

Abstract

The role of skill acquisition specialists within sport systems has become more prominent and imbedded in daily training environments with coaches; however, literature pertaining to their role and contributions to effective coach development is very scant (Pinder & Renshaw, 2019). The objective was to extend our understanding of the coaches' perception of the role of, and relationship with, a skill acquisition specialist to identify key factors of effective support that shape coach behavior and ultimately enhance athlete performance. Semi-structured interviews with two National coaches with experience and podium success in multiple Olympic/Paralympic Games, Commonwealth Games, and World Championships was conducted. Three distinct narratives were identified: representing various experiences of the coaches in their sport ('the unplanned journey'), their relationship with the skill acquisition specialist ('more than just a skill expert'), and how this impacted athletes' development ('keys to success'). As part of the relationship development process, aspects of coaches' philosophy were challenged. In addition, the skill acquisition specialists had to display a wide range of skills in the pursuit of shaping coaching behaviors that could further enhance athletes' performance. Required skills included, but were not limited to, bridging the gap between scientific literature and practical application, ensuring knowledge was logical and aligned with the specific needs of the coach and cultural context, demonstrating trust and accountability, displaying personal and social skills and an ability to engage athletes and obtain their approval. Crucially, while overlapping themes occurred, the skill specialists needed to be adaptable to each unique working relationship and this emerged over time.

**Keywords:* Skill acquisition specialist, coach development, coaching philosophy, coach education, sports coaching, performance support, experiential learning

Introduction

The Dynamic Role and Evolution of a ‘Coach’

Coaches play an integral role in athletes’ development and performance (Mallet & Dickens, 2009; Nash & Sproule, 2009) and there has been a great interest in understanding the most effective ways to enhance coach development programs internationally (De Bosscher, De Knop, Bottemburg, Shibli, & Bingham, 2009; Duarte, Culver, Trudel, & Milistetd, 2018; Rynne, 2012; Sawiuk, Taylor, & Groom 2018). Central to the design of coach development programs is understanding what coaches actually do, with context being particularly relevant (Lyle, 2002). For example, along with the perceived primary archetypal role of developing the performance capabilities of an individual, or group of athletes, a coach could have a role as mentor, parent, friend, teacher, psychologist, or negotiator (Côté, Young, North, & Duffy, 2007). Therefore, along with the ability to apply in-depth sport-specific knowledge, coaches need to have a deep understanding of biological, physical and psychological development, an appreciation for technological advances, effective communication skills, the ability to multi-task, and also be highly attuned to the emotional state of each individual athlete (Denison, Mills, & Konoval, 2017; Gilbert, Côté, & Mallet, 2008; Headrick, Renshaw, Davids, Pinder & Araújo, 2015).

Current Issues and Gaps in Coach Development

Given the diversity and complexity of the coaches’ roles, there is a great need for effective and efficient support leading to development opportunities for high performance coaches. Coaches continue to report the most effective learning opportunities to be through informal experiences (e.g., observing other coaches, trial and error), where they are able to transfer and share ideas, and experiences amongst each other (Blackett, Evans, & Piggot, 2017; Erickson, Bruner, MacDonald, & Côté, 2008; Nash & Sproule, 2009). These trends are

exaggerated in Para sport, where coaches have reported a lack of resources specific to the constraints of their role (i.e., manuals, clinics, and seminars; Cregan, Bloom, & Reid, 2007).

While improvements have been made, coaches still place more value on informal learning opportunities such as interacting with respected peers and mentors (Douglas, Falcão, & Bloom, 2018; Duarte et al., 2018; Fairhurst, Bloom, & Harvey, 2017; McMaster, Culver, & Werthner, 2012; Pinder & Renshaw, 2019). Therefore, harnessing coaches' *experiential knowledge* (Greenwood, Davids, & Renshaw, 2014), 'tracking' coach behavior and supporting or developing interventions '*in situ*' (Lyle, 2017) could help to improve the effectiveness of programs, and better consider key factors that influences coaches' behavior and development (Greenwood et al., 2014).

Developing Knowledge: A Social Perspective

In alignment with Lawson's philosophy of occupational socialization (Lawson, 1986), coaches' declarative knowledge (knowing), procedural knowledge (doing), and underlying philosophies are developed through 'experiential learning' (Gilbert et al., 2008; Greenwood et al., 2014; Lyle, 2007; Nash & Collins, 2006). In order to move forward and enhance the current coaching programs in alignment with the practical needs of coaches, the discrepancies between the rich experientially derived knowledge of successful coaches and theoretically focused underpinnings of current coach development programs must be acknowledged (Lyle, 2018). 'Experiential learning,' however, requires a much greater level of investment in terms of human resources and time as it requires extended periods of communication and support from colleagues and mentors (Gomes, Jones, Batista, & Mesquita, 2016; Jones, Armour, & Potrac, 2003; Lemyre, Trudel, & Durand-Bush, 2007; Saury & Durand, 1998; Wright, Trudel, & Culver, 2007). Additionally, there is often an issue with access to experienced coaches and mentors

which is a limiting factor for sport governing bodies (Leeder, 2018; Sawiuk et al., 2018). Therefore, coaches often rely on various members within their support team for feedback, reflection, and peer review in the absence of clear developmental processes (Greenwood et al., 2014).

A reflective practitioner enables opportunity for successful enhancement of their abilities and refinement of their coaching philosophies (Cushion, 2018). Indeed, a characteristic of elite coaches is that they continuously reflect on their patterns of development, regularly modify their approach, and continuously seek support from external resources to enhance their coaching practice (e.g., discussion with other coaches or sport science specialists, sport-specific magazines, coaching clinics; Button & Farrow, 2012; Knowles, Borrie, & Telfer, 2005; Williams & Kendall, 2007). Reflection and learning are best completed through peer interaction where emphasis is placed on the significance of socialization during the learning process (Cushion, 2018; Cushion & Partington, 2014; King, 1990).

Recent literature has examined how social and cultural factors influence coaches' development (Vinson & Parker, 2018). More specifically, Vygotsky's (1978) Zone of Proximal Development (ZPD) was adopted as a theoretical framework to examine the influences of external factors on coaches' development. The ZPD highlights the importance of understanding the complex and dynamic surroundings of the person in order to understand their development; stating the social cognitive theory and cognitive anthropology to be influential developmental factors. These external influences are then internalized by the individual ultimately contributing to their learning and development. 'Scaffolding' (i.e., process of learning) is a term widely used to reflect on Vygotsky's work and Jones and Thomas (2015) highlight that this takes place at the macro-, meso- and micro- levels which can inform coaches' behavior. For the purposes of this

paper, the focus is on the micro-level, where the notion of interactional talk and engagement with peers/colleagues reflect the behavior, learning and development of the coach (Jones & Thomas, 2015; Vinson & Parker, 2018).

The Skill Acquisition Specialist as a Mediator

Given the coaches' goal of integrating 'scientifically-driven literature' into practice within the fast-paced coaching environment (Williams & Kendall, 2007), it has been suggested that coaches place value in working with a "mediator" who can translate and transfer knowledge from scientific sources into mediums that are more accessible (Williams & Kendall, 2007; Steel, Harris, Baxter, King, & Ellam, 2014). Considering the support services available to coaches, particularly at the elite level, one potential solution to this issue is working in conjunction with a skill acquisition (SA) specialist who could act as an ally and resource (Lyle, 2018). A SA specialist has been identified as a sport scientist that 'examine[s] the theories, principles and processes of motor and perceptual learning' (Steel et al., 2014, Pg. 1) and works closely with coaches and athletes to bridge the gap between theory and practical application (Steel et al. 2014; Williams & Ford, 2009; Williams, Ford, Causer, Logan, & Murray, 2012).

Although, the role of a SA specialist within sport systems has become (a little) more prominent with scientists imbedded in daily training environments, literature pertaining to their role and contribution to effective coach development is very scant (Pinder & Renshaw, 2019; Steel et al., 2014). Using theoretical underpinnings and evidence-informed approaches, SA specialists are concerned with understanding how to optimize all aspects of training designs (e.g. practice organization, information, feedback), emphasizing the need to individualize learning programs and interventions (Renshaw, Davids, & Savelsberg, 2010). As previously highlighted, coaches report informal settings, such as interacting with other coaches and practitioners in

‘authentic learning environments,’ and learning by ‘doing it’ through ‘experiential learning’ as most beneficial for their development (Bates, 2007; Gilbert & Trudel, 2001; Greenwood et al., 2014; Maclean & Lorimer, 2016; Nash & Sproule, 2009; Rynne, Mallett, & Tinning, 2010; Sawiuk et al., 2018). Steel and colleagues (2014) highlighted that more than half of the athletes and coaches in their study reported interest in the role (or use) of a SA specialist; however, more than 60% of the participants had not worked directly with a SA specialist. The most common barrier to working with an expert was either lack of funding, resources and/or access to a SA specialist who is ‘knowledgeable’ in their sport (Steel et al., 2014). Pinder and Renshaw (2019) highlight a similar notion and stressed the importance of the SA specialist immersing themselves into the sport and establishing an extensive working relationship with coaches to facilitate sustainable behavior change. While the authors identified barriers and key factors to a successful working relationship from a SA specialist’s perspective, there is limited information from a coach’s perspective documenting how effective working relationships with a SA specialist are established and how this impacts coach development and athlete performance.

Considering the gaps in the literature and limitations in the current methods of coach development, it is of great interest to examine the role and impact of a SA specialist from elite coaches’ perspectives. More specifically, our objectives are to identify coaches’ narrative regarding: i) their experience and developmental trajectory, ii) perceived role of the SA specialists, and iii) factors that facilitate a successful working relationship and contribute to athletes’ development.

Method

Participants

Background. Two highly experienced National head coaches provided written informed consent to be interviewed in-person by the lead author. Coach 1, referred to as “OC” throughout this paper is currently an Olympic coach and Coach 2, referred to in this paper as “PC” is currently a Paralympic coach (refer to Table 1 for detailed description of their experiences and accolades). It is important to highlight that both coaches are involved in individual sports; however, both coach a squad of individual athletes and therefore, the team as well as the individual must be considered within their coaching philosophy. In addition, both coaches were coaching at international level prior to their engagement with their respective SA specialist.

Recruitment. The two coaches were approached to take part in this project due to their successful and ongoing relationships with SA specialists. Both OC and PC initiated the collaborative working relationship with a SA specialist in search of innovative methods for enhancing their coaching practice. At the time of the interviews, both coaches had engaged with their respective SA specialist over the course of several years encompassing a range of major competitions (OC: >3 years, PC: >5 years). Consequently, both coaches had witnessed successful development (i.e., improved performance, higher and faster rate of skill acquisition) within their respective squads and were continuing to build a strong working relationship with the specialist. Therefore, exploring the factors that contributed to these successful relationships was focal to the structure of this research project. Considering the limited number of skill acquisition specialists working in the field at this level, this presented a rare opportunity to explore the characteristics of two successful partnerships in elite sport.

Ethical considerations. Institutional approval was obtained from a university ethics committee and participants read and signed informed consent prior to commencement of the study. While relational ethics contributed to shaping of the interviews (the initial engagement

from the SA specialists, the mutual respect and interpersonal relationship between the coach and the SA specialists; Bergum & Dossetor, 2005), the lead author, who had no prior relationship with the coaches conducted the interviews to ensure this relation did not directly impact the interview process (Evans, Bergum, Bamforth, & MacPhail, 2004; Pollard, 2015, Upasen, 2017). In addition, the transcribed interviews, themes and the results section were shared with coaches and a dialogue between the lead author and coaches confirmed their statements and opinions in this paper to be a valid reflection of the interviews and their relationship with the specialist.

Methodology

For this paper, the method that best elicited a narrative discourse was through the medium of in-person semi-structured interviews which is well suited and has been successfully used as a narrative approach to explore athletes and coaches' experiences, relationships, and other socio-cultural aspects in sport (Cooper & Ewing, 2019). The limited number of successful relationships among SA specialists and coaches at the high-performance level led to selection of the two coaches. Given this rare opportunity to explore two successful relationships, the semi-structured format was an opportunity to better understand coaches' conceptualized experience working SA specialists. The conversational approach also fit with the coaches' reported preference of learning in informal environments.

Philosophical assumption. This study was grounded ontologically in relativism (i.e., multiple realities exists which are subjective and mentally constructed) and epistemologically in constructivism (i.e., knowledge is constructed based on individual's interactions and experiences in specific context; Sparkes & Smith, 2014). The objective of this paper was to develop an understanding of coaches' realities, their perception of experiences working with a SA specialist and the impact of this work on their development and their athletes' performance. Therefore, we

adopted a narrative constructionism as our specific methodology – which highlights stories, experiences and meanings are formed in coordination with others rather than the self (Cooper & Ewing, 2019; Smith, 2015). Therefore, the coaches' conceptualized narratives are not simply story-telling opportunities, these narratives rather shed light on their subjective experiences with the SA specialist and inform of the broader relationship dynamics within the socio-cultural realm (Smith, Bundon, & Best, 2016; Wiggins & Potter, 2008).

Methodological rigor. Consistent with an ontological relativism and epistemological constructionism approach, a guiding list of criteria was set out to examine the rigor of this study (Smith & McGannon, 2017; Sparkes & Smith, 2014). The list of criteria consisted of: *worthiness of topic* (this study contributes to a significant gap in the literature pertaining to the work of a coach and skill acquisition specialist), *rich rigor* (methods utilized align and are appropriate with our approach), and *credibility* (coaches are highly skilled and world leading in their field). As outlined, we also utilized the technique of the 'critical friend,' where three authors used one another as 'theoretical sounding boards' to reflect and evaluate the themes and overarching maps, the relation, explanation and interpretations of the themes and its relation to the overarching theoretical framework and interest of our project (Burke, 2016; Smith & Sparkes, 2012). More specifically, throughout the process of transcription and coding, the two critical friends and lead author engaged in discussions, reviewing the content and discussing various theme developments. The three colleagues were cognizant of the contribution of personal biases and challenged each other's belief system throughout the process to make sure the themes were true to the content. In addition, any uncertainties, or disagreements were resolved through discussions and engagements amongst the three colleagues.

Procedure

Data pertaining to the research objectives was obtained via semi-structured interviews of approximately 45-60 minutes in duration with each coach. Questions were directed towards gaining insight to coaches' narrative regarding their philosophy and experience working with the SA specialist. Initial interview questions focused on developing a rapport with the coaches and consisted of topics such as their involvement in sport as an athlete and initial experiences leading into coaching. As the interview progressed, more purposeful questions emerged focusing on the development of their coaching philosophy, their initial contact with the SA specialist and aspects of their partnership with the SA specialist. The nature of the semi-structured interviews (conversational approach) created a variation in the ordering of the questions depending on the participants' responses and how the conversation emerged. Various curiosity-driven probe questions were followed-up to clarify ideas (e.g., "what do you mean by successful"), force elaboration (e.g., "can you give me examples of where this occurred") and obtain further detail on significant topics of discussion (e.g., "was there a specific key moment that stood out to you"; Charmaz, 2006).

The Interview Guide

An interview guideline was developed and once guiding topics were agreed upon by the authors, sub-topics were developed as reminders for the lead-author to keep a consistent pattern of discussion aligned with the study objectives. The interview guideline was organized into four main sections: 1) experiences in sport as an athlete and developments as a coach; 2) challenges, benefits and overall experiences working with a SA specialist; 3) impact of support on athlete learning and performance; and 4) reflection and closing questions.

Data Analysis

Audio recordings of the interviews were transcribed verbatim and the steps of thematic analysis guided the data analysis (Braun, Clarke, & Weate, 2016). The inductive thematic analysis was chosen to identify, analyze and interpret the responses for patterns. This approach guides to identify commonalities between coaches' responses (Braun et al., 2016). The six-phases of thematic analysis were adopted (Braun et al., 2016) to better understand the narrative being told and the effects of this narrative (Frank, 2012). First, the lead author (ND) immersed himself in the data through continuous re-reading of the transcripts and noting significant thoughts and patterns using NVivo (NVivo qualitative analysis software: Version 12). ND then proceeded to generate codes and extract meaningful and relevant texts from the data. These codes were then refined and grouped into four higher-order potential themes with 15 suggestive sub-themes. These were re-evaluated and re-organized into three overarching themes (i.e., coach, skill acquisition specialist and relationship) along with three sub-themes for each. Two colleagues (JH and IR) reviewed the interview transcriptions and examined the development of themes to act as a 'critical friend,' questioning the themes and assumptions made by the lead author to generate reflection among the research team (Sparkes & Smith, 2014). Emerging themes, reports and all discussions were consistently assessed for alignment with the full dataset to ensure themes presented were reflective of the individual transcripts and the entire dataset.

Results

The three overarching themes identified that represented coaches experience in their sport, their relationship with a SA specialist and its impact on athletes' development were 1) the unplanned journey, 2) more than just a skill expert, and 3) keys to success. In the following section, each theme along with its sub-themes will be discussed in detail with supporting excerpts from both OC and PC.

The Unplanned Journey

The beginnings. Both coaches started as athletes at a young age and transitioned into coaching relatively early in their career (i.e., twenties). Both coaches expressed their endless love for their sport and having trained long hours without supervision, as PC highlights: ‘I just fell in love with it from the start’ and OC extends: ‘When I was younger ... it just became really addictive ... you just get this bug and then it’s hard not to do anything else.’ These early athletic experiences helped both coaches in their development. Both highlighted that transition to coaching was a natural shift for them. OC started coaching very informally, as he was the ‘elder’ in their group, he started mentoring the younger athletes entering the system. OC enjoyed the concept of helping others and enjoyed the process of learning and teaching. Similarly, PC highlighted his sentiment for enjoying coaching and it developed through a natural progression.

The comfort zone. Although, both never really considered coaching as a career when they were athletes, they naturally progressed into the mentor role later in their career and eventually into formal coaching. Due to limited resources, educational programs, and developmental systems, both participants relied on athletic background and experiences to shape their coaching method and philosophy. PC describes this development: ‘When I was playing, I actually enjoyed the structured drills ... so I suppose, that translated pretty quickly into my coaching, my coaching was very structured.’ Both coaches were drawn to coaching through a natural progression as their passion and personality attracted them towards the occupation. However, with very little support and coach development, both OC and PC not only relied on their athletic experience but also learned by just ‘doing it’ and experimenting within their coaching environments. OC reflects on this phase of his coaching in a positive manner, correlating the lack of structure, coaching certificates and guidelines with less formal

responsibility: 'I didn't have a coaching certificate to start with ... I was just a 17-year-old kid wanting to help.' A similar sentiment was echoed by PC: 'I was probably learning through experience more than anything else... It was all just a fairly natural progression.' It was evident that even though there was very little systematic support for either coach, the teaching and mentoring aspect of their role attracted and fueled their motivation to remain and progress as a coach, OC reflects:

I got into coaching really young, just through the passion of my sport and wanting to know more, but also wanting to help others ...from a really young age, I'm not sure if it was called coaching, but maybe it was teaching... all of a sudden I have another athlete asking me to help.

Growth and development. During this (most recent) stage of their career, the two coaches reflect on their experience with a SA specialist and how it challenged their coaching philosophy and approach to athlete development. Both coaches confirmed that whilst they had an understanding of what the role of the SA specialist would be when they invited the SA specialist into training environments, doubts remained to what specifically the SA specialist would provide. Ultimately, much of their philosophy was tested throughout their interaction with the SA specialist; however, both coaches agree that it was necessary for them to step out of their comfort zone to be able to see eye to eye with the SA specialist:

Coaches, they're always proud in their own way. 'I've coached for many years,' so just having that manner of sitting back and dropping little ideas now and then helps coaches get over that ego (PC).

In addition, coaches admit that their work with the SA specialists has shaped their philosophy and approach to training in new ways. Although this process has been uncomfortable for the coaches as they were accustomed to their traditional ways. As PC reflects:

Just going to now find a better rhythm of enduring training camps, during sessions and just changing the whole philosophy, from four or five years ago to now, my training sessions, are chalk and cheese... the whole structure of what a training session looks like, what a camp looks like is completely different... so even though, it was uncomfortable- It was uncomfortable... with a trusting person.

PC went further to express not only this has influenced his philosophy but his approach and even how he translates information to his athletes:

My philosophy has changed. I even find myself speaking like [the SA specialist] sometimes. My mind has changed. My inner belief has changed. I look at traditional training and I think, "Yeah, that looks like a waste of time."

Crucially, the identified contribution of each SA specialist was unique to their respective relationships. For example, PC acknowledged the commitment to shaping training camps and moving away from traditional training methods. While OC valued how the SA specialist approached and communicated with athletes and identified specific skills within training that needed adjustment; SA specialists were successful in supporting coaches, by shaping their support to the contextual circumstances rather than taking a universal approach.

More than just a Skill Expert

The bridge. Interestingly, although both coaches had an overarching idea of the specialists' roles, neither knew specifically what that would entail practically, they were, however, willing to explore and both approached the specialists for support. As PC mentions 'Early on, I wasn't sure, I thought it was some mental work or something.' However, as the working relationship was established, one of the main roles was to bridge the gap between the scientific literature and practical application. Both coaches expressed the desire to have an advantage over other competing nations and implement innovative practice methods to extend knowledge and display superior performance; however, were equally uninterested in personally immersing in the literature to identify innovative ideas and were seeking a specialist to mediate: 'For me it's mostly the applied. I want to see what it's like [in practice]. It's more like "What have you got for me? What's the summary of this? What are we doing with this?" (PC).'

Therefore, it is evident that the SA specialist must take the role of identifying relevant information in the literature and translate key findings that are applicable and conducive for athlete development. Moreover, the SA specialist can provide another lens to traditional training and assess development from another perspective, as OC illustrates: 'That's been a really good thing, communication, in regards to bouncing ideas off each other ... from coaching aspect, it brings another voice into the circle.' Ultimately, while both coaches were looking for advantages over their competitors, they needed a SA specialist to identify and translate scientific knowledge into practice. Additionally, there was a need for the SA specialist to be more than just a skill specialist, they were also identified as being another voice or sounding board providing the coach with regular opportunities to reflect on ideas.

The traits. Evidently, for the SA specialists to be successful in fulfilling the demands of their role, they must be equipped with key traits. One important trait is the ability to translate

their competence and gain coaches' trust. As PC explains: 'He has a way of, exuding trust, so I trust his knowledge.' While knowledge and trust may be desirable attributes for any role, SA specialist must also be patient in their approach and gradually present ideas to ensure coaches are not overwhelmed. Their work must appear to fit within the ideology of coaches and athletes and make sense within the context of their sporting environment. As PC highlights: 'It's different, but okay, he knows what he is talking about and it was all logical.' For the SA specialist to be successful in translating knowledge effectively and timely to coaches and athletes, there is a certain level of communication skill that needs to be achieved. OC explains: 'She knows how to work with people, good communication. If you can communicate with athletes, you've got more of a chance of getting by.' Other interesting traits that were highlighted by coaches as being integral to SA specialists' success were persuasiveness and resilient to their approach. As OC describes: 'She is persistent, she doesn't give up.' At the same time, it is important for SA specialists to give control to the coaches and most importantly, the athletes, for their learning, as OC highlights:

I like the way she makes the athlete think more like it's not just a tell and you will do.

No, the athlete has to think about it as well. That process happens and they control their learning.

In addition, SA specialists were praised for their ability to negotiate problems and come up with creative solutions. OC highlights: 'She will come up with the ideas' and later in the interview 'She is a problem solver.' Therefore, highlighting the importance of having someone who can identify solutions to long-standing problems. Interestingly, it is important for SA specialists to fit the needs of the coach. Even though overarching similarities existed among

coaches, each SA specialists' relationship was unique to the coach they were working with. While both SA specialists were praised for their ability to problem solve, the difference in problem solving scenarios highlights the need for the SA specialists to be adaptable to their environment. Although OC was extremely satisfied of his experience with the current SA specialist, he was cognizant of differences between specialists and how another's personality might not fit with his approach and was wary of generalizing his experience: 'There could be a barrier. It would depend on the person as well. You could have another skill acquisition coach that might not have the same social skills.' Ultimately, these traits were identified as characteristics that can contribute and compliment an effective rapport with coaches and athletes which results in a more effective knowledge transfer setting. However, it is important to consider the blend of social attributes with ability to deliver the knowledge to enhance and compliment coach development and athlete performance and learning.

The delivery. The manner in which knowledge was translated to the coaches was also an important theme identified during the interviews. Both coaches stressed the importance of the SA specialist not taking an authoritarian approach, instead presenting ideas more suggestively. This reduced tension and limited conflict, as most athletes and coaches did not feel threatened by the SA specialist's presence. The idea of progression was common among both coaches and PC explains: 'It all happened really gradually. He is good at just observing first and dropping a few little jewels. Giving you some ideas initially, and that's a really good approach with coaches.'

Another advantage to positive knowledge translation is that the coach-SA specialist interaction mainly took place in a favorable setting (i.e., daily training environment). In addition, logical and practical suggestions provided by SA specialist in a gradual manner engaged coaches

and athletes. It is also important for athletes to understand why they are executing a certain task and how it benefits them. As PC highlights:

It's like any team, initially, there was resistance. "What's this [person] ... he doesn't know [this sport]." But again, with his approach, he is not going to say, "well, you need to go and ... you need to do this." It's just putting it in front of them. Suggestions, "Let's see if that works for you" And [the athlete] has got to have success with that, before it'll really be accepted.

Therefore, as evident, it is vital for SA specialists to consider a gradual approach and present ideas progressively and ensure the information is concise and understandable. But ultimately, as PC highlighted, the buy-in from athletes and coaches occur when results are evident.

Keys to Success

Three intertwined themes displayed the process of a successful relationship between the coach and SA specialist, which consisted of trust, results and key moments. Firstly, coaches revealed that the inherent confidence displayed by the SA specialist provided coaches with the initial reasons to trust them. Once this level of trust had been built, results reinforced coaches' belief in the SA specialist, and the moments that highlighted results were defined as key moments (i.e. more than just performance results) that coaches described as 'reinforcing moments' that strengthened their working bond. As a result of SA specialists' measured approach (i.e., small changes, progressions and performance improvements), both coaches trusted their respective specialist early on and provided the opportunity and platform for the SA specialists to display their skills and demonstrate what they can offer to the coach and athlete(s).

Ultimately, both coaches emphasized the importance of results for their approval but as well as athletes' buy-in. These reinforcing moments that demonstrated significant results, whether it was a medal at a competition, or displaying personal best times during practice, or a good performance were key moments that reinforced the work between the coach and the SA specialist. These result driven moments reinforced the trust and created a long-lasting working relationship, highlighting the importance of result-driven progress, which is inevitably, the nature of sport. PC reflects on this:

I think the results in Rio, with [the athlete] performing well. It just solidified it all. Maybe up until then, it was all logical. It was all interesting, I could see players moving forward but yeah, there is nothing like a medal that reinforces things.

Discussion

The purpose of this paper was to develop a better understanding of coaches' development, their experience working with a SA specialist and key factors that contributed to a successful relationship. The overarching themes were structured to guide the interview to i) provide insight to coaches' experience and developmental trajectory, ii) role of the SA specialists, and iii) factors that facilitate a successful working relationship and contribute to athletes' development. Findings support previous literature and extend our understanding of the contextual and individual (both coach and SA specialist) factors that can shape coach development in elite performance environments.

Due to the lack of effective programs and resources, both coaches relied on their personal athletic experiences to generate early coaching philosophies (Greenwood, Davids, Renshaw, 2012; Lyle, 2002). In addition, coaches highlighted the fact that they learned in *experiential learning environments* by just 'doing it' (Bates, 2007; Gilbert & Trudel, 2001; Jones et al., 2003;

Nash & Sproule, 2009), and mentioned that their philosophy was driven from their athletic career and what had previously worked for them as athletes. This paved the way to set expectations for their athletes to emulate similar responses. This aligns with Cassidy's (2010) plea for practical theories to help dissolve some of the coaching philosophies that are over-reliant on what had worked for coaches as athletes. It is important for SA specialists to consider this and how to successfully challenge this notion, given the trust that coaches place on their philosophy, particularly when these philosophies have provided a successful platform. The coaches in this study reflected on key aspects that created psychologically safe environments nurturing a collaborative partnership. It was imperative for SA specialists to act as a mediator to provide "little jewels" and avoid overloading coaches with jargon/information. Then to "sit back and observe" contributed to a welcoming, collaborative relationship that did not challenge the position and ego of the coach. This narrative aligns with previous work suggesting that learning is optimized through the process of 'scaffolding' and further extends our understanding in elite sport settings in Olympic and Paralympic disciplines (Jones & Thomas, 2015; Vinson & Parker, 2018).

While, SA specialists can (and have) fill(ed) the role of a mediator between 'science' and 'practice', it is also important to identify effective methods to incorporate knowledge translation and mobilization methods in coach development programs, by tailoring theoretical frameworks and literature into practical applications for coaching environments. This reduces some of the challenges regarding the gap between theory and practice (Lyle, 2018). It is also imperative to use appropriate language tailored to coaches when designing these programs. It is widely argued that current research does not consider coaches' needs and fails to speak coaches' language (Williams & Kendall, 2007), the coaches in our sample stressed the lack of time for inability to

tap into literature and access new information. The role of a SA specialist seemed vital in bridging this gap and both coaches praised their ability to identify and transfer knowledge and resources that benefited the coach and athletes. Evidently, the SA specialists had to expand their sport-specific knowledge, at the same time, coaches expanded their scientific knowledge through their interaction with the SA specialist and as PC reflected, they started communicating and approaching practice in a similar manner (e.g., “I even find myself speaking like [the SA specialist]”). Moreover, the information exchange in the training environment facilitated positive collaborations and led to learning opportunity that contributed to coaches’ development and shaping their philosophy (Vygotsky, 1978; Jones & Thomas, 2015; Vinson & Parker, 2018).

At the same time, SA specialists should ensure that they approach each scenario gradually and consider athletes and coaches’ personality and team’s culture. Often, the gap is exacerbated when scientists utilize terminologies that fail to align with the language spoken in sports (Farrow, Baker, & MacMahon, 2013) and this creates barriers for knowledge translation, practical application, and ongoing collaborations. In sum, a concise, logical, gradual and language appropriate approach can be the best method to presenting new ideas to coaches without impeding or taking over their ‘territory.’ The coaches in this study highlighted the importance of the SA specialists’ gradual approach (‘scaffolding’; (Vygotsky, 1978; Jones & Thomas, 2015; Vinson & Parker, 2018), their keen interest to learn the ‘language’ specific to that sport (Williams & Kendall, 2007) and taking a collaborative approach that did not hinder coaches’ role. This reflects on the need for the SA specialist to immerse themselves into the squad and contribute to informing others by better understanding their role (Pinder & Renshaw, 2019; Steel et al., 2014).

Recent work highlights the importance of SA specialist's ability to immerse into the sporting environment and harness the experiential knowledge, working closely with coaches to create individualized learning designs that consider social, cultural and historical contexts (Pinder & Renshaw, 2019, Vinson & Parker, 2018). This sentiment was echoed to underpin coach learning and behavior and is highlighted as a critical component of these successful working relationships. The narrative of the coaches in this study highlight the key elements that were effective to engage and develop a partnership with coaches. Adopting similar approaches with other coaches may begin to further bridge the collaborative gap between coaches and scientists. The findings of this project also highlight factors that contribute to a SA specialist's development and requirements necessary of SA specialists to establish a successful working relationship with coaches. A deeper understanding of how coaches perceive their experience can help SA specialists conceptualize coaches' experience and needs.

Limitations

Although this research involved only two coaches, our goal was to take a qualitative approach. This ensured we can shed light on the experience of two highly effective relationships in order to inform of the valuable elements that have transpired within the working relationship of two elite international coaches and two experienced SA specialists. It is important to note that while both coaches were used to coaching via 'conventional wisdoms,' (Pinder & Renshaw, 2019), there may be an influence of sampling bias considering both coaches initiated contact with the SA specialists for collaboration. However, considering the limited literature and limited number of SA specialists embedded in sports, it is important to start with developing an understanding of successful relationships. Future work can build on this by exploring the learnt experience of SA specialists in unsuccessful collaborations with coaches. In addition, the

coaches interviewed in this research still work with the SA specialist and might be biased in their responses and withdraw any negative comments to ensure it does not deteriorate their working relationship with the SA specialist.

Conclusions

In conclusion, the findings of this projects highlight the narrative of coaches and their experiences working with a SA specialist. The SA specialist reduces some of the current challenges associated with elite coach development, harnessing development through coaches' experiential knowledge (Greenwood et al., 2014) and supporting behavior and developing interventions 'in situ' (Lyle, 2017) while bridging the gap between science and practice. The SA specialist aims to support and facilitate an effective method of learning in context (i.e., within the training environment) and provides coaches with the opportunity to reflect and assess their current practices in light of existing or emerging research. For a successful collaboration, a SA specialist needs to be equipped with wide range of traits and skillsets and be able to adapt to various environments and social demands. In addition, a SA specialist should be prepared to approach teaching and learning outcomes through scaffolding methods, focusing on the micro structures of the environment; harnessing socio-cultural factors that influence coaches' development, philosophy and learning.

References

- Bates, I. (2007). Coaching experience, coaching performance. In J. Denison (Eds.), *Coaching knowledges*, London, UK: A and C Black Publishers.
- Bergum, V., & Dossetor, J. (2005). *Relational ethics: The full meaning of respect*. Hagerstown: University Publishing.
- Blackett, A. D., Evans, A., & Piggott, D. (2017). Why ‘the best way of learning to coach the game is playing the game’: Conceptualising ‘fast-tracked’ high-performance coaching pathways. *Sport, Education, & Society*, 22(6), 744-758.
- Braun, V., Clarke, V., & Weate, P. (2015). Using thematic analysis in sport and exercise research. In B. Smith, & A. Sparkes (Eds.), *International handbook of qualitative research in sport and exercise*. London, UK: Routledge.
- Burke, S. (2016). Rethinking ‘validity’ and ‘trustworthiness’ in qualitative inquiry: How might we judge the quality of qualitative research in sport and exercise sciences? In B. Smith & A. C. Sparkes (Eds.), *Routledge handbook of qualitative research in sport and exercise* (pp. 330–339). London: Routledge.
- Button, C., & Farrow, D. (2012). Working in the field (Southern Hemisphere). In N. J. Hodges & A. M. Williams (Eds.), *Skill acquisition in sport: Research, theory and practice* (367-380), London, UK: Routledge.
- Cassidy, T. (2010). Understanding athlete learning and coaching practice: Utilising ‘practice theories’ and ‘theories of practice’. In J. Lyle & C. Cushion (Eds.), *Sports coaching: Professionalisation and practice* (177–192). Edinburgh, UK: Churchill Livingstone.
- Charmaz, K. (2006). *Constructing grounded theory*. London, UK: Sage.

- Cooper, H. B., & Ewing, T. K. (2019). The role of sport (and sporting stories) in a family's navigation of identity and meaning. *Sport, Education & Society*, doi: <https://doi.org/10.1080/13573322.2019.1596892>
- Côté, J., Young, B., North, J., & Duffy, P. (2007). Towards a definition of excellence in sports coaching. *International Journal of Coaching Science*, 1(1), 3-17.
- Cregan, K., Bloom, G., & Reid, G. (2007). Career evolution and knowledge of elite coaches of swimmers with a physical disability. *Research Quarterly for Exercise & Sport*, 78(4), 339-358.
- Cushion, C. (2018). Reflection and reflective practice discourses in coaching: A critical analysis. *Sport, Education, & Society*, 23(1), 82-94.
- Cushion, C., & Partington, M. (2016). A critical analysis of the conceptualisation of 'coaching philosophy'. *Sport, Education, & Society*, 21(6), 851-867.
- De Bosscher, V., De Knop, P., Bottemburg, M. V., Shibli, S., & Bingham, J. (2009). Explaining international sporting success: An international comparison of elite sport systems and policies in six countries. *Sport Management Review*, 12(3), 113-136.
- Denison, J., Mills, J. P., & Konoval, T. (2017). Sports' disciplinary legacy and the challenge of 'coaching differently'. *Sport, Education, & Society*, 22(6), 772-783.
- Douglas, S., Falcão, W. R., & Bloom, G. A. (2018). Career development and learning pathways of Paralympic coaches with a disability. *Adapted Physical Activity Quarterly*, 35, 93-110.
- Duarte, T., Culver, D. M., Trudel, P., & Milistetd, M. (2018). Parasport coach development: Evidence from the Canadian context. *Lase Journal of Sport Science*, 9(1), 78-90.

- 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.
- Evans, M., Bergum, V., Bamforth, S., & MacPhail, S. (2004). Relational ethics and genetic counseling. *Nursing Ethics*, 11(5), 459-471.
- Fairhurst, K.E., Bloom, G.A., & Harvey, W.J. (2017). The learning and mentoring experiences of Paralympic coaches. *Disability & Health Journal*, 10, 240-246
- Farrow, D., Baker, J., & MacMahon, C. (2013). *Developing sport expertise: Researcher and coaches put theory into practice* (2nd ed.). London, UK: Routledge.
- Frank, A. W. (2012). Practicing dialogical narrative analysis. In J. A. Holstein, & J. F. Gubrium (Eds.). *Varieties of narrative analysis* (pp. 33–52). Thousand Oaks, CA: Sage.
- Gilbert, W., Côté, J., & Mallett, C. (2008). Developmental paths and activities of successful sport coaches. *International Journal of Sports Science & Coaching*, 1(1), 69-76
- 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.
- Gomes, R., Jones, R. L., Batista, P., & Mesquita, I. (2016). Latent learning in the workplace: The placement experiences of student-coaches. *Sport, Education, & Society*, 23(1), 68-81.
- Greenwood, D., Davids, K., & Renshaw, I. (2014). Experiential knowledge of expert coaches can help identify informal constraints on performance of dynamic interceptive actions. *Journal of Sport Sciences*, 32(4), 328-335.
- Greenwood, D., Davids, K., & Renshaw, I. (2012). How elite coaches' experiential knowledge might enhance empirical research on sport performance. *International Journal of Sports Science & Coaching*, 7(2), 411-422.

- Headrick, J., Renshaw, I., Davids, K., Pinder, R. A., & Araújo, D. (2015). The dynamics of expertise acquisition in sport: The role of affective learning design. *Psychology of Sport & Exercise*, 16, 83-90.
- Jones, R. L., Armour, K. M., & Potrac, P. (2003). Constructing expert knowledge: A case study of a top-level professional soccer coach. *Sport, Education & Society*, 8(2), 213-229.
- Jones, R. L., & Thomas, G. L. (2015). Coaching as 'scaffolded' practice: Further insights into sport pedagogy. *Sports Coaching Review*, 4(2), 65-79.
- King, A. (1990). Enhancing peer interaction and learning in the classroom through reciprocal questioning. *American Educational Research Journal*, 27, 664-687.
- Knowles, Z., Borrie, A., & Telfer, H. (2005). Towards the reflective sports coach: Issues of context, education and application. *Ergonomics*, 48(11-14), 1711-1726.
- Lawson, H. A. (1986). Occupational socialization and the design of teacher education programs. *Journal of Teaching in Physical Education*, 5, 107-116.
- Leeder, T. (2019). Learning to mentor in sports coaching: A design thinking approach. *Sport, Education, & Society*, 24(2), 208-211.
- Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth sport coaches learn to coach. *Sport Psychologist*, 21, 191-209.
- Lyle, J. (2002). *Sports coaching concepts: A framework for coaches' behavior*. London, UK: Routledge.
- Lyle, J., (2007). A review of the research evidence for the impact of coach education. *International Journal of Coaching Science*, 1(1), 19-36.
- Lyle, J. (2018). The transferability of sport coaching research: A critical commentary. *Quest*, 1-20, <https://doi.org/10.1080/00336297.2018.1453846>

- Mallett, C., & Dickens, S., (2009). Authenticity in formal coach education: Online postgraduate studies in sports coaching at the university of Queensland. *International Journal of Coaching Science*, 3(2), 79-90.
- Maclean, J., & Lorimer, R. (2016). Are coach education programmes the most effective method for coach development? *International Journal of Coaching Science*, 10(2), 71-88.
- 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, & Health*, 4(2), 226-243.
- Nash, C., & Collins, D. (2006). Tacit knowledge in expert coaching: Science or art?. *Quest*, 58, 465–477.
- Nash, C., & Sproule, J. (2009). Career development of expert coaches. *International Journal of Sport Science & Coaching*, 4(1). 121-138.
- Pinder, R., & Renshaw, I. (2019). An application of constraints-led pedagogy in Para-sport. *Physical Education & Sport Pedagogy*, doi:
<https://doi.org/10.1080/17408989.2019.1571187>.
- Pollard, C. L. (2015). What is the right thing to do: Use of a relational ethic framework to guide clinical decision making. *International Journal of Caring Sciences*, 8(2), 362-368.
- Renshaw, I., Davids, K., & Savelsberg, G. J. P. (2010). *Motor Learning in Practice: A Constraints-Led Approach*. London, UK: Routledge.
- Rynne, S. (2012). ‘Fast track’ and ‘traditional path’ coaches: affordances, agency and social capital. *Sport, Education, & Society*, 19(3), 299-313.
- Rynne, S., Mallett, C. J., & Tinning, R. (2010). Workplace learning of high performance sports coaches. *Sport, Education, & Society*, 15(3), 315-330.

- 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.
- Sawiuk, R., Taylor, W. G., & Groom, R. (2018). Exploring formalized elite coach mentoring programmes in the UK: 'We've had to play the game'. *Sport, Education, & Society*, 23(6), 619-631.
- Schön, D. (1985). *The reflective practitioner: How professionals think in action*. London, UK; Temple-Smith.
- Schön, D. (1987). *Educating the reflective practitioner*. San Francisco, California; Jossey-Bass.
- Knowles, Z., Borrie, A., & Telfer, H. (2005). Towards the reflective sports coach: Issues of context, education and application. *Ergonomics*, 48, 1711-1720.
- Sparkes, A. C., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of Sport & Exercise*, 10, 491-497
- Smith, B. (2015). Narrative analysis. In E. Lyons, & A. Coyle (Eds.). *Analyzing qualitative data in psychology* (2nd ed., pp. 202–221). London, UK: Sage.
- Smith, B., Bundon, A., & Best, M. (2016). Disability sport and activist identities: A qualitative study of narratives of activism among elite athletes with impairment. *Psychology of Sport & Exercise*, 26, 139–148.
- Smith, B., & McGannon, K. R. (2017). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport & Exercise Psychology*, <https://doi.org/10.1080/1750984X.2017.1317357>
- Steel, K. A., Harris, B., Baxter, D., & King, M. (2013). Skill acquisition specialists, coaches and athletes: The current state of play? *Journal of Sport Behavior*, 36(3), 291-305.

- Steel, K. A., Harris, B., Baxter, D., King, M., & Ellam, E. (2014). Coaches, athletes, skill acquisition specialists: A case of misrecognition. *International Journal of Sport Science & Coaching*, 9(2), 367-378.
- Upasen, R. (2017). Relational ethics and nurse-client relationship in nursing practice: Literature review. *Mental Health & Human Resilience International Journal*, 1(1), doi: 10.23880/mhrij-16000102
- Vinson, D., & Parker, A. (2018). Vygotsky and sports coaching: Non-linear practice in youth and adult settings. *Curriculum Studies in Health and Physical Education*, doi: <https://doi.org/10.1080/25742981.2018.1555003>
- Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes*. Harvard: Harvard University Press.
- Wiggins, S., & Potter, J. (2008). Discursive psychology. In C. Willig, & W. Stainton-Rogers (Eds.). *The sage handbook of qualitative research in psychology* (pp. 73–90). London, UK: Sage.
- Williams, A. M., & Ford, P. (2009). Promoting a skills-based agenda in Olympic sports: The role of skill-acquisition specialists. *Journal of Sport Sciences*, 27(13), 1381-1392.
- Williams, A. M., Ford, P., Causer, J., Logan, O., & Murray, S. (2012). Translating theory into practice: Working at the ‘Coal Face’ in the UK. In N. J. Hodges & A. M. Williams (Eds.), *Skill acquisition in sport: Research, theory and practice* (353-366). London, UK: Routledge.
- Williams, S. J., & Kendall, L. (2007). Perceptions of elite coaches and sports scientists of the research needs for elite coaching practice. *Journal of Sports Sciences*, 25(14), 1577–1586. doi:10.1080/02640410701245550

Wright, T., Trudel, P., & Culver, D. (2007). Learning how to coach: The different learning situations reported by youth ice hockey coaches. *Physical Education & Sport Pedagogy*, *12*(2), 127-144