. (2009). Investigating the idiosyncratic learning paths of elite Canadian coaches. *International Journal of Sports Science & Coaching, 4*(3), 433-449.

101. Willingham, D. T. (2008). Critical thinking: Why is it so hard to teach? *Arts Education Policy Review*, *109*(4), 21-32.

102. Zatsiorsky, V. M. (1995). *Science and practice of strength training*. Champaign, IL: Leisure Press.
103. Zatsiorsky, V. M., & Kraemer, W. J. (2006). *Science and Practice of Strength Training* (2nd ed). Champaign, IL: Human Kinetics.

SHORT COMMUNICATION

HOW TO TEACH TECHNIQUES AND TACTICS IN TEAM SPORTS

Charles H. Cardinal

Département de Kinésiologie, Université de Montréal, Canada
E-mail: cardinal@actiforme.qc.ca

Skill efficiency is one of the fundamental conditions to reach optimal performance. Technical-tactical efficiency in a match can be compared to the skills of a musician in concert. The dexterity acquired through long hours of practice is summed up to create a momentary performance. Technical-tactical efficiency can be defined as successfully executing the right action for a specific situation at a given moment. It becomes apparent that to reach a high success rate is a long-term process, requires a great number of well executed repetitions, carried out under conditions created by the coach. However, coach education programs do not always prepare coaches to play that important role. In the following we present an operational framework composed of five key conditions to teach technical-tactical elements to athletes, and then we describe a learning activity to help coaches (volleyball) develop drills related to the athlete's level of development.

Operational Framework

Preparing athletes to perform in competition requires a complex and harmonious blend of the following five conditions.

Condition #1. Teaching the Mechanics of a Skill

At the beginning of the technical-tactical development, no matter the method, the coach requires the athlete to imitate as closely as possible a model. The model is usually the coach or a successful athlete who demonstrates repeatedly the proper execution of a technique. To reproduce the model exactly, the player must have an accurate mental image of the skill. Audio-visual aids can help in this regard. It is important however, to emphasize only the key technical elements essential to learning the global skill. To facilitate learning, the athlete is exposed to artificial, controlled, conditions and then under easy and constant conditions. The coach must make sure the drills are properly executed if the goal is technical-tactical efficiency. It becomes important that the coach sets attainable success rates (about 2/3) for motivational purposes.

Finally, no learning can take place if the player is tired, therefore the learning of new such skills should occur early in practice sessions, as well as training microcycles.

Condition #2. Consolidating/stabilizing Basic Skills

At this stage, task requirements move closer to the game context as far as individual performance is concerned. All artificial conditions are eliminated. The choice of drills and their sequential order must reflect a certain progression in terms of the difficulty of the task imposed on the athlete, from a perceptual point of view as well as a motor learning point of view. Motion and movement on the court is as found in the game. In a nutshell, carrying out the training task when stabilizing the skill calls for perceptual-motor requirements related to reaction time, movement time, body awareness and control, as well as motor accuracy.

Condition #3. Developing Tactical Intelligence

Once the player has a "repertoire" of motor skills, the coach shifts the emphasis onto individual tactics. The application of successive skills is the cornerstone of team play. In a game, a sequence of motor skills is quite often the player's response to a tactical problem confronting him/her. Once the athlete does not require to a conscious focus on skill execution, selective attention is oriented on tactical problem solving. This combination of skills will then be guided by kinetics sensations and perception (Cardinal, Boulonne, & Caron, 1975). The athlete should be able to rapidly pick-up relevant information on teammates and opponents and to act in time rather than react too late to a situation. Through training and competition, the player seeks to develop an awareness and rapid comprehension of the actual playing situation (what is happening) and a corresponding solution (what should be done).

Condition #4. Integrating Player/Skills into a System of Play

According to Theodorescu (1965), a system of play can be defined as follows: "A general pattern of organizing offensive or defensive actions of players with specific team formations and certain playing tasks related to the position and role of the individual, as well as certain principles of cooperation among teammates". At this stage of development, the player must relate to the whole team on the court in an operational framework that respects absolutely or approximately game like conditions. It is essential to offer players drills that will help to: (a) increase team tactical knowledge (team formations and combinations being used), (b) develop a system of associative solutions (linking perception of a situation to a tactical solution), and (c) match-up with key players (players will get particular instructions).

Condition #5. Monitor Player/Skills Efficiency in Competition

Once the match starts, the athletes are the artisans of the anticipated performance. In order for the coach to effectively help the team, he/she focuses on the following variables: (a) the implementation of instruction relevant to the game plan, (b) the pursuit of the same immediate objective by all team members, (c) the same interpretation of opponent's intentions in certain tactical situations, (d) the speed of execution, synchronization, and cooperation between players in implementing tactical combinations, (e) that skill execution is fluid, rhythmic, coordinated, and (f) a variety of responses by the team for the same tactical situations.

Teaching Coaches How To Develop Players

One of the main tasks of the training process is to choose the appropriate drills to reach specific objectives in the training session. The choice and sequential order of drills is not done randomly. Drills taken from a textbook or a clinic are acceptable only if they fit adequately within the training session framework and the objectives pursued. Indeed, it is not a matter of keeping the athletes actively involved over a period of time but rather to solve an actual team problem by seeking to reach, through drills, short term training objectives (see Appendix A).
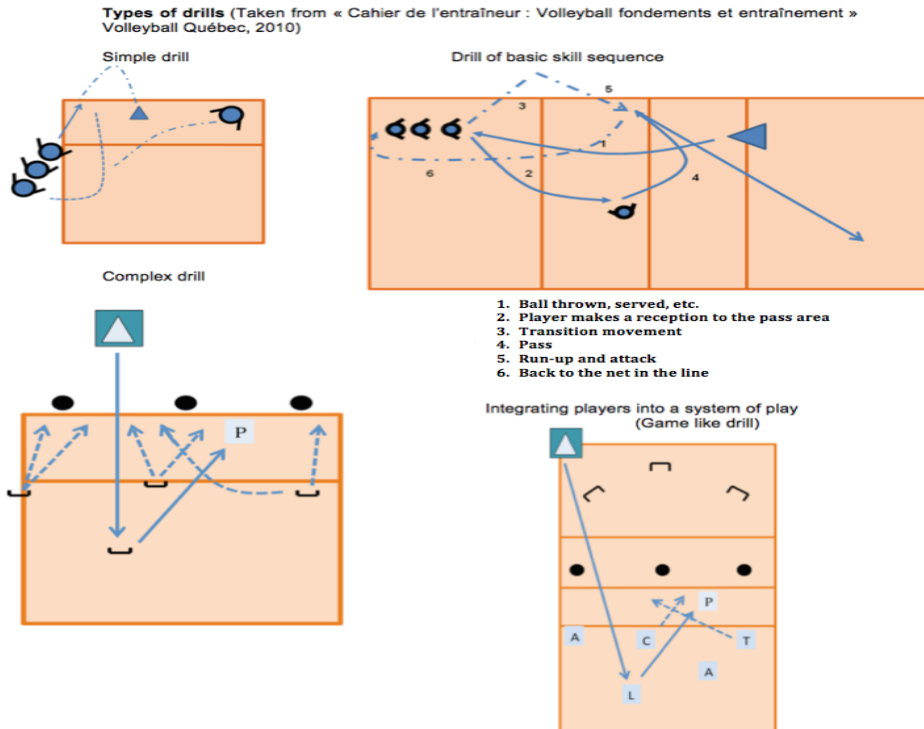

Figure 1. Type of drills

We present below a learning activity aiming to teach volleyball coaches how to develop a series of drills that respect an adequate progression (see Figure 1).

Simple Drills

The simple drill is mostly used for motor skill acquisition. The operational framework is generally 1 player/1 ball and is characterized by one motor response, determined beforehand. The player must focus attention on the technical elements of the movement. The athlete is placed in artificial conditions or constant and easy conditions designed to facilitate learning. The drill will require a high number of ball contacts coupled with sub-maximal effort.

Task #1 - Designing a simple drill for basic skill acquisition (volleyball). Once motor skill acquisition is completed, simple drills can also be utilized for skill stabilization if certain principles are respected. The conditions created by the coach tend towards game-like individual performances involving spatial orientation and court movement culminating with correct skill execution. The coach manipulates the volume and intensity of the drill by varying the length of the drill, rhythm, speed of execution, ball flight, and rest intervals between repetitions and sets. Task requirements are related to ball flight assessment, proper technique, and accuracy.

Task #2   Design a drill for skill stabilization or maintenance involving individual tactical decision to a playing situation. Developing tactical intelligence can also be trained with the simple drill. In this context the player is faced with a tactical task and an opponent's opposition. The focus is on the proper motor response to the situation. Evidently, the player must have a relative mastery of basic skills and a few variants of the basic skill before the coach introduces conditions involving a choice of solutions to the situation at hand.

Task #3.   Design a drill of basic skills sequence aiming to consolidate or maintain basic skills.

Drills of basic skills sequence (simple action sequences). The   drill involves simple action sequences, meaning that the player should be able to perform effectively several motor skills in succession. The execution of two or three actions can be done with or without partner assistance. The training task is known beforehand. Its successful implementation requires ball flight assessment coupled with proper technique execution. The focus is on the transition flow from one skill to another. Simple action sequences are taken from game situations. The drills aim to improve elements related to the proper execution of the task or to consolidate basic skills.

Task #5. Design a complex drill: developing players' tactical intelligence coupled with synchronization and cooperation running combinations.

Complex drills (complex action sequences). The drill involves complex action sequences. The athlete is introduced to a competitive situation involving cooperation-synchronization with teammates as well as an opponents' intervention. The drill requires 2, 3, or 4 players involved in a temporary and partial phase of the game. The training content illustrates the team's tactical combinations. The focus is on getting it together, getting it to work out. To solve the training task, the player must be able to rapidly analyze the situation, that is read the relevant clues revealing teammates' and opponents' playing intentions and then come up with the proper motor response. The aim of these drills is to develop the players' autonomy and efficiency in implementing tactical combinations.

Task #6. Design a game like drill: running tactical combinations from team formations

Games (modified, game like drills, scrimmage, preparatory competition). A game as a means to develop players implies, on one hand, cooperation and synchronization among teammates and, on the other hand, an opponent's opposition. The goal is to ensure that the players can organize themselves on the court and take charge of their confrontation with the opponent. For the individual player this competitive situation aims at efficiently solving tactical problems encountered in a game. The various types of games the coach can use judiciously are: modified games, game-like drills, scrimmage, preparatory competition.

Conclusion

Do not start teaching Techniques and Tactics activities without having defined the 5 W's (What, When, Where, Who, Why). This definition is formulated in terms of objectives, deadlines, and resources. What is important is not what the coach says but what the participants/athletes do. The coach sets-up athletes in learning situations that represent a challenge which will gradually lead to player autonomy on the court. The end result of teaching is that the athlete is able to do today what was impossible yesterday.

References

1. Cardinal, C.H., Boulonne, G.C., & Caron, J.H. (1975). L'acte tactique et sa préparation. In C. Bouchard, J. Brunelle, & P. Godbout, La préparation d'un champion: Un essai sur la préparation à la performance sportive. Québec, Éditions du Pélican.
2. Cardinal, C. H. (1983). La formation technique du joueur de volleyball. Cahier de l'entraîneur 1, Fédération de Volley-Ball du Québec.

3. Coaching Association of Canada (CAC) / NCCP. (2012). Introduction to Competition stream: Teaching and Learning module. Reference material documentation.
4. Vickers, J. (2001). Decision Training: A New Approach to Coaching. National Multisport Centre - Pacific.
5. Weineck, J. (1983). Manuel d'entraînement: L'entraînement de la technique et de la tactique sportive.

Appendix A

The training objective determines the type and nature of the drill used by the coach.

Teaching the mechanics of a skill
Objective: Motor acquisition
Means: Simple drills

Skill Stabilization
Objectives: Perform the skill automatically or skill consolidation. Development of technical details related to proper skill execution. Maintain basic skills.
Means: Simple drills
                Drills of basic skills sequence (simple action sequences).

Developing tactical intelligence
Objectives: Develop player autonomy on the court (improve reading clues and proper motor response).
Means: Complex drill.
                Modified games.

Integrating player/skills in the game
Objectives: Increase team tactical knowledge related to game situations.
                Develop a system of associative solutions.
Means: Game like drills.
                Scrimmage.
                Preparatory competition.

Based on knowledge of the technical-tactical training model coupled with the types of drills, the coach is now able to choose or design drills for the training session. We recommend the following systematic procedure:
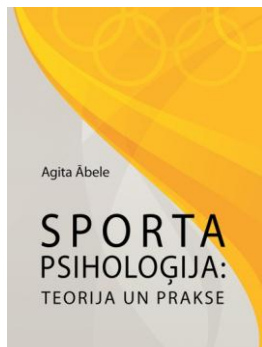
- Identify the training objective or task.
- Determine drill procedure.
- Identify success criterion.
- Establish the coach's focus (indicators or reference points).
- Assess if the training objective was reached or not.

SHORT COMMUNICATION

Review of Agita Ābele's book "SPORTS PSYCHOLOGY: THEORY AND PRACTICE"

Sports Psychology: Theory and Practice by Agita Abele is a complete and exhaustive monograph which summarizes in its four parts all main current issues on significant topics within the field of psychology applied to sport and physical activity. The four parts of the book and its chapters are very provocative and capable of setting an agenda for future work in the scientific domain.

The author uses both an effective informative and educational style which makes the book an easy-to-read textbook for sports coaches, physical education teachers, sports science students and athletes. The manual aims to couple theory and practice. The theoretical background of the first part and chapters of the book, in which the author presents the critical issues of sports psychology, are integrated step by step with practices, experiences and case studies. The monograph develops as an excellently-structured and coherent set of chapters which examine the issues of sports psychology by focusing on the key factors of sports education. Among these factors, the coach and the physical education teacher deserve special attention.

The author is a psychologist and educationist, who has been serving as a Professor and scholar in the reputable LASE (Latvian Academy for Sports Education) for more than 17 years, and also works as an International Judge in figure skating. Also, her previous backgrounds as an athlete in national and international competitions and as a coach have helped Agita Abele to write a book which is not the mere result of investigations from an academic scholar. It is a practical guide providing a broad framework for theorizing, exploring and applying the psychological knowledge to the sport as a human practice, which implies several levels of interpretation and analysis.

Together, the chapters of Abele's book reflect the broad range of theoretical perspectives and interpretations at distinctly different, but complementary approaches to analysis, which characterize the complex and interdisciplinary domain of sports psychology.

Due to the scientific background of the author, the psycho-social perspective and methodology in the interpretation of sports issues appear as the dominant one. This is, in my opinion, an added value of the book. The author provides not only the foundational material on the main topics of sports psychology (motivation, aggression, anxiety, self-control, leadership, resilience, just to mention a few examples) but also discusses the significant issues and bones of contention they imply, and the possible ways forward to resolve them.

In conclusion, I recommend this book to all people – and not only to scholars or sport science students – who are interested in exploring the broad and complex domain of sports science by using psychology as an interpretation view. For sure, its reading will reinforce in them the psychological knowledge which is nowadays essential to interpret and understand that outstanding phenomenon that we call "SPORT."

Emanuele Isidori
Ph.D. Phys. Activity and Health, Ph.D. Educ.Sc.
Professor in General and Sports Pedagogy
Vice-Rector for International Relations and Cooperation
Director of the General Pedagogy Laboratory
University of Rome Foro Italico, Italy

CURRENT NEWS

Latvian Academy of Sport Education

LASE 70th Student Scientific Conference
June 8, 2018 LASE, Riga, Latvia

The official languages of the Conferences for oral and poster presentations are Latvian and English. The information is placed on the website: www.lspa.lv

12th Baltic Sport Science Conference
April 24 – 26, 2019 Vilnius, Lithuania

http://www.balticsportsciencesociety.com/

European Researchers' Night 2016
Sport Science
Latvian Academy of Sport Education
Brivibas gatve 333,
September 28, 2018, Riga, Latvia

OSRESS

Outdoor Sports and Recreation Education Summer School

5-12 September, 2018
Klaipeda, Lithuania

http://osress.weebly.com

GUIDELINES FOR CONTRIBUTORS

Instruction to Authors

The **LASE Journal of Sport Science** is a journal of published manuscripts in English from various fields of sport science. It covers the following types of papers:

- ✓ *original research papers* (maximum 12 standard pages of typescript, including tables, figures, references and abstract),
- ✓ *review papers* commissioned by the Editor (maximum 20 standard pages of typescript, including documentation),
- ✓ *short communications* (maximum 3 standard pages of typescript plus two table or figure and up to 5 references),
- ✓ *letters to the Editor* delivering an opinion or a comment to published manuscripts (maximum 2 standard pages of typescripts),
- ✓ *current news* (information on conference, abstracts of PhD. theses and Post-Doc. theses, book reviews, biographical notes),
- ✓ *advertisements* that may be covered on separate pages of the journal (prices are subjects to individual negotiations).

Papers must be accompanied by the following submission letter (form available at journal's website), signed by all Authors: "The undersigned Authors transfer the ownership of copyright to the **LASE Journal of Sport Science** should their work be published in this journal. Authors state that the article is original, has not been submitted for publication in other journals and has not already been published except in abstract form, preliminary report or thesis. Authors state that they are responsible for the research that they have carried out and designed; that they have participated in drafting and revising the manuscript submitted, which they approve in its contents. Authors also state that the reported article (if it involves human experiments) has been approved by the appropriate ethical committee and undertaken in compliance with The Helsinki Declaration."

Research papers and short communications will be sent anonymously to two reviewers. Depending on the reviewers' opinion, the Editors will make a decision on their acceptance or rejection. The Editors' decision is ultimate.

Manuscript specification

Articles must be submitted in English and only to the **LASE Journal of Sport Science.**

Authors should observe the ethics of manuscript preparation (avoiding duplicate publication, inaccuracy of citations, fraudulent publication, plagiarism and self-plagiarism).

Copyright will be owned by the publisher: **LASE Journal of Sport Science**. A properly completed Transfer of Copyright Agreement must be provided for each submitted manuscript. A form is available at journal website.

Authors are responsible for the factual accuracy of their papers, for obtaining permission to reproduce text or illustrations from other publications and for an ethical attitude regarding the persons mentioned in the manuscript.

Format

Document format – Microsoft Word 97-2003 or 2007.

Page format – 210x297 mm (A4).Text – single column (font Times New Roman, letter size 12 pt), line spacing – Single, paragraph alignment – Justified, left margin – 20mm, right margin – 20mm, bottom margin – 25mm.

Style

Papers must be written in a clear, concise style appropriate to an international readership. Familiar technical terms may be used without explanation. Acronyms and abbreviations are likely to need full presentation at least once.

Content

Research or project reports, case studies of practice, action research reports, and reports on teaching practice or techniques will be accepted.

Research reports should include a description of the practical application(s) of the ideas tested, while reports of teaching practice or techniques should contain an explanation of the theoretical foundation underlying the practice or technique in question.

Material in the form of illustrations or photos is welcomed. This material should be accompanied by text clearly setting out its philosophical or practical origins or implications. All material should be clearly referenced to its sources.

The manuscripts should be arranged as follows: title page, abstract and body text

Title page should contain: title of the paper, first and last names of authors with affiliation, first and last name of corresponding authors with postal address, telephone, fax and e-mail.

Abstract (up to 250 words) consisting of the following sections: justification and aim of the study, material and methods, results, conclusions, as well as 3-6 key words, should be provided before the body text.

Body text should be sectioned into: Introduction, Material and Methods, Results, Discussion, Conclusions, Acknowledgements (If necessary) and References. In articles of others types, the text should follow in a logical sequence and headings of its particular sections should reflect issues discussed therein.

Introduction – should be short and concise; it should introduce readers into research problems addressed in the study as well justify undertaking the research and specify its aim.

Material and methods – should describe the subject of the study (in the case of human subjects data should include their number, age, sex and any other typical characteristics) and methods applied in a sufficiently exhaustive way to enable readers to repeat the experiments or observations. For generally known methods only references should be given, whereas detailed descriptions are to be provided for new or substantially modified methods.

Results – should be presented in a logical sequence in the text, tables and figures. Data collated in table and figures should not be repeated in the text which should summarize the most important observations.

Discussion – should emphasize new or important aspects of experimental results and discuss their implications. Results of own studies are to be compared with findings described in the respective domestic and international references used by the Authors.

Conclusions – should be started in points or descriptively and should be logically connected with objectives stated in the *Introduction*. Statements and conclusions not derived from own observations should be avoided.

Author's declaration on the sources of funding of research presented in the scientific article or of the preparation of the scientif ic article.

References – following instructions for Authors on References (APA style).

Citing in-text

Following artificial text shows different types of in-text citation:

Claessens (2010) found evidence that attention will be given to multi-compartment models, such as the 3-water, 3-mineral and 4-compartment models, to assess percentage of body fat.

However, Raslanas, Petkus and Griškonis (2010) noted that Aerobic physical load of low intensity got 35.1 % of total trainings time. Research on physical loading also focused on identifying the basis of many years' research of physical activity (Bytniewski et al. 2010). According to Ezerskis (2010), "… heavy physical loads had the undulating character depending on the dynamics of workloads…" (p. 71) yet girls are more ascertained that the Track & Field training helps to develop courage.

Instructions for Authors on References (APA style)

This document describes standards for preparing the references in the APA style. The following sections give detailed instructions on citing books, journal articles, newspaper articles, conference papers, theses, web pages and others.

Please provide all the required elements in the references to your paper. Please pay particular attention to spelling, capitalization and punctuation. Accuracy and completeness of references are the responsibilities of the author. Before submitting your article, please ensure you have checked your paper for any relevant references you may have missed.

 A complete reference should give the reader enough information to find the relevant article. If the article/book has DOI number, the author should include it in the references. And most importantly, complete and correct references may allow automatic creation of active links by the MetaPress technology that we use for making the electronic version of our journal. Active reference linking is regarded as the greatest benefit of electronic publishing and it adds a lot of value to your publication.

Additional information about APA style writing is found on LASE web page: http://www.lspa.lv/ .

Tables – should be prepared on separate pages (saved in separate files) and numbered using subsequent Arabic letters. They should be provided with titles (above). Every column in a table should have a brief heading and more extensive explanation should be given under the table, e.g. statistical measures of variability.

Figures – should be prepared in an electronic form and saved in separate files. A separate page should be provided with legends to figures, authors' names, manuscript's title, and consecutive number of figure with "*bottom*" or "*top*" identification. Photographs or other illustrative materials may be submitted in an electronic form (*.tif, *.jpg, image resolution: 300 or 600 dpi) or any other form suitable for final technical typesetting by the Editorial Office. In the appropriate places in the text consecutive numbers of tables or figures should be provided in parentheses, e.g. (Tab. 1) or (Fig. 1). Places of insertion of the illustrative material should be marked with pencil on the margin of the typescript.

General principles – the Editorial Office reserves for itself the right to correct stylistic errors and to make necessary changes (abridgements) in the text without Author's knowledge. Articles not accepted for publication are not returned. Manuscripts not prepared following *Instruction to Authors* will be sent back to Authors for revision. Galley proofs of manuscripts will be sent to Authors for proofreading. It is the Author's responsibility to return the proof within one week. Each Author will receive free-of-charge one copy of the issue in which their work appears.

Submission of manuscripts

The articles should be sent to: Inta Bula-Biteniece E-mail: inta.bula-biteniece@lspa.lv