1   *Original Article*

2   _____

3

4

5

6

7

8

9

10   Exploring the psychological attributes underpinning elite sports coaching

11

12   Laura Hodgson, Joanne Butt and Ian Maynard

13   Centre for Sport and Exercise Science, Sheffield Hallam University, United Kingdom

14

15

Corresponding author:

Laura Hodgson, Centre for Sport and Exercise Science, Sheffield Hallam University, Chestnut Court, Collegiate Crescent, Sheffield, S10 2BP, United Kingdom.
Email: l.hodgson@shu.ac.uk

1   **Abstract**

2   The influential role of the coach in athlete performance and development has long been

3   acknowledged, and coaches are now considered 'performers', just like their athletes. The

4   purpose of the present study was to explore the psychological attributes elite coaches

5   perceived to underpin their ability to coach most effectively and factors perceived to

6   influence attribute development. Qualitative research methods were implemented where 12

7   elite coaches (eight male, four female) participated in semi-structured interviews. Inductive

8   thematic analysis generated 9 higher-order themes related to psychological attributes: (a)

9   attitude, (b) confidence, (c) resilience, (d) focus, (e) drive for personal development (f)

10 being athlete-centred, (g) emotional awareness, (h) emotional understanding, and (i)

11 emotional management. In addition, 3 higher-order themes were generated related to factors

12 perceived to influence attribute development: (a) education, (b) experience, and (c)

13 conscious self-improvement. Findings indicated that several attributes perceived to be

14 essential to coaching effectiveness related to the emotional nature of coaching, where

15 coaches' abilities to identify, understand and manage emotions in both themselves and

16 others had many positive effects.

17

18 **Keywords**

20
21
22
23
24

1   **Introduction**

2   Research conducted across sport science disciplines has strived towards

3   understanding the unique attributes of elite performers in an attempt to uncover what

4   enables them to perform successfully and reach the pinnacle of their careers [1]. In sport

5   psychology, much attention has been given to exploring and understanding the

6   psychological attributes of elite athletes with the aim of influencing athlete talent and

7   development [2,3]. It is widely acknowledged that coaches have an important role in

8   athletes' lives and can influence athletes' performance, behaviour, and psychological well-

9   being [4]. In comparison to athletes, much less consideration has been directed towards

10   identifying and supporting the psychological needs of coaches. Since Giges et al. [5] argued

11   that as much attention should be given to coaches' preparation and performance as has been

12   given to athletes, research has increasingly recognised that coaches are indeed 'performers

13   in their own right' [6,7]. Coaches, like athletes, are often required to coach in highly

14   pressurised environments, make critical decisions, deal with adversity and are held to

15   incredibly high expectations [5]. To this end research conducted with coaches has increased

16   and provided insights into key performance areas such as coaches' stress and coping [7],

17   coaches' efficacy [8], and coaches' leadership [9]. However, little attention has been

18   directed towards exploring the psychological attributes that underpin coaches' abilities to

19   perform effectively.

20   Current understandings of the coaching process [10] advocate that coaching is not

21   merely delivered, but rather a complex social system that involves both coach and athlete(s).

22   With each coaching situation argued to involve some degree of novelty, coaching practice

23   has been suggested to hold limited roots in generic rules and structured planning [11].

1 Accordingly, the term 'structured improvisation' has been coined in an attempt to

2 characterise coaching practice [12]. Coaching effectiveness is therefore 'not dependent upon

3 the efficient application of a sequential process but on the quality of interactions between

4 coach, athlete(s) and the context' (p.88) [13]. In the most simplistic terms, the coaching

5 process involves a coach's attempt, in various ways, to positively influence the learning and

6 development of their athletes [14] and therefore should be understood and studied in a

7 manner that accounts for this.

8   Traditional coaching research has predominately focused on studying the observable

9 behavioural elements of coaching and the coaching process. Describing a coach's behaviour

10 through quantitative methods has dominated the research [14]. Although such methods

11 conform to assumptions of traditional scientific methods (e.g. phenomena must be

12 observable, measurable and replicable) it fails to address aspects of the coaching process

13 that are unobservable [15]. Consequently, with such an emphasis placed on behavioural

14 observation there is little understanding regarding the reasoning behind the action. For

15 example, research reveals that expert coaches can, in the main, say the right thing at the

16 right time, yet our understanding into *how* they know *what* to say and *when* is limited [16].

17   A series of studies conducted by Gould et al. [17,18] examined factors affecting

18 Olympic performance from the perspective of both athletes and coaches. Findings from this

19 research have demonstrated both the positive and negative influences coaches can have on

20 athlete performance at major competitions. In particular, athletes' perceptions of how

21 coaches can negatively influence performance included the coach's inability to handle

22 pressure and avoid distractions, poor coach-athlete communication, coaches changing

23 behaviour, over-coaching, and setting unrealistic expectations. Athletes' perceptions of how

1   coaches can positively influence performance included coach trust and friendship, coach

2   planning, making fair decisions, and receiving coach feedback [3]. Gould et al. [17] also

3   reported coaches' perceptions of factors that influenced their own coaching performance at

4   the Olympic Games. Specifically, coaches indicated that having the ability to remain calm

5   under pressure and make decisive decisions positively influenced their coaching

6   effectiveness, whereas the inability to deal with crisis situations, and manage stress between

7   athletes and coaching staff were perceived as ineffective. More recently, research has

8   identified several key factors that Olympic coaches attributed to their success at the

9   Olympic Games [19, 20]. For example, Olusoga et al. [20] explored the factors that enabled

10   coaches to perform under pressure (i.e. Olympic environment). A variety of factors emerged

11   such as lifestyle choices, strategic planning, team and athlete preparation, taking time out,

12   and team support. Coaches also identified a number of psychological attributes (e.g.

13   communication, passion, emotional control, perception) and skills (e.g. rationalisation,

14   routines) highlighting the notion that psychological attributes are important for coach

15   performance. Indeed the authors pointed towards the need to enhance coaches' own

16   psychological skills to develop these attributes.

17   Athlete talent development literature has consistently demonstrated that athletes'

18   psychological attributes are malleable and capable of being trained and developed over time

19   [e.g. 21-23]. Such research has informed intervention-based studies concerning the

20   application of psychological skills training to enhance athlete development and performance

21   [e.g. 23]. To date, scant research has attempted to understand how the psychological

22   attributes of coaches are developed, which is not surprising considering the current lack of

23   research concerning coaches' psychological attributes. Based on athlete talent development

1 research, investigating factors perceived to influence the development of psychological

2 attributes in coaches could hold important implications for the design and implementation of

3 intervention studies aimed to enhance coach development and effectiveness.

4   Collectively, existing literature provides insight into a broad range of factors

5 perceived to influence coach effectiveness and success. This research highlights the

6 importance of understanding the psychological attributes of coaches and how such attributes

7 are developed. Taking into account the paucity of research regarding the factors expert

8 coaches attribute to their own success [19], a detailed investigation into the psychological

9 attributes of elite coaches and related developmental factors will broaden the breadth and

10 depth of existing literature. This form of investigation has the potential to expose and

11 explain some of the unobservable cognitive contexts that drive coaches' behaviours and

12 positively influence coaching effectiveness. Thus, the purpose of the present study was to

13 explore the psychological attributes elite coaches perceived to underpin their ability to coach

14 most effectively, and how such attributes were perceived to have developed.

15 **Method**

16 *Participants*

17   The sample for this study comprised of 12 elite coaches (eight male, four

18 female). In line with previous research, the definition of elite athletes was used to define

19 coaches as 'those who work with performers on a regular basis who are current national

20 squad members and perform at the highest level in their sport' [6, 24]. A purposive

21 criterion sampling method [25] was employed in line with previous research using an

22 elite coach sample [6, 26]. The criteria for inclusion required coaches to have at least 10

23 years coaching experience, and to have coached athletes to medal success at major

1   sporting competitions (i.e. Olympic Games, World Championships). Participants

2   represented a variety of sports including gymnastics, disability table tennis, canoe

3   slalom, judo, lacrosse, field hockey, track and field, rowing, and trampolining.

4   *Procedure*

5   Following institutional ethics approval, all participants were initially contacted

6   via e-mail outlining the aims of the research and the procedure for data collection.

7   Informed consent was gained from all participants before data collection. Given the

8   exploratory nature of the study, in-depth interviews were considered the most

9   appropriate method of data collection [25]. A semi-structured interview approach was

10   applied where all participants were asked the same major open-ended questions, but

11   with further elaboration questions that varied according to the participant's initial

12   responses to opening questions. The interview guide contained three sections, Section

13   one comprised of demographic and coaching background information. Section two

14   focused on psychological attributes where participants were encouraged to discuss their

15   own psychological attributes (e.g. What do you think are your psychological strengths

16   when coaching? How do you display these in your behaviour?), and related

17   developmental factors (e.g. Have you always had these attributes, or have they been

18   developed? How do you think they have been developed?). Section three focused on

19   coaching strategies (e.g. Is there anything in particular you do to manage your thoughts,

20   feelings and behaviours?). The majority of interviews were conducted face-to-face, with

21   one phone interview. The principle investigator who had previous experience in

22   qualitative research procedures conducted all interviews. All interviews were digitally

23   audio recorded in their entirety and transcribed verbatim.

1   *Data analysis*

2   The primary purpose of the study was to understand the psychological attributes

3   of coaches through their own experiences and perspectives; thus, an inductive thematic

4   analysis [27] was adopted to analyse the data. In phase one of the analysis all data

5   underwent a process of initial open coding where data were analysed on a line-by-line

6   basis. Raw data responses (quotes or paraphrased quotes) were organised into patterns of

7   like ideas representing lower-order themes. Lower-order themes were grouped together

8   based on similarities to form higher-order themes.

9   The second phase of analysis involved several measures to enhance the

10   authenticity and trustworthiness of data analysis including analyst triangulation, use of a

11   critical friend and the presentation of thick descriptive quotes [cf. 28]. Analyst

12   triangulation involved three researchers independently reading transcripts and making

13   suggestions for the placement and removal of raw data extracts into themes.

14   Categorisation of the data continued until consensus was reached between all three

15   researchers. Following researcher agreement, an additional colleague with experience in

16   sport psychology research but independent to the research study was used to confirm, or

17   otherwise, the placement of raw data extracts into lower and higher-order themes. The

18   presentation of results includes descriptive quotes, to share the views of the participants

19   and provide context for the reader.

20   **Results**

21   The data analysis procedures resulted in the generation of 122 raw data extracts

22   that were categorised into 29 lower-order themes, 12 higher-order themes and 2 general

23   dimensions (see Figure 1). Results are presented in two sections to demonstrate firstly

1   the psychological attributes identified and secondly, factors relating to attribute

2   development.

3   *Psychological attributes*

4   The higher-order themes characterising specific psychological attributes

5   included: (a) attitude, (b) confidence, (c) resilience, (d) focus, (e), drive for personal

6   development (f) being athlete-centred, (g) emotional awareness, (h) emotional

7   understanding, and (i) emotional management.

8   *Attitude*. Within this higher-order theme two lower-order themes captured the attitudes

9   displayed by coaches: (a) tough attitude, and (b) focus on the positives. Having a tough

10   attitude was described as being able to 'make tough decisions' and being 'directive'.

11   Several coaches also demonstrated their tough demeanour towards others, as one coach

12   stated 'I've always followed the definition of a coach that coaches someone to achieve

13   what they want to achieve by making them do what they don't always want to do'.

14   Several coaches also referred to how they 'always focus on the positives', which applied

15   to their own personal performance and that of their athletes. The ability to maintain a

16   positive attitude in imperfect situations was demonstrated by not dwelling on mistakes

17   and refocusing attention, as one coach discussed,

18   The athletes will make mistakes, usually there will be a reason why they have

19   made that mistake. You could say 'you didn't do that very well' when they

20   [athlete] know it already, so there's no point. We reinforce the bits they've done

21   well and then you address it with your angle... So really keeping things positive

22   and not looking too much at massive mistakes.

1   *Confidence.* Coaches were also characterised by their high level of confidence which

2   was categorised into three lower-order themes: (a) confident communication, (b) acting

3   confident, and (c) confidence in ability and knowledge. Being able to communicate with

4   confidence was regarded as a critical attribute affecting coach effectiveness. For

5   example, 'clear and confident communication with athletes' and 'not being afraid to

6   make decisions' were perceived to positively influence athlete behaviour and

7   performance, as illustrated by the following quote:

8   In the World Championships there was a lot of choices on the course and it was

9   just being clear with the athlete why they should take on this particular choice.

10   I've got a good idea it might be the fastest but I couldn't tell you it would be. So

11   I was very clear... You've just got to be clear and confident in what you are

12   saying to them, and it was good to see them [athlete] committing to the moves.

13   Another aspect of confidence found to influence coaching effectiveness was a

14 coach's ability to act confidently both in practice and competitive environments. This

15 lower-order theme demonstrated how coaches felt the need to display confidence in their

16 behaviour by 'exuding as much confidence as possible'. Coaches were mindful that their

17 behaviour could influence athletes both positively and negatively. Acting confidently

18 was perceived to have a positive effect therefore coaches consciously attempted to

19 appear confident for the benefit of others. Several coaches also referred to how their

20 'skills and abilities gave them confidence', which gave coaches self-belief, 'you believe

21 that you can do it'. Such confidence in one's skills was demonstrated by one coach

22 being very self-assured regarding his ability to positively affect athlete development, 'I

23 could take anybody [athlete] on and adapt to meet their needs'.

1   *Resilience.* Several coaches identified resilience as a personal psychological attribute,

2   being categorised into two lower-order themes: (a) handling setbacks and (b) dealing

3   with criticism. Encapsulating a coach's ability to handle setbacks, coaches described

4   being able to 'come out the other side'. In particular, when discussing their ability to

5   come back from setbacks, one coach said 'I just have that song in my head, you get

6   knocked down but you get up again'. The following quote illustrates one coach's ability

7   to persist despite setbacks by continuing to search for solutions:

8   Because of either my nationality or my gender I've not actually been able to

9   access some environments, and I would never access them because I wouldn't

10   be allowed to. But that doesn't stop me [from] working hard and applying for

11   things... I'm given information back that I'm lacking because I haven't got 'x'

12   for example, then I will work harder and I'll learn 'x' because that makes me a

13   better coach.

14   The lower-order theme 'dealing with criticism' demonstrated how several

15   coaches emphasised their ability to deal with negative comments directed towards them

16   by others involved in their sport (e.g. other coaches, parents, governing body members).

17   It was made apparent that having 'broad shoulders', 'thick skin' and 'trying not to take

18   things personally' enabled coaches to handle such comments in a positive manner

19   without having detrimental effects on their coaching effectiveness or psychological well-

20   being.

21   *Focus.* Several coaches discussed how their ability to remain focused influenced their

22   coaching effectiveness. In this higher-order theme coaches highlighted the importance of

23   being both process focused and future-focused. Having the ability to apply oneself to the

1   task at hand and keeping things simple and process focused was perceived integral, as

2   demonstrated by the following quote:

3   It's just getting on with the job at hand and focusing on what I need to do, I try

4   and think about it logically and identify all the steps I need to take. If I'm

5   distracted I'm not athlete centric anymore, and if I'm not athlete centric then I'm

6   not doing the best job by my [team].

7   Being able to stay focused on future events and focusing on what needed to be done to

8   achieve intended goals was also considered important by several coaches, as

9   demonstrated by the following quotes: 'I'm very goal focused, so there's always three or

10   four things I want to improve on', and 'The times I've coached well is when I'm really

11   focused on the job... I'm only thinking about preparing the athlete for competition'.

12   *Drive for personal development.* A clear desire to utilise learning opportunities and

13   continue to strive for personal development was evident. This higher-order theme was

14   categorised into two lower-order themes: (a) open-minded, and (b) appetite for learning.

15   Being open-minded was characterised by embracing learning experiences and

16   opportunities such as having the perspective of 'I'm not a finished article' as oppose to

17   being 'stuck in their ways'. Having an appetite for learning was also identified and

18   several coaches highlighted their constant need for self-improvement by 'trying to

19   improve all the time' and 'having a hunger for knowledge'. Coaches discussed using a

20   range of resources to enhance their professional development, as illustrated in the

21   following quote:

22   I've learnt a lot from talking to other coaches from other sports. In terms of

23   learning and seeing what's out there it's about looking at business, looking at

1   other sports, looking at other team managers, performance directors...trying to

2   put in what then relates to my sport.

3   *Being athlete-centred.* Being athlete-centred comprised of three lower-order themes: (a)

4   encouraging independence, (b) understanding individual differences, and (c)

5   adaptability. Several coaches in their attitudes toward developing 'self-sufficient'

6   athletes illustrated how they encourage independence:

7   The times when I have coached well I don't coach a lot, which in fairness

8   means you have coached well. So everything has been done before and the

9   athlete is self-sufficient...it's not about you, what you are trying to do is build

10   independence...you're trying to make yourself redundant.

11   To promote athlete independence, coaches reported, 'asking open questions' and

12 encouraging 'athlete directed discussions' to assist athletes in taking ownership over

13 their training and development. One coach referred to using what he termed 'the nudge

14 principle' to assist athletes in their decision-making, by guiding rather than directing

15 them towards intended outcomes. Several coaches highlighted the importance of being

16 able to understand the individual needs of their athletes, acknowledging that athlete

17 development and performance is largely influenced by being able to 'understand an

18 athlete's personality', 'taking the time to understand their moods, their habits' and 'using

19 that in a way that gets the best out of them'. Having an individualised understanding of

20 athletes needs influenced some coaches' ability to adapt. More specifically, coaches

21 described being able to change coaching behaviours and coaching styles to suit the

22 needs of the athletes. Being aware that certain coaching styles may not be beneficial for

23 all athletes enabled coaches to change their approach to what was considered most

1   facilitative, as one coach stated, 'I'm a chameleon... I really try and adapt my colour so

2   to speak to mold myself to the personality traits of the performers that I'm working

3   with'.

4   *Emotional awareness.* This higher-order theme was governed by coaches' abilities to not

5   only demonstrate emotional awareness within themselves but also an awareness of

6   others' emotions, thus the lower-order themes included: (a) emotional awareness of self

7   and (b) emotional awareness of others. Having an awareness of one's own emotions was

8   illustrated in the ability to accurately appraise different emotions and also recognise

9   physiological and behavioural changes related to specific emotions, as one coach

10   demonstrated:

11   It's being able to say what are you feeling right now, because the feeling

12   ultimately will control how you think. To describe your emotion, and it's

13   not I feel great or I feel [profanity] it's to actually go into what it is that you

14   are actually feeling... My feelings are that I normally get sweaty palms, I

15   get this feeling in my stomach and I know that I'm going to explode.

16   The acknowledgement and recognition of others' emotions provided key

17   information that coaches utilised to inform their decisions and behaviours, to be most

18   effective. Emotional recognition was demonstrated in various ways, such as paying

19   attention to body language, communication style, and behaviours. This recognition

20   allowed coaches to assess an athlete's emotions without gaining explicit information.

21   One coach demonstrated the ability to evaluate an athlete's emotional state through

22   means of communication:

1   Depending on when you debrief depends on what they will get out of it... more

2   than the distance from competing to the debrief it was more around when I felt

3   they [athlete] were in the right state to actually be reflective. So we would watch

4   other people and I would say 'they are good at this' and if they are able to

5   critically analyse somebody else without reflecting back on themselves or

6   whatever it shows that they are starting to think logically and not emotionally. So

7   it's almost how emotional are they? How raw is it?

8   *Emotional understanding.* The higher-order theme of emotional understanding captured

9   how coaches were able to comprehend how emotions related to one another, how they

10   progress and change over time, and foreseeing the potential implications of various

11   emotions. Lower-order themes included: (a) influence of emotions, (b) athletes'

12   emotions, and (c) consequence of negative emotions. The lower-order theme 'influence

13   of emotions' was characterised by coaches' abilities to understand how their own

14   emotions can change over time and influence not only themselves but also others around

15   them, both positively and negatively. Such an understanding informed coaches'

16   decisions on how and when to act (or perhaps not to act) depending on what was

17   perceived to be most facilitative within a given context:

18   It's just understanding how I am feeling…what value can that add to the

19   situation, can it help, will it add to the situation? Do I show it, do I not show it?

20   It's that kind of thing, knowing what you will do in the moment… If somebody's

21   had a poor performance [identifies sport] do you debrief straight away or do you

22   wait? What influence am I going to have when both people are potentially

23   disappointed?

1   Being able to understand the emotions of others, particularly athletes' emotions,

2   and how such emotions can affect an athlete's performance, was also considered an

3   integral part of coaching effectively by the majority of coaches, as demonstrated by the

4   following quote:

5   When I've coached the best it's again linked to me understanding what's going

6   on, so I'm not just being too focused on tactics and trying to see where the

7   opponent is making mistakes. Because you can give the player, your player, all

8   the tactical advice in the world but if they're not in control of what they are

9   doing, their emotional control, they're not going to take any notice of it anyway.

10   In addition, understanding how certain emotions could affect an athlete's

11   performance allowed coaches to behave in certain ways to purposely trigger an

12   anticipated emotional response from their athletes, as one coach stated 'I can be quite

13   matter of fact or I can ball them out, it's whatever has an impact'. Several coaches also

14   demonstrated the ability to reason about the consequences of negative emotions.

15   Preempting how specific emotions would have a negative impact on a given situation

16   allowed coaches to engage in specific behaviours to purposely avoid triggering such

17   emotions in either themselves or others. In particular, one coach highlighted how this

18   was important to avoid unwanted emotions at competitive events:

19   One [athlete] that went to the Olympic Games...he'd developed his own sort of

20   style for doing his warm up and I knew very clearly that this particular [athlete]

21   didn't want any involvement from me...during the competition I'd leave him to

22   do his stuff because I knew interfering would be detrimental...It's an

23   understanding on the coaches part that every [athlete] is different and will all

1   want different behaviours and responses in competition...so I think recognising

2   that is an important quality to have.

3 *Emotional management.* The higher order theme of emotional management was

4 discussed by all coaches, which exemplified how coaches perceived the ability to

5 manage their own emotions and those of their athletes to be integral aspects of their

6 coaching. The lower-order themes included: (a) emotional control, (b) emotional control

7 in others, (c) emotional expression, and (d) encouraging emotional expression. All

8 coaches demonstrated their ability to remain 'in control of their emotions', particularly

9 in situations governed by pressure and ambiguity. Having the ability to remain calm and

10 address the situation logically rather than emotionally was perceived to have positive

11 effects on coaching effectiveness in terms of athlete performance:

12   I remember talking to my assistant coach on the radio and he just said 'I've got

13   nothing to say' and considering the intensity of the game and it being extra time I

14   felt very isolated... I wasn't getting any external information and I remember

15   then asking someone for some stats...I had some good instincts with what I

16   needed to do but I knew it was a bit of a risk and a gamble, so I asked for the

17   stats to confirm. And in the second half of extra time I had changed the tactical

18   play and we had scored a goal, and we won. So that was a time where I kept

19   calm, I didn't get stressed and I knew I could solve it... In the heat of the moment

20   and decision-making under pressure I coped well with that.

21   The majority of coaches reported the ability to aid athletes in their emotional

22 control by knowing 'how to help someone emotionally'. Strategies such as situational

23 reappraisal, refocusing, positive reinforcement and open communication were frequently

1   used to help athletes manage their emotions most effectively. The following quote

2   demonstrates how one coach intentionally removed an athlete from an emotionally laden

3   situation to avoid triggering a host of emotions that were deemed debilitative to

4   performance.

5   When she got to the final she was mobbed by 100 people backstage... it was not

6   won at all but all these people were celebrating like it was a carnival, and you're

7   [athlete] just about to [compete] and try and win the biggest [competition] of

8   your life. I went in and I pulled her out, took her to the other side 'forget about all

9   these people' and I talked her through it 'it's just exactly the same as

10   practice'…and by the time she went on she did a good job in getting her head

11   back in the right place, so it worked.

12   Emotional expression was found to be an effective management technique utilised

13   by the majority of coaches. Being able to express both positive and negative emotions

14   were perceived to have a positive impact on coaching effectiveness as it allowed coaches

15   to handle situations coherently without being overly emotional. On most occasions this

16   involved coaches physically removing themselves from an emotional situation, as one

17   coach stated, 'I think coaching is emotional and sometimes it can override logical

18   thoughts. Sometimes you need to take the emotion out of it, and you can't take the

19   emotion out of it while you are still in the environment'. The following quote illustrates

20   how one coach expressed their emotions away from their athlete to be able to handle the

21   given situation most effectively:

22   I try not to get particularly angry with athletes, I go and do my anger

23   management in the corner somewhere...If you've got frustration, fair enough

1   'I'm just going to the toilet' which is usually a complete fabrication. I take the

2   long walk round... I'll go round the whole loop going '[profanity], argh', 'Okay,

3   I feel better so lets try and have a sensible conversation'. So I try and take the

4   emotion out of myself.

5   Social support systems were also identified as key resources used to express

6 emotions; such support networks were evident both within and outside of the sporting

7 environment 'It's just using the people around you, don't keep it bottled up, don't let it

8 get worse, be open with someone'. This expression of emotion and being open and

9 honest to others appeared to help coaches manage the evidently stressful nature of

10 coaching by preventing the accumulation or prolongation of negative emotions. Several

11 coaches also referred to the importance of being able to encourage emotional expression

12 within their athletes, which was depicted as an important aspect of being able to aid

13 athletes in their emotional management. Telling athletes 'not to fight their anxieties' and

14 'getting their [athlete] view on what's happening if it is something emotional' were

15 described as useful strategies to help athletes express their emotions. In particular, one

16 coach referred to the Chimp Paradox analogy [cf. 29] when discussing the importance of

17 letting athletes express negative emotions

18   It's just their chimp bouncing around, fair enough let their chimp bounce around a

19   bit... go and just vent your frustration. I suppose it's a tactical thing in knowing, is

20   there something that I need to do today that means when we come back tomorrow

21   we are going to be cleansed of this.

22 *Attribute development*

1   In addition to the nine psychological attributes identified, coaches also identified

2   factors they believed had influenced the development of their attributes throughout their

3   professional coaching careers. The three higher-order themes representing

4   developmental factors included: (a) education, (b) experience, and (c) conscious self-

5   improvement. These higher-order themes were coalesced under the general dimension of

6   *attribute development* (see Figure 2).

7   *Education.* Several coaches discussed how coach education had positively influenced

8   the development of their psychological attributes in two discrete manners: (a)

9   professional coach development courses, and (b) mentors. Many coaches discussed the

10   importance of professional coach development courses where greater emphasis was

11   placed on courses that coaches were either currently involved in or had more recently

12   completed in terms of the length of their professional career. Such courses were

13   discussed in relation to addressing coaching needs and helping coaches to identify areas

14   of personal development, as noted by one coach 'It was the UK Sport elite coach

15   programme... a lot of the focus was also looking at ourselves. So what do we need? How

16   do we see ourselves? What are our strengths and weaknesses? What should professional

17   coaches look like?' These courses were regarded as highly beneficial considering the

18   main focus was directed towards assisting coaches in their own personal development:

19   We did some psychology courses and I thought it was going to be mental

20   imagery and that kind of stuff but it was actually quite a lot of self-reflection

21   stuff and mindfulness. So I think I try and use that on myself... what can I do to

22   improve myself?

1   Having a mentor to direct, advise, and provide support was also considered a key

2   factor in developing psychological attributes by several coaches. In particular, it was

3   apparent that having regular meetings with mentors provided coaches with opportunities

4   to discuss coaching issues and formulate potential solutions. This form of discussion

5   provided confidence in the coaches' ability to effectively deal with such issues.

6   *Experience.* The higher-order theme of experience revealed ways in which coaches

7   believed that their psychological attributes had developed over time through a multitude

8   of experiences throughout their career. Such experiences were categorised into two

9   lower-order themes: (a) competition, and (b) critical incidents. Many coaches believed

10   that their psychological attributes had developed through experiences within competition

11   environments. In one respect, gaining repeated experience at high profile competitions

12   caused a 'desensitisation' to the status associated with the event, which in turn affected

13   how coaches' appraised and behaved in competitive environments, 'I've learnt very well

14   that when I'm standing there there's actually absolutely nothing that I can do, it really is

15   down to the athlete'. In another respect coaches felt that they learned a lot about

16   themselves when in highly pressurised environments in terms of their psychological

17   strengths and areas of development. This then provided the foundations for actively

18   developing specific areas such as emotional control, confidence, and focus.

19   Several coaches discussed the importance of critical incidents that instigated a

20   change in coaching practice and caused a 'catalyst' for personal development. Such

21   incidents tended to be eye-opening experiences that resulted in the conscious

22   development of specific psychological attributes that developed over a prolonged period

23   of time. For example, one coach described how one situation in a competitive

1   environment resonated with him for causing him to learn how to effectively manage and

2   display his own emotions in front of his athletes:

3   In terms of being on the competition floor I'm completely calm, your heart

4   does race a little but you learn to mask it. I remember he [athlete] looked

5   scared and I looked scared and I think I learnt from that. It was a bit of a

6   catalyst of change really because I thought 'actually he's completely read me'.

7   My mentor coach said 'you look terrified out there, your athlete will pick up on

8   that' and that was the best piece of information I was given.

9   *Conscious self-improvement.* The majority of coaches emphasised the importance of

10   conscious self-improvement when discussing how they had developed their

11   psychological attributes over the course of their coaching careers. This higher-order

12   theme was categorised into three lower-order themes: (a) reflective practice, (b)

13   identifying and improving areas of development, and (c) observation.

14   Nearly all coaches identified regularly utilising reflective practice within their

15   coaching which was perceived to have a positive effect on the development of

16   psychological attributes. Having 'self-reflection moments', 'being really receptive to

17   thoughts' and 'being critical of yourself' allowed coaches to accurately and honestly

18   identify and appraise both their strengths and areas of development. Being able to

19   identify areas of development and put in place action plans was considered highly

20   important as it allowed coaches to engage in constant self-progression and, over time,

21   gain increased self-understanding. Three coaches referred to using video analysis to

22   observe their own coaching performance to identify what was perceived as effective

1 coaching behaviour and potential areas of improvement that could enhance coaching

2 effectiveness if addressed:

3   I watched a video back and I thought that I was not really showing that I was

4   nervous but when I watched the video back and the camera kept on going to

5   me... I can see that I'm trying not to look nervous... I'm not a serious person

6   whereas my face was so serious and that's a sign that I'm nervous because I

7   wasn't my normal self. So that was an issue I wanted to address.

8   Regularly observing other coaches' behaviours particularly in competition

9 environments, enabled coaches to distinguish between what was considered effective

10 coaching and that considered detrimental to athlete performance and wellbeing. Such

11 observations enabled coaches to assess their own coaching practice and evaluate ways in

12 which they felt they could be most facilitative to athlete performance and development.

13   I will watch them [other coaches] and I'll think 'that's really poor coaching

14   behaviour'... So I think by watching other coaches' behaviour that enabled me

15   to see, to step away and think 'actually what is good coaching behaviour and

16   what is going to help people succeed?' And by watching what didn't succeed

17   and what I perceived as poor coaching helped me sort of learn that's how I

18   need to approach it on the competition floor.

19 **Discussion**

20   The purpose of the present study was to provide a comprehensive insight into the

21 psychological attributes elite coaches perceived to underpin their ability to coach

22 effectively and how such attributes were considered to have developed. Overall, findings

1   from the data presented nine key psychological attributes and three primary factors

2   related to the development of the identified attributes.

3   While knowledge on coaches' own psychological attributes for performance and

4   effectiveness are still relatively thin compared to athletes, research is now starting to

5   build a body of knowledge in this area. To date, previous findings have indicated that

6   psychological attributes such as confidence, focus, communication and emotional

7   control [17, 20] are important for coaches to perform in pressured situations (e.g.

8   Olympic Games). Findings from the present study identified psychological attributes

9   such as confidence, resilience, focus, emotional awareness, and emotional management

10   demonstrating some consistency and contribution to existing research. These findings

11   also support the notion that coaching is more than the simple transmission of knowledge

12   and extends beyond the teaching of skills and tactics [30].

13   Coaches in the present study advocated the importance of being resilient, and

14   thus, possessing the ability to handle setbacks and deal with negative criticism. The

15   construct of psychological resilience in sport has received increasing investigation in

16   recent years [e.g. 31-33] but has primarily focused on athletes. Research to date is yet to

17   investigate the construct of psychological resilience in relation to sports coaching. As

18   highlighted by Galli and Gonzalez [34] sport is a particularly unique domain to study

19   resilience given the fact that athletes (and coaches) often willingly subject themselves to

20   highly evaluative situations where the consequences of winning and losing (being

21   successful and unsuccessful) are clear. Findings of the present study support the need for

22   further research in this area.

1   Unique to the findings of the present study, a large proportion of psychological

2   attributes identified by coaches (i.e. 9 lower-order themes) related to the emotional

3   nature of coaching. More specifically, having the ability to recognise, understand and

4   manage emotions in oneself and others, influenced how coaches both perceived and

5   responded to various situations in training and competition environments. Such findings

6   provide an insight into the emotion related cognitive mechanisms coaches utilise, to

7   consciously act in a manner perceived to be most effective. The emotional abilities

8   identified (i.e. emotional awareness, emotional understanding, and emotional

9   management) demonstrate similarities and overlap with Mayer and Salovey's [35]

10   ability model of emotional intelligence (EI). Salovey and Mayer [36] proposed a

11   definition of EI as 'the ability to monitor one's own and others feelings, to discriminate

12   among them, and to use this information to guide one's thinking and action' (p.189).

13   This definition was later refined to a hierarchy of four distinct yet related abilities,

14   including the ability to (a) accurately perceive emotions in one-self and others, (b) use

15   emotions to facilitate thinking, (c) understand emotions, and (d) manage emotions as to

16   attain specific goals [37]. It has been argued, 'the challenges, tensions, and dilemmas

17   faced by coaches are not just cognitive or social in nature, but are emotional phenomena

18   and need to be understood as such' (p. 66) [38]. Yet emotionality research within the

19   coaching domain is scarce, with recent calls for research investigating emotions in sports

20   coaching [39].

21   To gain a comprehensive understanding of the role of emotions in sporting

22   performance, the construct of EI has received increasing research interest. To date, this

23   limited existing literature has primarily focused on the relationship between EI and

1   athlete performance [e.g. 40, 41]. In relation to coaching, Thelwell et al. [42]

2   investigated the relationships between EI and coaching efficacy. Collectively, results

3   demonstrated significant relationships between the two constructs and provided insight

4   into how EI relates to coaching efficacy, reinforcing the need for EI in coaches. Taking

5   into account the findings of the present study, it is apparent that coaches at the elite level

6   are very much attuned to the emotional nature of coaching and it is with a distinct set of

7   emotional abilities that a coach is able to comprehend and effectively manage the

8   emotional aspects of the sporting environment.

9   In this study, coaches identified three primary factors (i.e. experience, education

10   and conscious self-improvement) perceived to have contributed to the development of

11   their psychological attributes. Such attributes were reported to have developed over

12   time, and were not considered to be present (or as refined) within the earlier stages of

13   their careers. The present findings are consistent with previous literature demonstrating

14   the significant role psychological attributes play in talent development within sport (e.g.

15   21, 22, 43). In relation to the development of emotional abilities, several coaches

16   specifically noted that their ability to attune to the emotional side of coaching had

17   developed throughout the later stages of their careers. Only in recollection could

18   coaches' recognise and understand the importance of such abilities in relation to

19   coaching effectiveness. In retrospect, coaches believed that educational and

20   developmental opportunities addressing the emotional side of coaching in the earlier

21   stages of their careers would have been highly beneficial. This finding further aligns

22   with Mayer and Saloveys' [35] conceptualisation of EI, which states that EI is a

23   dynamic and malleable capacity (i.e. state) that people can learn and develop over time.

1   More specifically, findings lend support to Olusoga et al. [20] identifying

2   developmental factors (e.g. coach interaction, structured career professional

3   development, personal coaching experience) Olympic coaches perceived to influence

4   their ability to perform within the Olympic environment. Coaches in the present study

5   specifically highlighted that experience within competitive environments, using video

6   feedback to observe coaching performance, and being reflective on a regular basis all

7   contributed to the development of their psychological attributes. Research [e.g. 44] has

8   consistently demonstrated that the competitive sporting environment can be just as

9   pressurised and demanding for the coach as it is for the athlete. Thus, combining

10   planned pressurised situations with opportunities to incorporate video feedback into

11   debriefing sessions could provide a safe environment to expose coaches to relevant

12   pressurised environments and positively influence psychological attribute development.

13   Regarding the findings on reflective practice, the majority of coaches in this

14   study referred to using cognitive processes of self-reflection (e.g. self-talk, memory

15   recall, self-appraisal) and reflective conversations with others. Despite the fact that

16   coach education programmes typically utilise structured forms of reflective practice (e.g.

17   reflective journals) [45], findings of the present study offer support for Dixon et al. [46]

18   in their call for a more expansive view of reflective practice that moves beyond

19   traditional techniques. Accordingly, it has been advocated that there is a need for

20   innovative approaches (e.g. critical analysis, shared reflection, emotional reflection) that

21   can better equip coaches to deal with the problematic and dynamic nature of their role

22   [47].

23   *Future research and applied implications*

1   Based on the findings of the present study, future research is warranted to

2   explore the emotional abilities of coaches. Specifically, gaining an in-depth

3   understanding of how and when coaches use theses emotional abilities within their

4   coaching practice will further enhance knowledge in this area. Another avenue for future

5   research would be to explore the role of psychological resilience in coaching

6   effectiveness. Exploring positive adaptation to adversity and protective factors of

7   psychological resilience could enhance current understandings of how coaches are able

8   to positively handle both the day-to-day and acute stressors they encounter.

9   The present study has provided useful information for researchers and

10   practitioners on how they can work with coaches to impact their own performance and

11   development. Sport psychology practitioners designing effective coach development

12   programmes should consider the development of specific psychological attributes (e.g.

13   confidence, resilience, focus, emotional awareness, emotional management). Providing

14   development for coaches' psychological attributes in the earlier stages of their

15   professional career, particularly the development of emotional abilities, is encouraged.

16   The present findings demonstrate that being aware of, and utilising emotional

17   information within coaching environments is perceived to influence coaching

18   effectiveness. From a practical perspective, coaches of all levels are encouraged to

19   consider how emotions influence their coaching practice. Addressing personal abilities

20   to recognise, understand and manage emotions through self-assessment could provide

21   coaches with information regarding personal strengths and outline potential areas of

22   development, which, if addressed, could enhance coaching effectiveness.

23   *Strengths and limitations*

1   A strength of this study was the sample of elite coaches investigated. In

2   particular, 10 of the participants were actively coaching at the elite level, and thus,

3   reducing potential memory bias limitations often associated with retrospective studies

4   [48]. The sample in this study included coaches from a variety of different sports to

5   enhance the generalizability of findings. However, future research may wish to examine

6   the psychological attributes of coaches from individual sports to gain more detailed

7   evaluation of the psychological attributes required in particular sports. Further, while the

8   sample consisted of 4 female coaches, it is important to note that an equal representation

9   of male and female coaches was unable to be obtained. It is well recognised that elite

10   coaching networks tend to be male dominated with higher representation of females

11   coaches found at grass roots, club and regional levels. Reports from the International

12   Olympic Committee (IOC) database [49] demonstrated that only 11% of the 3225

13   coaches at the 2012 London Olympic Games were female. This provides some

14   explanation to the difficulties presented when recruiting the sample for the present

15   study.

16   *Conclusion*

17   This study has both supported and extended existing literature by providing a

18   detailed understanding into the key psychological attributes perceived to underpin

19   coaches abilities to coach effectively at the elite level. These attributes were found to

20   have developed throughout coaches' professional careers through education, previous

21   experience and conscious self-improvement. Findings suggest that coaches would

22   benefit from coach education and development programmes specifically tailored toward

23   their own development of psychological attributes in the earlier stages of their

1   professional careers. Existing literature in sport psychology offers limited understanding

2   on the role of coaches' emotional abilities, yet clearly, based on the findings in this

3   study, they are important for coaches to develop.

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

1 **References**

2 1. MacNamara A, Button A and Collins D. The role of psychological characteristics in

3 facilitating the pathway to elite performance Part 1: Identifying mental skills and

4 behaviors. *Sport Psychol* 2010; 24: 52-73.

5 2. Durand-Bush N and Salmela JH. The development and maintenance of expert athletic

6 performance: Perceptions of World and Olympic champions. *J Appl Sport Psychol* 2002;

7 14: 154-171.

8 3. Greenleaf C, Gould D and Dieffenbach K. Factors influencing Olympic performance:

9 Interviews with Atlanta and Negano US Olympians. *J Appl Sport Psychol* 2001; 13:

10 154-184.

11 4. Kavussanu M, Boardley ID, Jutkiewicz N, et al. Coaching efficacy and coaching

12 effectiveness: Examining their predictors and comparing coaches' and athletes' reports.

13 *Sport Psychol* 2008; 22: 383-404.

14 5. Giges B, Petipas AJ and Vernacchia RA. Helping coaches meet their own needs:

15 Challenges for the sport psychology consultant. *Sport Psychol* 2004; 18: 430-444.

16 6. Thelwell RC, Weston NJV, Greenlees IA, et al. A qualitative exploration of

17 psychological-skills use in coaches. *Sport Psychol*, 2012; 22: 38-53.

18 7. Olusoga P, Butt J, Hays K, et al. Stress in elite sports coaching: Identifying stressors.

19 *J Appl Sport Psychol* 2009; 21: 442-459.

20 8. Feltz DL, Chase MA, Moritz SE, et al. A conceptual model of coaching efficacy:

21 Preliminary investigation and instrument development. *J Educ Psychol* 1999; 91: 765-

22 776.

23 9. Chelladurai P. Leadership in sports: A review. *Int J Sport Psychol* 1990; 21: 328-354.

1   10. Purdy L, Jones RL and Cassidy T. 'Negotiation and capital: Athletes' use of power

2   in an elite men's rowing programme'. *Sport Educ Soc* 2009; 14: 321-338.

3   11. Saury J and Durand M. Practical knowledge in expert coaches: On-site study of

4   coaching in sailing. *Res Q Exerc Sport* 1998; 69: 254-266.

5   12. Cushion CJ, Armur KM and Jones RL. Coach education and continuing professional

6   development: Experience and learning to coach. *Quest* 2003; 55: 215-230.

7   13. Cushion CJ, Armour KM and Jones RL. Locating the coaching process in practice:

8   models 'for' and 'of' coaching. *Phys Educ Sport Pedagogy* 2006; 11: 83-99.

9   14. Cushion C and Kitchen W. A theory of (coaching) practice. In: Jones RL, Potrac P

10   and Cushion C, et al. *The Sociology of Sports Coaching*. New York: Routledge, 2010,

11   pp. 40-53.

12   15. Becker AJ. It's not what they do, it's how the do it: Athlete experiences of great

13   coaching. *Int J Sports Sci Coach* 2009; 4: 93-119.

14   16. Schempp PG and McCullick B. Coaches' expertise. In: Lyle J and Cushion C (eds.)

15   *Sports coaching*, *Professionalism and practice*. London: Churchill Livingstone Elsevier,

16   2010 pp. 221-231.

17   17. Gould D, Guinan D, Greenleaf C, et al. A survey of U.S. Olympic coaches:

18   Variables perceived to have influenced athlete performances and coach effectiveness.

19   *Sport Psychol* 2002; 16: 229-250.

20   18. Gould D, Guinan D, Greenleaf C, et al. Factors affecting Olympic performance:

21   Perceptions of athletes and coaches from more and less successful teams. *Sport Psychol*

22   1999; 13: 371-394.

1   19. Currie JL and Oates-Wilding S. Reflections on a dream: towards an understanding of

2   factors Olympic coaches attribute to their success. *Reflective Practice* 2012; 13: 425-

3   438.

4   20. Olusoga P, Maynard I, Hays K, et al. Coaching under pressure: A study of Olympic

5   coaches. *J Sports Sci* 2012; 30: 229-239.

6   21. Connaughton D, Wadey R, Hanton S, et al. The development and maintenance of

7   mental toughness: Perceptions of elite performers. *J Sports Sci* 2008; 26: 83-95.

8   22. Gould D, Dieffenbach K and Moffett A. Psychological characteristics and their

9   development in Olympic champions. *J Appl Sport Psychol* 2002; 14: 172-204.

10   23. Thelwell RC, Greenlees IA and Weston NJV. Using psychological skills training to

11   develop soccer performance. *J Appl Sport Psychol* 2006; 18: 254-270.

12   24. Hanton S, Fletcher D and Coughlan G. Stress in elite sport performers: A

13   comparative study on competitive organizational stressors. *J Sport Sci* 2005; 23: 1129-

14   1141.

15   25. Patton MQ. *Qualitative Research and Evaluation Methods*. Thousand Oaks: Sage

16   Publications, 2002.

17   26. Thelwell RC, Weston NJV and Greenlees I. Coping with stressors in elite sport: A

18   coach perspective. *Eur J Sport Sci* 2010; 10: 243-253.

19   27. Braun V and Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*

20   2006; 3: 77-101.

21   28. Faulkner G and Sparkes A. Exercise as a therapy for schizophrenia: An ethnographic

22   study. *J Sport Exerc Psychol* 1999; 21: 52-69.

1 29. Peters S. *The Chimp Paradox: The mind management programme for confidence,*

2 *success and happiness.* Vermillion: London, 2012.

3 30. Mallett C and Côté J. Beyond winning and losing: Guidelines for evaluating high

4 performance coaches. *Sports Psychol* 2006; 20: 213-221.

5 31. Galli N and Vealey RS. "Bouncing back" from adversity: athletes' experiences of

6 resilience. *Sport Psychol* 2008; 22: 316-335.

7 32. Fletcher D and Sarkar M. A grounded theory of psychological resilience in Olympic

8 champions. *Psychol Sport Exerc* 2012; 13: 669-678.

9 33. Fletcher D and Sarkar M. Psychological resilience: A review and critique of

10 definitions, concepts and theory. *Eur Psychol* 2014; 18: 12-23.

11 34. Galli N and Gonzalez SP. Psychological resilience in sport: A review of the

12 literature and implications for research and practice. *Int J Sport Exerc Psychol* 2015; 13:

13 243-257.

14 35. Mayer JD and Salovey P. What is emotional intelligence? In: Salovey P and Sluyter

15 DJ. *Emotional development and emotional intelligence: Educational implications*. New

16 York: Basic Books, 1997, pp.3-31.

17 36. Salovey P and Mayer JD. Emotional Intelligence. *Imagin cogn pers* 1990; 9: 185-

18 211.

19 37. Mayer JD, Salovey P and Caruso DR. Emotional intelligence: New ability or eclectic

20 traits? *Am Psychol* 2008; 63: 503-517.

21 38. Potrac P and Marshall P. Arlie Russell Hochschild: The managed heart, feeling

22 rules, and emotional labour: Coaching as an emotional endevour. In: Jones R, Potrac P,

1   Cushion C, et al. Ronglan (eds) *The sociology of sports coaching.* London: Routledge.

2   2011, pp. 54-66.

3   39. Sports Coaching Review. Emotions in sports coaching special issue of Sports

4   Coaching Review Guest Editors: Paul Potrac and Andy Smith. *Sports Coach Rev* 2014;

5   3: 98-99.

6   40. Crombie DT, Lombard C and Noakes TD. Emotional intelligence scores predict

7   team sports performance in a national cricket competition. *Int J Sports Sci Coach* 2009;

8   4: 209-224.

9   41. Laborde S, Lautenbach F, Allen M, et al. The role of trait emotional intelligence in

10   emotion regulation and performance under pressure. *Pers Individ Dif* 2014; 57: 43-47.

11   42. Thelwell RC, Lane AM, Weston NJV, et al. Examining relationships between

12   emotional intelligence and coaching efficacy. *Int J Sport Exerc Psychol* 2011; 6: 224-

13   235.

14   43. Abbott A and Collins D. Eliminating the dichotomy between theory and practice in

15   talent identification and development: considering the role of psychology. *J Sport Sci*

16   2004; 22: 395-408.

17   44. Thelwell RC, Weston NVJ, Greenlees IA, et al. Stressors in elite sport: A coach

18   perspective. *J Sports Sci* 2008; 26: 905-918.

19   45. Stoszkowski J and Collins D. Blogs: A tool to facilitate reflection and community of

20   practice in sports coaching? *Int Sport Coach J* 2014; 3: 139-151.

21   46. Dixon M, Lee S and Ghaye T. Reflective practices for better sports coaches and

22   coach education: shifting from a pedagogy of scarcity to abundance in the run-up to Rio

23   2016. *Reflective Practice* 2013; 14: 585-599.

1   47. Morgan K, Jones R, Gilbourne D et al. Innovative pedagogies in coach education.

2   In: Potrac P, Gilbert W and Denison J. *The Routledge handbook of sports coaching*.

3   London: Routledge. 2013. pp. 486-496.

4   48. Brewer B, Vose J, Van Raalte J, et al. Metaqualitative reflections in sport and

5   exercise psychology. *Qual Res Sport Exerc Health* 2011; 3: 329-334.

6   49. International Olympic Committee, www.olympic.org/content/the-olympic-studies-

7   centre/categories-container/list-of-resources/ (2012, accessed 03 March 2016).
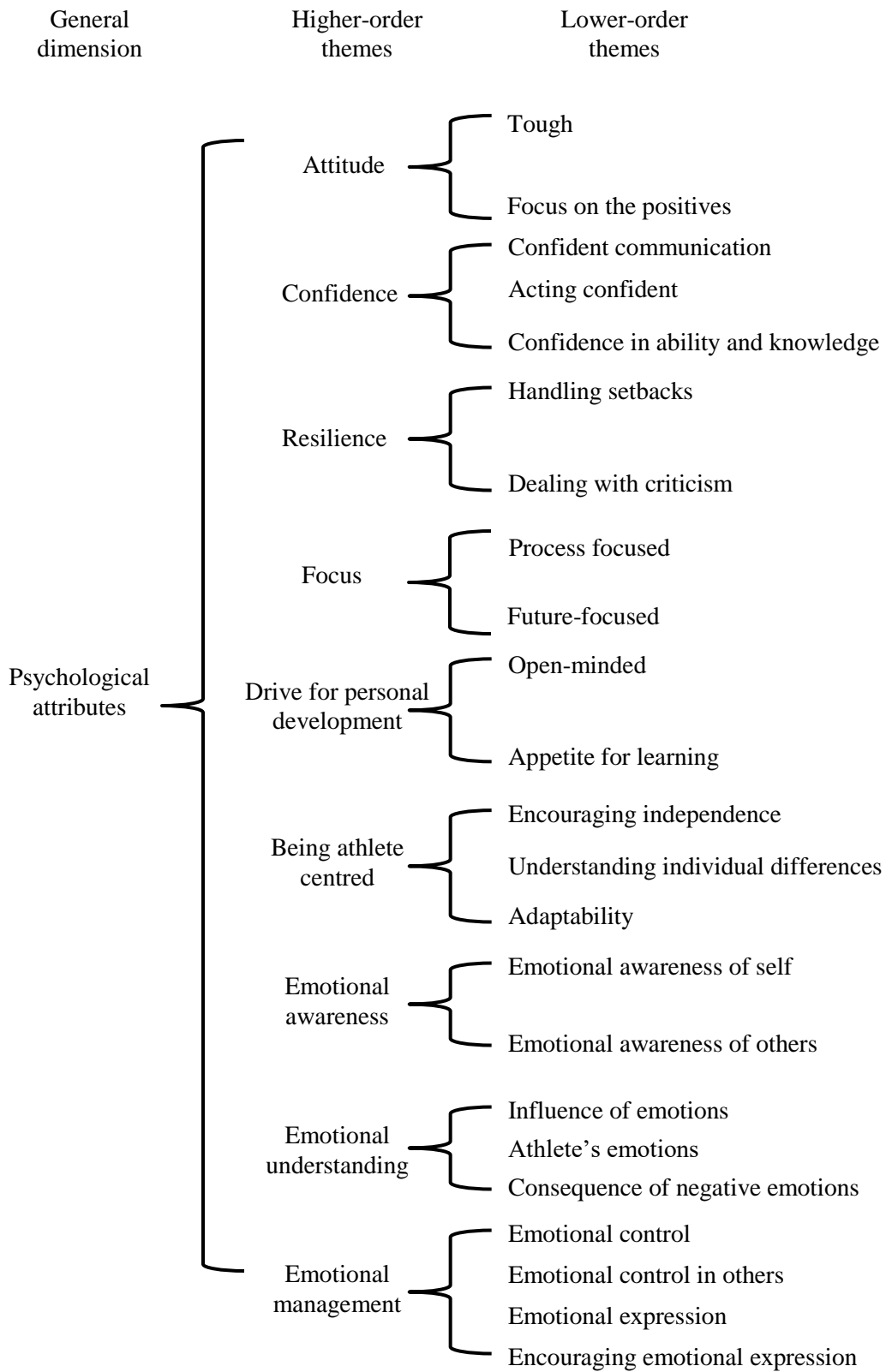
8

9

10

11

12

13

14

15

16

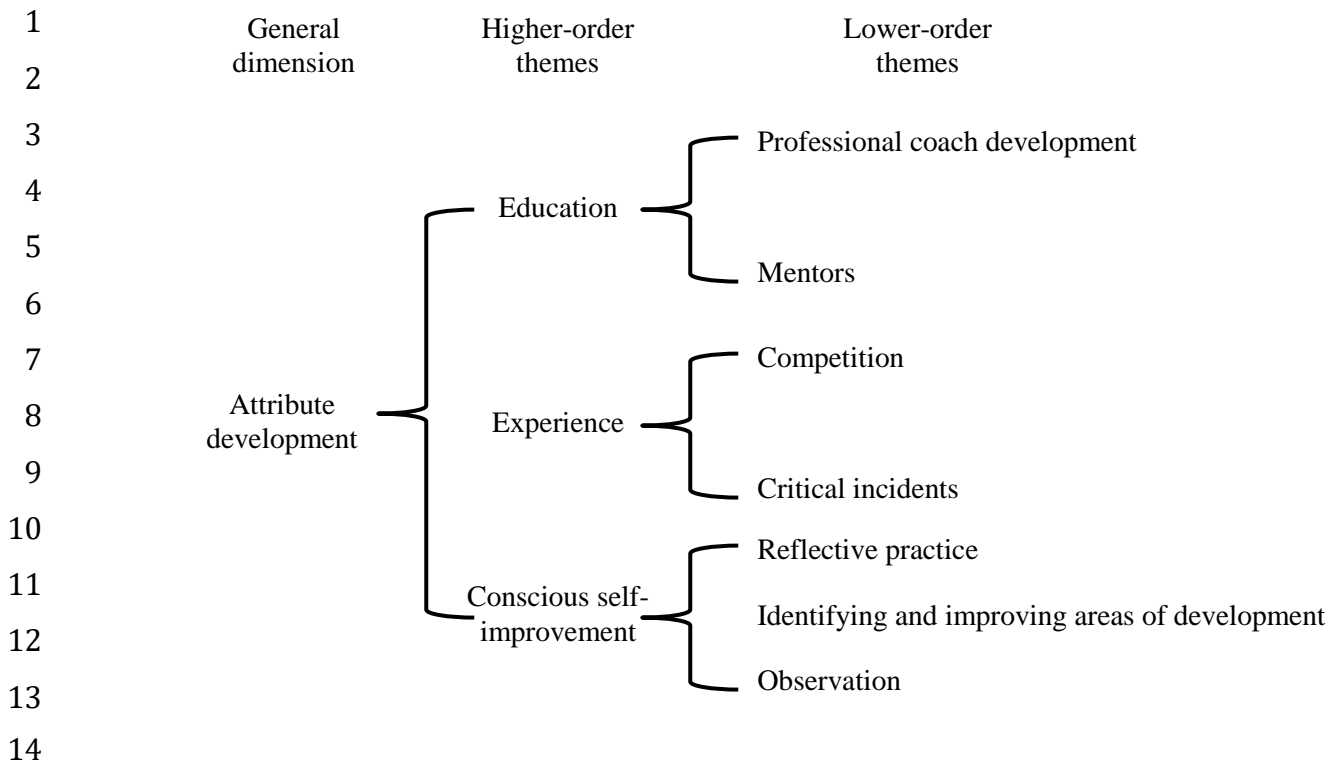17

18

19

20

21

22

23

24

25

26

General dimension	Higher-order themes	Lower-order themes

Figure 1. Psychological attributes perceived to underpin coaching effectiveness at the elite level

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

General
dimension

Higher-order
themes

Lower-order
themes

Professional coach development

Education

Mentors

Competition

Attribute
development

Experience

Critical incidents

Reflective practice

Conscious self-
improvement

Identifying and improving areas of development

Observation

Figure 2. Factors perceived to influence psychological attribute development