**The identity, epistemology and developmental experiences of high-level adventure sports coaches**

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**Abstract**

This study aims to further the literature on the identity and practices of adventure sports coaches. Previous research has shown that these coaches hold well defined epistemic beliefs that underpin their approaches to coaching. We sought to explore whether these findings applied to a more diverse sample and to examine their working practices and developmental experiences. Semi-structured interviews were conducted on high-level adventure sports coaches. Inductive thematic analysis showed that (1) the coaches share similar working practices which are unpredictable and varied, (2) that the coaches possess and can articulate sophisticated epistemological beliefs and (3) the coaches consider themselves to be on a constant learning journey. The findings are discussed in relation to educating future coaches.

**Keywords:** Coaching, coach education, philosophy, beliefs

**Introduction**

Adventure sports coaching has been identified as a distinct sub-discipline of sports coaching ([Collins & Collins, 2012](#_ENREF_1)). In addition to coaching for performance/skill development, the Adventure Sports Coach (ASC) is also identified as a guide (i.e., a facilitator of personal experience) and as a teacher (i.e. a facilitator of personal development). This hybrid role is further compounded by the ASC also requiring a high level of personal competence (i.e., to coach white water kayaking in advanced environments requires the coach to actually be able to perform in that advanced environment) as well as a complete grasp of relevant welfare and safety issues inherent to their discipline or indeed disciplines. Whilst it is acknowledged that all types of sport coaching are inherently complex and take place in an ever changing environment ([Cushion, 2007](#_ENREF_3)), it could be assumed that the nature of adventure sports coaching (i.e., issues around the variety of roles, personal competence and health and safety considerations) place different, or even additional situational demands on the coach. To date, however, there is very limited empirical evidence examining these assumptions about the working practices of ASCs.

Given the contemporary view that sport coaching is a dynamic and complex undertaking, some authors ([Cross & Lyle, 1999](#_ENREF_2)) have proposed that in order to develop their practices coaches need to become aware of their own philosophical beliefs and values. Cassidy, Jones, and Potrac (2004) advocate the role of philosophy as the precursor to (coaching) action. In analogous terms, Kretchmar (1994) proposes that well-defined philosophical beliefs about coaching provide both ‘cause and compass’ on which to base action. Despite this, Cassidy et al. (2004) propose that coaches in training fail to grasp the importance of developing philosophical beliefs and as such they are rarely addressed in coach education. Other authors (e.g., Carless & Douglas, 2011; Horsley, Cockburn & James, 2015) have argued for the development of philosophical values and beliefs to feature more prominently in coach education, though this endeavour is made difficult by the abstract and nebulous nature of the subject matter.

Grecic and Collins (2013) outline the existence of a philosophical framework, which conceptualises personal beliefs to help coaches appreciate how their values and beliefs manifest themselves in their coaching behaviour. These authors termed the process of conceptualising knowledge and understanding into a philosophy which guides their coaching behaviours as the ‘epistemological chain’. Grecic and Collins proposed each coach’s epistemological chain (EC) exists on a continuum between ‘Naïve’ and ‘Sophisticated’. Specifically, a naïve EC would be characterised by a coach *“who believes that knowledge is simple, clear and specific; resides in authority, is handed down rather than developed by reason and is certain and unchanging”* (p.152). Contrastingly, *“a coach who holds a sophisticated epistemology believes that knowledge is complex, uncertain and tentative; the knowledge can be learned gradually through reasoning processes and can be self-constructed by the learner*”(p.152).

In practical terms each coach’s epistemological position would manifest itself in discernibly different coaching behaviours. For example, a coach operating a naive EC would predominantly utilise approaches such as blocked practice, demonstrations and augmented feedback. Conversely, where appropriate, an epistemologically sophisticated coach would utilise more learner-centred approaches such as random practice, delayed feedback and probing questions in order to facilitate autonomous learning.

In one of the few studies that has attempted to conceptualise the EC, Collins, Collins and Grecic (2015) proposed a common sophisticated epistemological chain among high-level ASCs, which ultimately informed their professional judgement and decision making. The ASCs in this study shared common beliefs regarding: the benefits of participating in adventure sports, the independent performance of learners, developing their own practice by drawing information from a range of sources (specifically reflective practice) and being adaptable and flexible in their approach to coaching. Notwithstanding, there are some potential limitations to Collins et al.’s study that warrant further research attention. Specifically, the ASCs used by Collins et al. (2015) were drawn from a population where the primary sampling criteria was the possession of multiple BCU Level Five Coach awards (the highest award in the British paddlesport coach education system). Although the ASCs in their study did also have experience in a range of other adventure sports they were not defined by qualification or seniority in these activities. This raises the question as to whether the homogeneity of epistemological beliefs in these coaches is largely a function of the British paddlesport coach education system or is attributable to other factors. Investigation into the epistemological beliefs of coaches in other adventure sports would therefore appear warranted.

**Aims**

In summary, the application of the EC concepts to adventure sports coaching has considerable potential, particularly in the development of coach education. Firstly, to ensure that coaches drawn from a range of adventure sports could be classified within the same sample, we initially sought to gain a deeper understanding of the working practices of high-level ASCs. The second aim was to assess the extent to which high level ASCs from this broader sample reported the use of a sophisticated epistemological chain in their coaching. Where it was established that this sample of coaches did report the use of a sophisticated epistemological chain, the final aim of the study was to identify the factors to which the coaches attributed their past and continued development and comment on how this might inform future coach education.

**Method**

Based on the assumption that the coaches’ knowledge has been constructed over time as a function of their interactions with clients, other coaches, and governing bodies, we adopted a social constructionist approach (Braun & Clarke, 2006). Accordingly, we conducted semi-structured interviews which were analysed inductively using thematic analysis.

***Participants***

The participants were nine (six male and three female) ASCs with a mean age of 44 years and an average of 16 years coaching experience (see Table 1). Consistent with the approach used by Martindale, Collins and Abraham (2007) participants were purposively sampled and defined as ‘high-level’ on the following criteria: (1) they held the highest level of coaching award in their area; (2) their standard of work is recognised by an appropriate national governing body (NGB) in that they educate other coaches to the highest level and/or contribute to the development of governing body awards; (3) that adventure sports coaching is their main employment and they regularly coach participants at the forefront of their sport.

Emphasis was given to recruiting coaches who defined themselves as a coach of one particular sport. Coaches of dinghy sailing, rock climbing, board surfing, mountain biking and skiing were included. Coaches with extensive paddlesport background were deliberately excluded to reduce any ‘cross-contamination’ from the BCU coach education system. In order to reduce researcher bias and participant expectancy effects none of the coaches were known to the researchers.

Table 1. Participant information.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Participant** | **Gender** | **Age**  | **Sport**  | **Governing body and qualification**  | **Years of coaching experience**  |
| 1  | M | 41 | Surfing  | Academy of Surfing Instructors - Level 4 Master Surf Coach | 17 |
| 2  | M | 62 | Sailing  | RYA - Dinghy Coach/ Assessor | 16 |
| 3  | M | 49 | Sailing  | RYA - Dinghy Coach/ Assessor | 32 |
| 4  | F | 39 | Sailing  | RYA - Dinghy Coach/ Assessor | 19 |
| 5  | F | 41 | Climbing | Mountain Training -Performance Coach  | 11 |
| 6  | M | 32 | Mountain Biking | British Cycling - Level 3 Coach  | 5\* |
| 7  | M | 55 | Climbing  | Mountain Training - Performance Coach | 14 |
| 8  | F | 34 | Skiing  | BASI – Level 4 international ski teacher diploma | 16 |
| 9  | M | 41 | Skiing  | BASI - Level 4 international ski teacher diploma | 18 |

\*Although less experienced than other coaches in terms of years coaching in a certificated role, coach six was included as he had extensive experience in mountain biking, held multiple level 3 awards (the highest level currently available) and has fast-tracked to professional coaching.

***Procedure***

Ethical approval was granted from the university’s ethics committee. Participants were recruited following an internet-based search of professional associations and national governing bodies of adventure sports. Additionally, governing bodies were asked to provide the names of the most highly qualified and regarded coaches and coach educators in their field; subsequently, participants were approached via email and invited to be interviewed.

Due to the wide geographic location of participants, interviews were completed either by telephone or over the internet (Skype or Facetime). Although telephone interviews have been criticised on the basis of losing the subtleties associated with physical interaction, Holt (2010) suggests that this type of interaction allows the researcher to ‘stay at the level of the text’ and avoid imposing contextual information on the data. The Skype and FaceTime interviews allowed a synchronous interaction with the participant and avoided losing the visual and interpersonal aspects of the interaction (Hanna, 2012). Both forms of interview had practical benefits in that they occurred at a time chosen by the participants who were, due to the nature of their work, often very busy.

***Interview guide***

A semi-structured interview guide was developed to elicit participants’ beliefs about their coaching practice. The questions were loosely based on those used by Collins et al. (2015) but were expanded from two main areas (‘*participant background*’ and ‘*philosophy in relation to adventure and coaching practice’*) to five main areas: (1) *what and who do you coach*? (2) *why do you coach*? (3) *how do you coach*? (4) *coaching background* and (5) *developing other coaches*. The expansion to five areas was designed to promote ‘thick descriptions’ (contextualised, detailed interpretations of situations) of participants experiences (Geertz, 1973). For example, in the area ‘how do you coach?’ participants were asked to describe an ideal or preferred coaching situation where ‘*it was all going right*’ and consequently asked to describe the coaching behaviours and actions that an observer would see them engage in. This contextualised, scenario based way of questioning added ‘realness’ and depth of reflection on participants’ coaching practice. Feedback from the participant of an initial pilot study confirmed the belief that questions containing contextualised scenarios were conducive to provoking thought and providing ‘real’ examples from their coaching activity.

In addition to the generic questions a series of probes and elaboration questions were developed to gain depth and detail of beliefs and values. Probe questions (‘*What are your day-to-day activities?’*) and elaboration questions (e.g., ‘*can you tell me a bit more about why that’s important to you?*’) were utilised as and when they were needed. Although the same lead questions were used in all cases, the order in which the questions were asked varied in each interview. This encouraged a natural flow of dialogue (Hayman, Borkoles, Taylor, Hemmings & Polman, 2014).

***Data analysis***

The interviews lasted between 35 and 50 minutes and were transcribed verbatim. We followed Braun and Clarke’s (2006) guide to conducting thematic analysis. Braun and Clarke propose that there are six phases of thematic analysis (familiarising yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report). The first five stages were conducted primarily by the first author, a highly experienced ASC, who was aware of his personal interest in the subject matter. The second author (also a highly experienced ASC) assisted with the process and promoted reflective commentary, whereby the authors discussed the implications of their own experiences and epistemologies in light of the data, contributed to a process of bracketing and reflexivity. To further the trustworthiness of the data analysis the third author (an experienced researcher and sport coach) scrutinised the definition and naming of themes. We considered this to be particularly useful as although an experienced and active coach, the third author has no involvement in adventure sports and was able to provide an objective view of the cultural aspects of coaching in adventure sports.

**Findings**

The interview transcriptions totalled 132 single line-spaced pages of A4 and subsequent analysis led to the identification of 472 codified units. Upon codification of the data the raw units were organised according to their relationship to the three research questions. The data were then subjected to thematic analysis, whereby themes were defined and refined until they presented a coherent ‘story’ relating to each research question (Braun & Clarke, 2006). These ‘stories’ are presented as thematic maps in the following sections.

***Question 1: What working practices characterise high-level ASCs?***

Although participants were drawn from a range of adventure sports, the central theme that emerged was that *High-level ASCs have similar working practices*. These working practices were described by three sub-themes: *‘ASCs coach in a range of contexts’, ‘ASCs share similar employment contexts’* and *‘ASCs educate coaches’.*



Figure 1. Thematic map of working practices that characterise high-level ASC’s.

*High-level ASCs coach in a range of contexts*

It was apparent that high level ASCs work with a wide range of clients and that their work is highly varied. None of the coaches interviewed were restricted to working with one particular type of client or at a particular level of skill. This diversity is nicely encapsulated by coach 7 who states:

There are several different aspects of work that I do, one is basically just individuals that want to get better at climbing, so that could be anybody from a young kid whose parents want him to learn some basic skills and then progress towards GB climbing team. It could be adults that want to learn some skills for indoors or outdoors…you know how to get a bit better or climb something a bit harder or gain some skills. But then I also do quite a bit of coach education.

*High-level ASCs share similar employment contexts*

Although the ASCs reported working practices were varied and diverse, the context of their employment was relatively similar. Generally this context involved having more than one source of income, and was largely characterised by working for themselves in some capacity. In three cases coaches worked in part for a governing body or professional association: ‘I’m freelance now but I have been asked to come back and do some stuff directly with the RYA’ (Coach 3).

*High-level ASCs educate coaches*

All of the coaches were involved in training and developing other coaches. Developing other coaches and instructors manifested itself in several ways from informal mentoring to running coaching awards at the highest level. Furthermore, coaches 1, 2 and 4 were involved with mentoring coaches on a pathway through several courses as part of a longer term career development process. In addition, five of the coaches were or had been involved in NGB course and/ or resource development.

***Question 2: Do High-level ASCs report the use of a sophisticated epistemological chain in their coaching?***

Participants reported the use of coaching techniques and principles associated with a sophisticated epistemological chain and they were also able to clearly rationalise why they adopted these techniques.



Figure 2. Thematic map of ASC’s use of a sophisticated EC.

*ASCs report the use of sophisticated approaches to coaching*

The process adopted by the ASCs involved first *creating the right conditions for learning* and subsequently *acting as a catalyst for learning.*

*ASCs create the right conditions for learning.* The participants expressed that establishing the right conditions for learning was a pre-requisite to effective coaching and that subsequent coaching interactions occurred within this pre-established framework for learning. Inherent to this framework were the concepts of building relationships and negotiating learning; for example: ‘Ultimately for me, it’s the environment which I hope I can create with an individual and it’s a flexible and calm learning environment for somebody to learn as much as they can’(Coach 4)*.*

An integral element of building relationships with learners was gathering information about the individuals they are coaching as well as building trust and respect: ‘Everything I do is built on the foundations of integrity, openness and respect. That ideally leads to trust…It’s trying to understand what’s happening in that person’s life so you can shape the way you help them with their sport’ (Coach 9).

As well as building relationships, the coaches also discussed how they negotiate learning with their clients. There was a perception that good coaching requires the learner to be active in determining the course of their learning rather than being a passive recipient of the coaches’ decisions. This concept of shared ownership is expressed well by coach four:

So it’s about working with them to see where we need to assist them and planning the time we’ve got with them to try to make the best of it…It’s definitely a two-way process. If anything I would encourage them to talk more to me than I would be talking to them.

*ASCs act as a catalyst for learning.* Once the appropriate conditions for learning had been created, the coaches described acting as a catalyst for learning, rather than the director of it: ‘I will set the scene and try and get them to take as much of a lead as I can and make myself a facilitator for the most part’(Coach 3). Within this subtheme the coaches mentioned a variety of learner-centred approaches suggestive of a sophisticated epistemological position. These approaches included: developing thinking skills, promoting self-analysis, problem solving, experimentation, questioning, decision making and implicit learning. For example, the use of questions was very much seen as a two-way process whereby the coaches used questions to stimulate thinking and understanding: ‘Generally there would be quite a lot of me questioning them about what they are doing and what they are feeling, so they are giving me feedback on how they are working’ (Coach 2).

Equally, the coaches also recognised the value of encouraging learners to ask questions to help develop their understanding: ‘I like them to ask questions, I try to get people to be comfortable and relaxed and open in the questions they ask’ (Coach 3). Coach three goes on to describe the importance he places on learners making their own decisions:

I’ll ask myself ‘are they able to make those decisions themselves?’ And I’ll let them make as many decisions as they can. Ultimately, they have to be able to make decision for themselves anyway, so the sooner they do it the better.

***ASCs describe clear rationales for their approaches***

In addition to describing the use of epistemologically sophisticated approaches, the coaches were also able to provide a clear justification for their methods. The coaches’ rationales were organised into three subthemes: t*o enhance autonomy and independence,* *coaching for understanding and permanency,* and to *develop the whole person*.

*To develop autonomy and independence.* All coaches viewed their role as one of preparing their learners to be autonomous and independent performers. The independence theme manifested itself in two ways; on the one hand autonomy is seen as important so that the learner can perform or compete without coach being present: ‘I want them to become independent learners. I won’t always be there’(Coach 9). To an extent, the coaches reported coaching for independence because the sport demands autonomous performance:

In athletics or swimming they’re there [the coach] but in climbing it’s not the case … so I encourage people to take control and to be able to make the decisions and perform when I’m not there….It’s about making them think for themselves because climbing specifically is a sport where you have to really be ten moves ahead of the game. (Coach 5).

Other coaches allude to the idea of promoting independence so that participants can continue to developwithout the coach being present: *‘*They should have the tools to go off and teach themselves and it makes a far bigger difference when you give them those tools’ (Coach 3).

*Coaching for understanding and permanency.* The coaches also expressed the desire to coach learners in a way that develops an understanding of what they are doing and why: ‘When they are feeling what they are doing and giving me the feedback of how they’re working, that’s a good way of getting them to understand’(Coach 7).

As well as coaching to gain an understanding of the sport, the coaches indicated that it was important for learners to gain an appreciation of the relationship between cause and effect. Coach 4 explained: ‘Because that’s the only way you’re going to remember something, and it embeds and you start to understand why something’s happening and that helps you to progress’*.*

A further component of coaching for understanding is one of encouraging the learner to understand how they learn as an individual. An insight and understanding of the client’s own approach to learning was desirable to Coach 3: *‘*We do spend quite a long time emphasising…. Just going through how they learn and making sure they actually understand the process of how they’re learning’.

*Coaching to develop the whole person.* The final sub-theme regarding ASCs being able to justify their approaches relates to the notion of the development of the ‘whole person’. Such a holistic approach views the realm of coaching extending past the acquisition and development of skill and into a personal development, even life coaching dimension:

I try to be effective in developing the whole person, so taking a holistic approach. It’s about looking beyond the parameters of the sport and looking at how people can be successful in life. I’m not saying I’m sitting in the chair lift trying to give people life coaching, although that very often happens (Coach 9).

Coach 5 shares this view and explains how developing the whole person is necessary to develop the ‘complete’ climber:

I feel like I need to understand their whole life… If you are thinking about ‘complete’ climbers, you need to see the whole picture, the big picture. It’s about how it (climbing) fits into your life. All of those things add up and encourage people to understand that to climb well you’ve got to be in a contented frame of mind.

*Barriers to epistemologically sophisticated approaches.* The final theme relating to the level of epistemological sophistication of the ASCs is the limited but significant data relating to barriers to implementing such an approach. For example, Coach 8 explained that despite her preference for a learner-centred approach, external constraints might make the implementation of such approaches impossible:

With the level 2 [NGB course] all you’ve got time to do in the four days is deliver the content and show them what they need to know…so yeah, you don’t have time for all that experimental stuff really, they’ve got to go away and do it for themselves.

***Question 3: What factors contribute to high-level ASCs past and future development?***

Fundamental to the coaches’ past and future development was their *recognition of the coach as a learner***.** This recognition represents a ‘growth mind-set’ whereby they viewed themselves as a learner as much as a coach. We identified a further two subthemes of the coaches sharing a *Humble character* and *Using a range of sources to develop.*



Figure 3. Thematic map showing ASC’s recognition of the coach as a learner.

*Humble character.* There was strong sense of humility among the coaches: ‘Humility is very important in a high achieving coach. You may be very good but you’ve got to be humble in who you are and what you have achieved’ (Coach 2). It was clear that none of the coaches viewed themselves as the ‘finished article’; indeed they articulated quite the opposite in that they clearly expressed the feeling that there was always more to learn and they were willing to engage in that learning. Coach 4 explains:

I think you can always learn more in everything that you’re doing, so I would never be arrogant enough to think I’ve learnt everything about coaching and there’s nothing else to learn. And I would never presume I was better than anyone else.

In addition, the coaches reported taking their learner’s progress personally and saw it as their responsibility if things didn’t go as well as they might: ‘I take it personally. If someone can’t do something then it’s my fault’ (Coach 8).

*ASCs use a range of sources to develop.* The coaches were mindful of how their own experiences of being coached had influenced their practices: ‘I suppose I’ve had some quite influential people throughout my coaching career, I’ve had very different coaches and I’ve learnt a lot from them’(Coach 4). Coach 9 reflected more deeply on the roots of his value structure. He spoke candidly about the influence of his relationship with his father as a child and how that shaped his philosophy:

I do look back at my father and my childhood as being hugely influential. So the experiences I’ve had with my father, I was always encouraged to work things out and to take risks. That trust and integrity was a massive part of my upbringing and I can’t underplay that.

In addition to reflecting on how they were coached by others, participants also reported that reflecting on their own coaching was instrumental to their own development. This reflection was stimulated by feedback from a variety of sources, such as other coaches (peers), from clients and from themselves. Coach 1, who works more in isolation from other coaches, provided the most detailed account of self-feedback:

I try and rate my own sessions… and I keep a log of all the session that I do; and try and zero in on why that session was better than the other…I keep all my coaching plans and then at the end of each session I have a box where I rate how the session was and then just write the things that were a complete disaster to make sure I don’t do that again and if there are good bits I’ll put that in there too.

Other coaches reported the benefits of working with peers, both in order to gain feedback but also to share ideas and methods. Coach seven was particularly enthusiastic about working with other coaches:

I mean…one of my biggest strengths is I like to talk to other coaches and get new ways of doing stuff, or new ideas, asking what they think about things…I love working with other coaches, you gain knowledge from what they do and how they make things. It’s gold dust.

Coaches also reported examples of how working with other coaches illustrated poor practice. Coach six explains:

I’ve had to shadow other coaches…you’ll find some that are very set in their ways and have done it that way for X years. You can see the participants thinking ‘shoot me now’ and I’ve thought: ‘I never want to be like that’.

The final theme relating to *ASCs recognition of the coach as a learner* is the perceived benefit of continued professional development (CPD). The coaches viewed CPD as an important factor in continual growth and development of coaching effectiveness: ‘Continuous learning is something that I really do believe in. It’s the old ‘knowledge is power’ ethos’ (Coach 6).

The coaches reported two broad mechanisms of professional development; by reading and study and also attending courses and events. In addition some coaches reported the value of attending courses that weren’t directly related to their sport or even to sport at all. Coach 4 states:

I still go on courses as well. So they might not be directly related to my job, or they might be, I just like to further my skills in this or that area; you gain knowledge and they might pick up on areas that other people might not comment on but will be very relevant to what I do.

**Discussion**

This study had three aims: firstly, we sought to gain an insight into the working practices of high-level adventure sports coaches. Secondly, we aimed to discover if the assertions of Collins et al. (2015) that high-level ASCs shared a sophisticated epistemological chain could be generalised to sample of coaches drawn from a range of adventure sports, rather than paddlesport alone. Finally, we were interested in determining the factors that contribute to high-level ASCs past and future development. In this section the findings are discussed in relation to these questions. Limitations to the research and future recommendations are presented.

***What kinds of working practices characterise high-level ASCs?***

The data from this study provide some evidence that ASCs do indeed exist as a unique subgroup of coaches. Specifically, findings indicate a level of homogeneity of working practices among high-level ASCs. The coaches’ work is underpinned by variety, in that they report involvement in multiple functions in a variety of settings and with participants with a wide range of skill levels and needs. This working practice is perhaps in contrast to a more ‘traditional’ sports coach who is potentially likely to work in a more specific domain (e.g., Ford, Yates & Williams, 2010; Millar Oldham & Donovan, 2011; Partington & Cushion, 2013). It could be that the difference in working practices of ASCs reflects the ‘niche’ nature of adventure sports and the comparatively limited demand for coaching in sports such as rock climbing and mountain biking forces the coaches to work in a more varied context. The potential consequences of this varied working context will be considered in a later section.

***Do high-level ASCs report the use of a sophisticated epistemological chain in their coaching?***

Our findings support and extend the existing literature surrounding high-level ASCs’ epistemology. In terms of support, our findings are in alignment with those of Collins et al. (2015) who found that high-level ASCs report the use of a sophisticated coaching epistemology. Grecic and Collins (2013) describe the sophisticated coach as someone who would be constantly seeking to develop their players’ knowledge and understanding, would engage in an athlete-centred coaching relationship, set problems and challenges that develop self-analysis, reflection and decision making capabilities and would use probing questions to facilitate autonomous and independent learners (see Grecic & Collins, 2013 for a full definition). There are clear links between Grecic and Collins’ definition and the themes in this study. Specifically, the themes in our study reflect the coaches’ desire to create the right conditions for learning by building strong relationships and negotiating learning episodes. These themes relate directly to Grecic and Collins’ reference to nurturing, caring and supportive relationships and goal setting happening through a process of consultation between coach and athlete. Additionally, the coaches in this study also alluded to acting as a catalyst for learning. Again this theme directly relates to Grecic and Collins’ reference to sophisticated coaches establishing a non-judgemental learning environment conducive to exploration and experimentation within which the coach sets challenges and problems to be solved.

The coaches in this study not only articulated the use of epistemologically sophisticated approaches, but were also able to rationalise their approaches verbally. Such rationales centred on the coaches’ desire to create autonomous and independent learners with a deep and permanent understanding of their sport. Research has highlighted the value in making coaches aware of their epistemological beliefs (Carless & Douglas, 2011; Horsley, Cockburn & James, 2015; Nash, Sproule & Horton, 2008). For instance, Lodewyk (2015) argues that learning can be compromised when teachers (coaches) and their students hold conflicting epistemic beliefs. A coach operating from a naïve epistemological position might not be aligned to a learner with more sophisticated epistemological beliefs about the nature of knowledge and knowing, and vice versa. In order for teachers (coaches) to be effective in this respect, Lodewyk calls for trainees to be given the opportunity to ‘confront, reflect on, discuss and refine their epistemic convictions’ (p. 696); in essence to develop an awareness of their epistemological beliefs and how this influences their teaching. Although the ASCs in this study showed awareness and understanding of how their beliefs underpin their coaching, there is no evidence that this awareness was a result of their formal coach education. To this end it has been argued that coach education needs to explore further methods to develop coaches’ epistemological beliefs as this might promote epistemological alignment and maximise learning opportunities (Cushion, Ford & Williams, 2012; Partington & Cushion, 2013).

With regard to extending the existing literature, we found that these sophisticated approaches can be generalised to a sample of coaches from a variety of different adventure sports. Whereas Collins et al.’s (2015) study was confined to coaches of paddlesport, we spoke to coaches of sailing, surfing, mountain biking, rock climbing and skiing. The findings discussed above suggest that the epistemological sophistication of ASCs was a function of their identity as an ASC rather than the coach education system of one particular governing body (UK paddlesport).

***What factors contribute to high-level ASCs past and future development?***

The final aim of this study was to gain an understanding of the coaches’ past and future development. The development of epistemological beliefs has been identified as an important direction for coach education (Cushion, Ford & Williams, 2012; Grecic & Collins, 2013; Partington & Cushion, 2013). Since high-level ASCs do indeed report the use of a sophisticated epistemology, then a deeper understanding of how this epistemology developed may provide guidance for coach educators.

The central finding regarding this question was that the coaches viewed themselves as learners. Related to this belief was the personality characteristic of humility, a theme that came across strongly in the interviews. Although there is little in the literature around the concept of humility in coach education and practice, Cassidy et al. (2004) discuss particular ‘mind traits’ proposed by Fernandez-Balboa (2000) which are thought to be important in holistic coach education. Chief amongst these is the concept of ‘intellectual humility’, which encourages coaches to ask themselves searching questions in order to justify their approaches and to foster a mind-set of on-going learning and continual development. Evidently, whilst the coaches in this study have developed humility, there is scope for further investigation into the processes that fostered this mind trait.

A further theme in relation to factors that contribute to past and future development was that coaches drew upon a range of sources to aid their development. When defining a sophisticated epistemology, Grecic and Collins (2013) state that the coach would be actively engaged in professional development or reading around their area in reputable sources. In this study the coaches reported doing exactly that, as well as attending courses and actively seeking out feedback from others. Certainly, the desire of the coaches in this study to continually better themselves provides further evidence of a high-level ASCs employing a sophisticated epistemology. The desire for continual improvement reflects the coaches’ beliefs that they have the motivation and capacity to develop. This belief is central component to Dweck’s (2009; Dweck & Leggett, 1988) concept of a growth mind-set. Specifically, individuals who operate a growth mind-set believe that their abilities can be developed through effort and persistence. Again, further research is required to establish how the coaches’ mind-sets were developed.

The nature of adventure sports may offer an alternative explanation for how ASCs have and do develop. Christian and Kearney (2015) proposed that adventure sports encourage, even demand a different approach to coaching. For example, whereas a basketball coach wanting to give instruction or feedback to her learners can simply blow her whistle and the activity will immediately come to a stop, the rock climbing coach whose charge is dangling precariously 30 metres above them cannot. In the latter instance the coach must ensure that any information the learner needs is imparted before the activity (climb) starts. In this instance it is in the coach’s interest to develop a method of coaching that fosters problem solving and independence, both of which are indicative of a sophisticated epistemology.

Another potential explanation for ASCs development could be to do with the nature of the coaches’ working practices rather than their coach education and beliefs. The question here is whether the varied and unpredictable working practices of ASCs give rise to a form of ‘vocational contextual interference’. In the motor control literature the contextual interference (CI) effect is shown when learners practice skills in a random order (Schmidt & Lee, 2014). Although increasing acquisition time, the CI effect has been shown to positively influence retention, transfer and adaptability (Smith & Davies, 1995). The CI effect appears to result from increased cognitive demand when practice conditions are highly variable (Guadagnoli & Lee, 2004); that is, the learner has to constantly think, analyse, compare, and adapt in order to solve movement problems. To equate the CI effect to the working practices of ASCs, working with a wide variety of people, skill levels, objectives, and locations may encourage the ASC to constantly compare, develop, and adapt working contexts. This cognitive activity may stimulate the development of epistemological beliefs and consequent coaching actions. Similarly, the variation of people, places and activities may foster ASCs humility. Adventure sports involve an inherent level of risk and potential for harm. Coaches working in this environment constantly have to assess risk and manage danger as well as fulfil other coaching roles and obligations. It might be that exercising continuous judgement in this way makes coaches ask questions of themselves to justify their methods and this, in turn ‘keeps them on their toes’ and fosters humility.

 ***Limitations***

The primary limitation of this study was the use of self-report data. While the findings of this study are interesting in that they provide further evidence of the nature and functions of the ASC as well further reporting of the employment of sophisticated epistemologies, we recognise the limitations of self-report data. Specifically, we cannot accept that just because the coaches say that they coach in a particular way (employ a sophisticated epistemology) that this is what they actually do in reality (Ford, Yates & Williams, 2010; Millar Oldham & Donovan, 2011). That said, Collins and Collins (2015) employed a ‘videotext’ approach (combining a semi-structured interview with video footage) to investigate the personal judgement and decision making of high-level ASCs. Their findings showed a clear relationship between the verbal and physical aspects of the coaches’ practice. As the coaches examined by Collins and Collins were similar in experience and qualification to the coaches in the present study, it appears reasonable to assume that a relationship between epistemological beliefs and actual coaching practices is likely within the coaches in our study also.

***Future research and conclusions***

The central theme of this study has been to understand the characteristics and learning journey of high-level ASCs with a view to contributing to the debate about how future generations of ASCs (and indeed other coaches) might be educated. In order to do this we need to develop a more coherent understanding of how epistemological beliefs that underpin coaching are acquired and developed. This enhanced understanding can only be accomplished by adopting longitudinal designs. Such approaches, if done well, would allow us to comment on the extent of how the nature of the sport drives the development of an individual’s epistemology as well as the extent to which coach education can contribute to it.

As well as providing a more detailed account of the working practices of high-level ASCs drawn from a range of sports, this study has supported and extended the literature surrounding the epistemology of high-level ASCs. Our findings show that high-level ASCs from a range of adventure sports report the operation of a sophisticated epistemology. Additionally, we have presented some evidence about how these coaches have developed their approaches over their careers; we feel that this insight raises some intriguing and exciting questions about how we might educate ASCs of the future.

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**Tables**

Table 1.

*Participant details.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Participant** | **Gender** | **Age**  | **Sport**  | **Governing body and qualification**  | **Years of coaching experience**  |
| 1  | M | 41 | Surfing  | Academy of Surfing Instructors - Level 4 Master Surf Coach | 17 |
| 2  | M | 62 | Sailing  | RYA - Dinghy Coach/ Assessor | 16 |
| 3  | M | 49 | Sailing  | RYA - Dinghy Coach/ Assessor | 32 |
| 4  | F | 39 | Sailing  | RYA - Dinghy Coach/ Assessor | 19 |
| 5  | F | 41 | Climbing | Mountain Training -Performance Coach  | 11 |
| 6  | M | 32 | Mountain Biking | British Cycling - Level 3 Coach  | 5\* |
| 7  | M | 55 | Climbing  | Mountain Training - Performance Coach | 14 |
| 8  | F | 34 | Skiing  | BASI – Level 4 international ski teacher diploma | 16 |
| 9  | M | 41 | Skiing  | BASI - Level 4 international ski teacher diploma | 18 |

\*Although less experienced than other coaches in terms of years coaching in a certificated role, coach six was included as he had extensive experience in mountain biking, held multiple level 3 awards (the highest level currently available) and has fast-tracked to professional coaching.

**Figure captions**

Figure 1. Thematic map: What kinds of working practices characterise high-level ASCs?

Figure 2. Thematic map: Do High-level ASCs report the use of a sophisticated epistemological chain in their coaching?

Figure 3. Thematic map: What factors contribute to high-level ASCs past and future development?