

# Effective Behaviours of Strength and Conditioning Coaches as Perceived by Athletes

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## **ABSTRACT**

The purpose of this study was to identify effective behaviours and characteristics of strength and conditioning coaches as perceived by elite athletes. Eight elite international level university athletes (Male = 6; Female = 2) with an average age of 20.4 years ( $SD = 1.3$ ) and an average of 7 years' experience in their sport ( $SD = 2.4$ ) were interviewed. The interviews were transcribed verbatim and thematically analysed. Three general dimensions were identified: behaviours that enhance the relationship between the athlete and their coach; coaches' actions; and coaches' values. The findings confirm previous research that areas such as instruction, technical knowledge and feedback are essential in delivering effective strength and conditioning coaching. However, the results further highlight the important role of higher order characteristics such as trust, respect, role modelling, authenticity, motivation and inspiration. The findings suggest that these higher order characteristics augment the default instructional coaching style as these behaviours enhance the strength and conditioning coaches' effectiveness in developing the athlete. The results further aim to recommend competencies of strength and conditioning coaches by encouraging self-reflection and therefore optimising coaches' development.

**Key words:** Coach-Athlete Relationship, Coach Behaviours, Leadership, Values, Varsity Sport

## **INTRODUCTION**

Sports coaching or the “process of equipping athletes with tools, knowledge and

opportunities they need to develop themselves and become more effective” [1, p. 14] has been discussed extensively in the sport psychology literature. Mental, physical, technical and tactical development focused on enhancing performance and achieving results form an underlying driver for coaches to utilise effective coaching and teaching behaviour. The process of sports coaching or training can be described as a reciprocal, two-way relationship with the athlete and differs from the mainly one-way relationship of teaching or educating [2]. Effective coaching is based on the perfect blend of coaching and teaching and often coaches favours one role over the other [3]. Effective teaching is often characterised by good communication skills and a high degree of technical knowledge whereas research has evidenced that coaching includes higher order behaviours such as motivation [4, 5].

Nevertheless, research identifying effective coaching characteristics and behaviours in the area of strength and conditioning within the elite sporting environment has been limited. This is somewhat surprising as the growth of the strength and conditioning profession has been supported by the expanding research on elementary technical areas such as the understanding of the physiological adaptive processes [6], including the mechanism of bodily responses to variables such as diet [7], and the effect of various different exercise regimes [8]. While there has been great emphasis on the technical, educating aspect that underpins the practice of a strength and conditioning coach, there has been limited attention on the effectiveness of the coaching process. Practitioners working with their athletes require a much broader range of knowledge and skills, such as the ability to be creative and apply scientific knowledge to the athlete’s needs [9]. Hence, a more in depth investigation of the most effective behaviours and characteristic would contribute and guide the effective and personal development of strength and conditioning coaches and enhance the efficacy of their work with athletes.

Two conceptual models have been offered to provide frameworks to explain effective coaching. Chelladurai’s Multidimensional Model of Leadership [10, 11], which was specifically developed for the sporting context, postulates that a congruence of required, preferred and actual leadership behaviour influences the athlete’s performance and satisfaction. The coach’s ability to align and adjust their actual behaviours to the required and preferred behaviours of their athletes within a given context or situation is proposed to determine effectiveness. Second, Côté et al.’s [12] Coaching Model involves creating a mental image of the athletes’ potential, taking into account the athletes and coaches personal characteristics as well as the contextual setting. This mental image or vision forms the basis for specific coaching behaviour regarding training, competition and organisation [12]. These models highlight the complexity and demands of coaching and its relationship to different forms of leadership by going beyond the obvious objective of solely training athletes to compete. A limited amount of research has applied Chelladurai’s Multidimensional Model of Leadership to strength and conditioning coaching [13, 14]. Magnusen [14] utilised a revised version of the leadership scale for sport and found that a strength and conditioning coach needs to understand the possible differences in athletes, their respective sport and their competitive level. Although these models have shown to be effective in guiding coaches behaviour [14, 15] they fall short in examining specific effective coaching behaviours, in particular higher order characteristics such as motivation, inspiration, trust and authenticity. Therefore, further research is needed in examine the efficacy of such higher order leadership behaviours and their influence on the athlete.

Various researchers have addressed higher order leadership elements connected to effective sports coaching. When interviewing 16 expert coaches about their coaching and leadership styles, Bloom and Salmela [16] highlighted the effectiveness of knowledge

acquisition, strong work ethic, effective communication and showing empathy in addition to good quality of coaching. Vallée and Bloom [17] interviewed expert coaches of team sports to determine characteristics contributing to the effectiveness in building a successful university programme and found four higher order categories; individual growth, organizational skills, coach's attributes and vision. Although Vallée and Bloom's research suggests that higher order leadership characteristics impact on effective coaching, limited amount of research to date has examined elite athlete's perceptions. Utilising a phenomenological approach, Becker [18] investigated the key elements of great coaching and found key themes comprising of: coaching attributes, the environment, relationship, the system, coaching actions and influences, with the latter two being fundamental. Thus far, the majority of recent leadership research has concentrated on exploring the effectiveness of coaches, but consideration of the leadership skills of technical coaching areas such as strength and conditioning has thus far been neglected.

Much of this research has considered effective coaching behaviour from the perspective of the coach themselves [16, 17, 19-21]. Chelladurai's model suggests the need for congruence between required, preferred and actual behaviours. Therefore, it is important to identify the athletes' perception of the leaders' behaviour within the sport environment [22-24]. The evidence suggests that the more an athlete's perception surpasses their specified preference with regards to training, positive feedback and social support, the more satisfied the athletes are with the displayed coaches behaviour [25]. It is worth noting that from the standpoint of the athlete, the perceived coaches' behaviour constitutes the actual, impactful behaviour. Therefore, the matter of perceptual congruence, or to what extent the athletes and coaches agree on leadership style and behaviour of the coaches' actual behaviour, needs to be taken into consideration to accurately determine key effective leadership behaviours and characteristics. However, considering the athletes' perception to determine these behaviours within strength and conditioning coaching has so far not been examined. Consequently, there is a need for more research to examine athletes' perceptions of effective coach behaviour in this area.

Various research in strength and conditioning has looked beyond the teaching or educational element by providing descriptive analysis of strength and conditioning coaches' profile, job descriptions and leadership responsibilities, outlining typicality and differences in lead and assistant coaches [26-35]. Job description and responsibilities included areas such as counselling and motivation alluding to higher order coaches characteristics, but planning and organisation underlined by technical knowledge and instruction have received more attention. Only a limited amount of research has attempted to examine the effectiveness of higher order behaviour [13, 26, 27, 36]. For example, Brooks et al. [13], utilising an amended version of the of the Leadership Scale for Sport [10], examined the leadership behaviour of 53 strength and conditioning coaches. Brooks and his colleagues found that the coaches' democratic behaviour created a climate for the athletes' interpersonal needs to be met by enhancing social support. Magnusen [14] found support for these findings when examining the differences of strength and conditioning coaches' self-perceived leadership style behaviour working within three different competitive levels of athletes. Booker and Meir [37] outlined a model for strength and conditioning coaches for enhancing athletes' development. They identified three basic coaching competencies: diagnosing, adapting, and the ability to communicate effectively. The model proposes that the coaches' situational understanding of the athletes' willingness and ability regulates the choice of effective leadership behaviours. However, this model has not been supported by empirical research, hence more research is needed to provide a more thorough investigation of

effective strength and conditioning coaching behaviours.

More recently, Tod et al. [38] utilised a semi-structured, telephone interview protocol, to examine the professional development of 15 experienced strength and conditioning coaches. Tod et al. provided evidence that more experienced coaches concentrated on developing good rapport and trust to enhance the coach-athlete relationship by being less prescriptive and technique focused and more athlete centred. Furthermore, they found that over time the strength and conditioning coaches developed increased self-confidence which resulted in decreased anxiety. This study provides initial evidence that higher order leadership skills and characteristics such as trust and self-confidence are effective and enhance the development of strength and conditioning coaches. However, further research is needed to confirm the influence of such higher order behaviours within strength and conditioning coaching on elite athletes' development from the athletes' perspective. The current study aims to build upon the findings of Tod et al. through a more specific examination of athletes' perceptions of effective leadership characteristics and behaviours of strength and conditioning coaches.

In summary, this study aims to expand on the coaching literature in three specific ways. First, we aim to provide an in-depth qualitative investigation of effective behaviours and characteristics of strength and conditioning coaches as perceived by elite athletes. Second, we aim to analyse the findings with reference to existing sports leadership models. And third, we aim to offer applied suggestions to improve strength and conditioning coaching practise by providing an initial structure identifying higher order characteristics and behaviours.

## **METHOD**

### **PARTICIPANTS**

Before starting the study, the University of Chichester Human Research Ethics Committee gave approval for the experimental procedure. Every participant completed a written informed-consent form prior to taking part in a semi-structured interview. Participants were eight elite International level athletes (Male=6, Female=2) with a mean age of 20.4 years ( $SD=1.3$ ) and a mean of 7 years' experience in their sport ( $SD=2.4$ ). Participants represented a wide range of sports including volleyball, sailing, figure skating, basketball, canoeing, athletics, and all were full-time University students enrolled in sports scholarship programmes. Each participant worked with one primary strength and conditioning coach. Some participants shared the same strength and conditioning coach, thus the coaches discussed were six male strength and conditioning coaches with a mean age of 34.7 years ( $SD=4$ ) and experience of 11.5 years ( $SD=2.9$ ). There were 4 criteria for participant inclusion; i) each athlete has an accredited strength and conditioning coach (ASCC), holding an additional MSc in relevant sports science as outlined by the Talented Athlete Scholarship Scheme to be working with elite athletes [39]; ii) each athlete had a coach with a minimum of three years full-time coaching experience; iii) each athlete worked with the coach for a minimum of one year, two times per week; iv) each athlete had represented their country and were recognised by their national sporting body as worthy of governmental funding to assist training. These criteria were used to ensure that the athletes interviewed had a sufficient experience to provide data to answer the research question.

### **PROCEDURE**

A qualitative interview-based design was selected to answer the current study's research questions. Previous research has found that a qualitative approach is suitable when addressing psychology focused research questions within strength and conditioning [40-42]

and topics that focus on athletes experiences involving social processes [43]. Following the principle of data saturation to determine sample size, new participants were added until additional information failed to offer fundamentally new and distinct insights. Data saturation occurred at a sample of eight. A semi-structured interview guide was developed based on previous research focusing on examining effective behaviours and characteristic in coaches [17, 18]. The semi-structured interview procedure encouraged the participant to stress points they believed to be most important rather than depending on the researcher's concept of relevancy [44]. Participants were contacted by e-mail or phone and were sent a brief outline of the study's purpose and requirements. Confidentiality was ensured by explaining to participants that the data would not be attributed to them and that names mentioned during the interview process will be omitted from the transcribed data. After providing informed consent, interviews were conducted with each individual athlete, that lasted between 45 and 90 minutes (average = 61 minutes) held at the participant's host university. The interviews were semi-structured and asked the participants to describe: a) key effective behaviours and characteristics of a strength and conditioning coach (e.g., Can you talk about your experience of working with your strength and conditioning coach? What is it that he/she does that is effective?) and b) situations or instances when these behaviours occurred (e.g., Can you offer an example of a situation or instance where the coach demonstrated these effective behaviours?). In order to assist participants in building a more detailed description of an effective strength and conditioning coach, the interviewer used a whiteboard to note down behaviours and characteristics which had been discussed. The purpose of this was twofold. First, it afforded participants a visual aid of their discussion points, which helps to prompt further thought. Second, it allowed the interviewer to summarise and present those behaviours and characteristics discussed by the participant, reassuring them that they had been listened to and reflecting back their descriptions. Finally, the primary researcher used probing questions throughout the interview in order to encourage participants to talk in detail about effective behaviours, for example, "Take a moment just to think" and "Could you elaborate or give any other examples?" All probes were based on the participant's own words and responses that had been recorded on the white board. This process was also used to correct misunderstandings and direct the interview when further explanations were desired [45].

## DATA ANALYSIS

All interviews were audio recorded in their entirety and transcribed verbatim resulting in 126 pages of data. To understand participants' perceptions of the key effective behaviours and characteristics of strength and conditioning coaches, an inductive thematic analysis was used. Using a six-phase procedure suggested by Braun and Clarke [46] (see Table 1), the transcripts were examined by breaking down the text into small units. After applying initial coding, 624 meaning units were identified. These meaning units were sorted into first order themes by collating similar units together. This process of collating data continued to create second order and higher order themes. Throughout the process of analysis the constant comparison method of Glaser and Strauss [47], was used, whereby the researchers aimed to ensure the data fitted the category. Overall, three general dimensions were identified.

Table 1. Six-step thematic analysis procedure – Braun &amp; Clarke

Phase	Examples of procedure for each step
1. Familiarising oneself with the data	Transcribing data; reading and re-reading; noting down initial codes
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the data-set, collating data relevant to each code
3. Searching for the themes	Collating codes into potential themes, gathering all data relevant to each potential theme
4. Involved reviewing the themes	Checking if the themes work in relation to the coded extracts and the entire data-set; generate a thematic 'map'
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme; generation of clear names for each theme
6. Producing the report	Final opportunity for analysis selecting appropriate extracts; discussion of the analysis; relate back to research question or literature; produce report

### TRUSTWORTHINESS AND VALIDITY

A number of techniques were used to enhance the trustworthiness of the study. In order to demonstrate that the analysis was characteristic of the participant's descriptions during interview, the researcher engaged in the use of peer review, member checking and used a reflective diary throughout the data collection. First, peer review was achieved through the use of a critical friend aimed to enhance reflexive self-awareness within the researcher. Acting as a theoretical sounding board to ensure data congruence, the critical friend encouraged reflection of the analysed themes by drawing out alternative interpretations of the events analysed [48]. As Brewer and Sparkes [48] suggested, this can enhance the conformability of the research, by reducing the biases and subjectivities of the researcher. In this instance, the critical friend was an experienced qualitative researcher who was not familiar with the subject matter. As a result this individual was able to act as a continual 'bracketer' to the thinking of the researcher [48]. Second, the authors used member checking, sending individual transcripts and an overview of the results to each individual participant. Participants were invited to reflect on and verify the researcher's interpretations in the analysis. Participants confirmed these interpretations and no themes were amended or adjusted. Finally, the primary researcher (interviewer) used a reflective journal throughout the research process to create transparency through critical self-reflection [49]. Here it was acknowledged that the primary researcher was the main "instrument" of the data collection, thus the aim was to make the process of the data analysis and collection as visible and transparent as possible [50]. Drawing on the reflective journal, the researcher made visible his personal biases such as his own history, values and assumptions. From this he gained enhanced awareness, which was open to scrutiny from the critical friend and made visible during the analysis procedure [51]. The reflective process impacted the data collection and analysis in various ways. For example, comments made in the reflective journal resulted in the interview guide being amended to provide more prompts to focus the participants on the key questions, and created an awareness for the interviewer not to move on too quickly with questions.

### RESULTS

The results from the inductive thematic analysis presented in this section are intended to portray effective behaviours and characteristics of strength and conditioning coaches as perceived by the elite athletes. Using interview quotations, 46 raw data themes were

developed relating to the participants' experience of effective strength and conditioning coaching. Following the identification of first-order themes (n=11) and in some cases second-order themes (n=4) three general dimensions were identified: relationship, coaches' actions and coaches' values (see Figures 1, 2, 3).

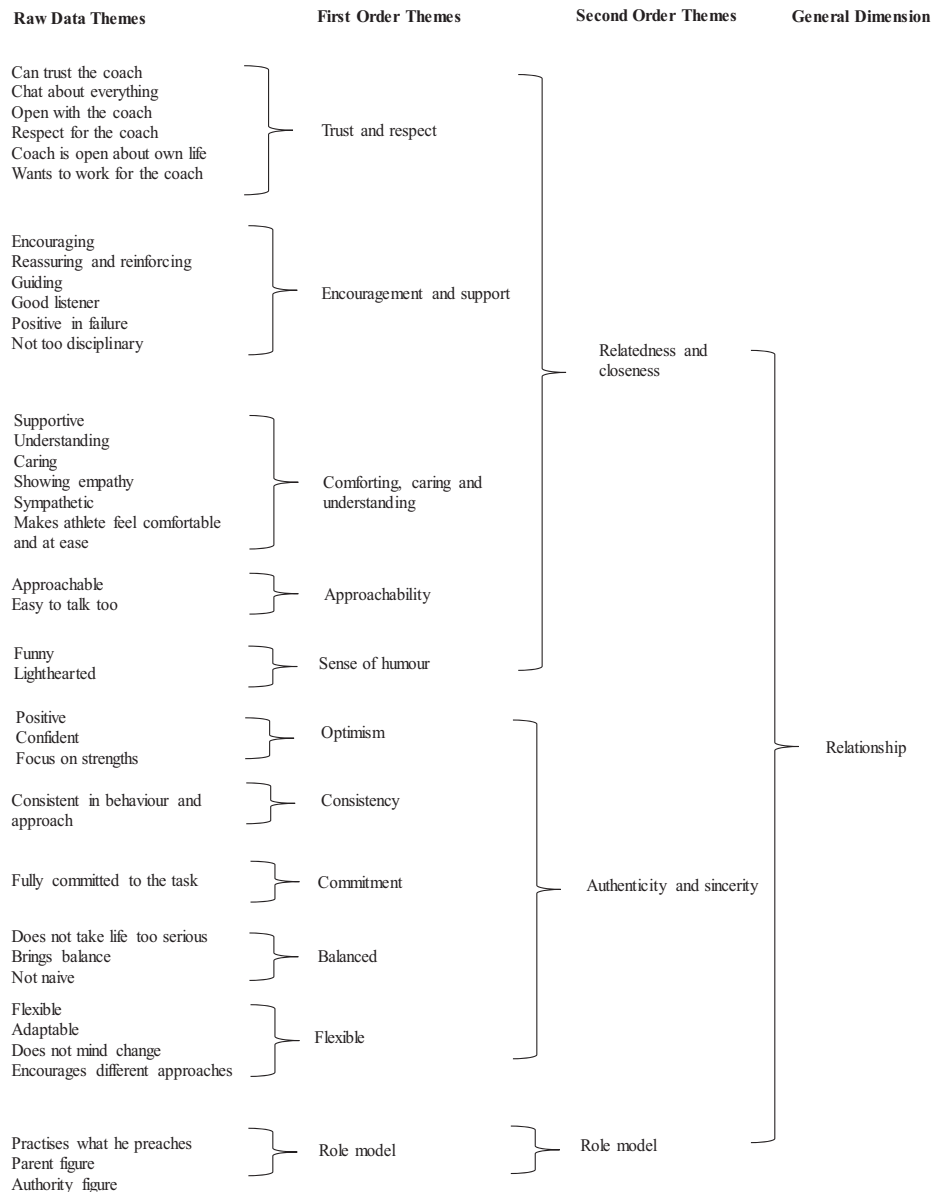


Figure 1. Athletes' perception of their relationship with the coach



## RELATIONSHIP

All athletes perceived coach behaviours that lead to a stronger ‘relationship’ as fundamental. This finding is consistent with previous literature which has defined the relationship between the strength and conditioning coach and their athlete as a unique interpersonal relationship where coaches’ and athletes’ emotions, thoughts and behaviours are mutually interconnected [52]. All participants described relatedness and closeness, which incorporated the coach’s ability to relate to his athletes, resulting in an emotional feeling of closeness, facilitated by trust and respect was mentioned by all participants. *“I’ve always felt I could trust him and I can actually tell him when I do have a niggle or a problem, but at the same time I had a lot of respect for him”*. Furthermore, the coach provided encouragement and support, and was comforting, caring and understanding. As one participant described: *“It may sound as simple as this but when someone you know well just comes out and talks to you and says this is what you are doing really well it is so encouraging. He is still talking positively even though I have failed”*. Five athletes identified the coach’s approachability as important. Approachability provides a structure for the athlete to benefit from autonomy-supportive behaviours such as trust, support and respect and portrays an open and active engagement in the athletes’ welfare [53-55]. *“I can just go and talk to him, I know that when I leave Uni I will be able to ring him up in two years’ time, he will be there for me”*.

An attribute that binds supportive and structural attributes within relatedness and closeness together is sense of humour, which is known to enhance affection and motivation within relationships [56]. Identified by seven of the athletes, the coaches’ sense of humour helped them to relieve tense situations, enhanced attention and made communication more memorable [57]. For example, as one participant stated: *“Even if you fall over in the warm-up he’ll laugh about it and joke about it, and you don’t feel like you’re constantly pressurised”*. Authenticity and sincerity which reflects heightened levels of the coach’s self-awareness [58] was also identified by all participants as being important. *“He is genuine, authentic, he’s what he is. You describe him as actually what you see is what you get.”*

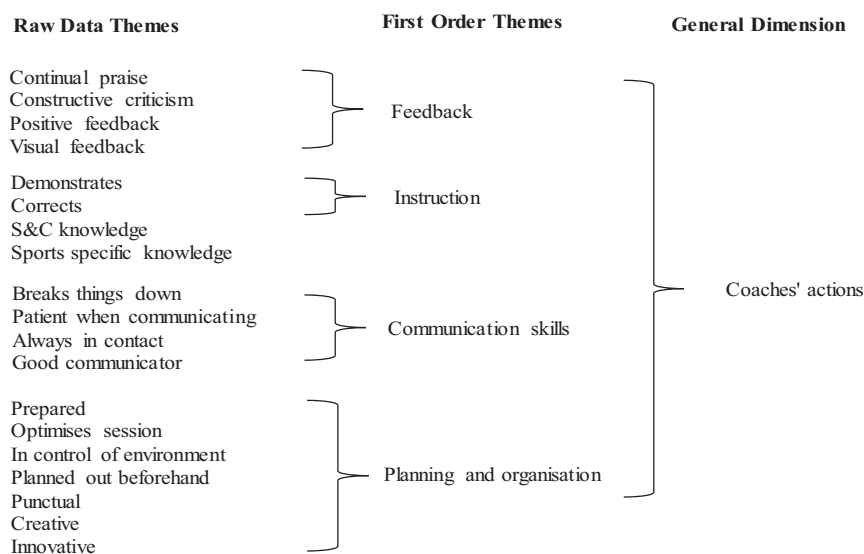


Figure 2. Athletes' perception of coaches' actions



Sincerity or the extent to which the coach's self is represented accurately and honestly to others is reflected in the coaches' psychological capacities of optimism and commitment, as one athlete pointed out: *"He is always saying positive things to make me feel better about myself. I remember that when I was injured he was so encouraging."* A crucial component of authenticity is to have a positive moral perspective [59, 60]. Being balanced, consistent and flexible reflects this key characteristic. These behaviours were noted by all athletes and reflected in comments such as: *"I think that the way that he acts is almost the same in every session"*. Lastly, six participants highlighted role modelling or a behaviour that sets an example to others to follow, which is consistent with the values of the coach [61], as a vital coaches characteristic. Perceiving the coach as a father or parental figure stirred the athlete to emulate motivational strategies as one athlete pointed out: *"I'd definitely try and follow some of the way he is, like the techniques he uses to get people motivated. I think it comes very naturally to him, he almost has a parent role where he looks after you and wants me to do well."*

### COACHES' ACTIONS

The 'coaches' actions' dimension is comprised of: effective instruction, positive and constructive feedback, good communication and organisation, and planning skills. All athletes highlighted the need for effective instruction *"He always demonstrates the lifts or the movement, and after that he would explain the do's and don'ts, and I noticed that he would have different instruction with different athletes, yet the outcome would always be the same"*. The athletes further linked effective instruction or the ability to teach to effective communication skills. One athlete described: *"I listen to him quite well, we started off with just the movement, one movement to begin with and then he broke down every single area until I understood what to do"*. All participants recognised positive and constructive feedback to be an important coaches action: *"he always gave praise throughout the session and at the end of the session he would always say 'good work today', however if I did not perform to my full potential or did not concentrate he would ensure that I knew about it and it would spur me on"*. Furthermore all participants linked effective instruction to the coaches' technical knowledge: *"He was so knowledgeable; it made me feel I could trust him"*

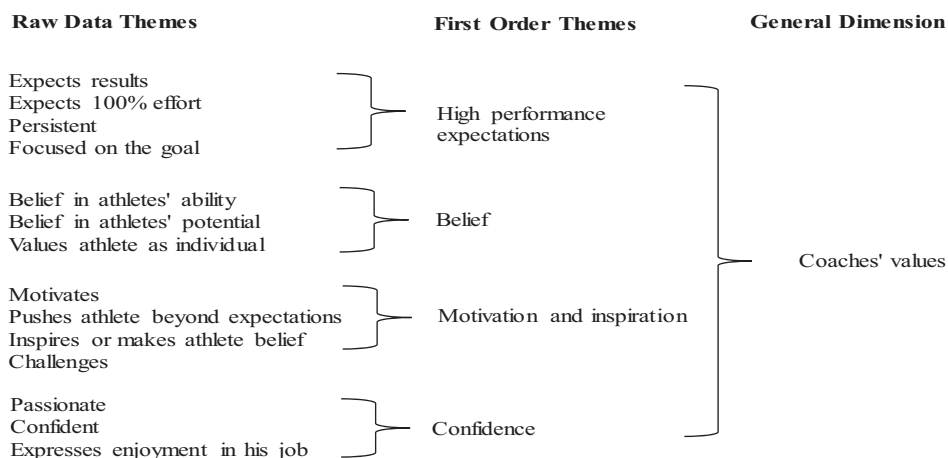


Figure 3. Athletes' perception of coaches' values

*even if I did not understand the science behind it.”* Lastly, six athletes expressed the importance of ‘planning and organisation’ which provides needed structure to the relationship and to the individual sessions: *“The sessions are so well thought out according to the plan he set out at the beginning, this really motivated me because it meant I had a purpose.”*

### COACHES’ VALUES

Coaches’ values express the coaches’ intrinsic core values and motivate, inspire and focus the coach on the task in hand (e.g., enhancing performance). The coaches’ intrinsic values encouraged persistence within the relationship and within the resultant coaches’ actions. All but one athlete noted that high performance expectations of the coach would positively impact their effort within the session: *“the whole can-do attitude that he has and that he will not let us fail impact on my technical skills and it makes me give 100%”*. Furthermore, all participants perceived the coach to have belief in the athletes’ ability, allowing the coach to build a personalized athletes’ vision: *“He was like one more, one more, one more, and he kept going and I ended up with 36 (press ups). As he kept on going one more, one more, one more and you end up getting lots more, it was as if he knew how strong I was.”* All eight athletes linked these high expectations and beliefs to the coach’s ability to motivate and inspire by providing meaning and challenges to the athletes’ tasks and by stimulating intrinsic values and engagement: *“He makes you want to go to the gym, you look forward to it, he would always say ‘you beat so and so’ and it makes me feel better. I love it when after the first set he would say that I can beat the target”*. Furthermore, all athletes perceived the intrinsic confidence of the coach, which is encouraged by self-belief and self-efficacy, to be a vital value, as one athlete remarked: *“I guess it was his persona, he came across confident and he knew what he was talking about, which made me more confident and it was a massive thing for me to enjoy strength and conditioning with him.”*

### DISCUSSION

The purpose of this study was to identify the effective behaviours and characteristics within strength and conditioning coaching. Relationship, coaches’ actions and coaches’ values were the three main themes identified. Results from this study offer support for previous research that has highlighted the effectiveness of instruction and technical knowledge, but have also further suggested the additional contribution of higher order leadership characteristics and behaviours summarised within the general dimensions. Furthermore the results provide a strong link to leadership models such as the multi-dimensional model of leadership, authentic leadership and the transformational model of leadership. The findings of this study contradict previous research which have suggested elite athletes prefer a more autocratic leadership style [62, 63]. Our findings suggest that coaching is a behavioural process [64] wherein the coach encourages a more athletes centred, autonomy based relationship which focus on developing the athlete to its full potential based on authenticity, trust and closeness. This section will compare the current findings with literature in leadership and coaching psychology. The article will conclude by discussing limitations and proposing future recommendations, as well as considering the practical implications of this study.

The findings reveal a wide range of effective coaching and teaching behaviours and characteristics, which include interpersonal skills (e.g., effective communication, good listener, being caring and understanding) and intra-personal knowledge (e.g., motivation, self-confidence) as well as relational constructs such as trust, relatedness and respect. The diversity of effective behaviours identified, including higher order leadership behaviours and

characteristics, indicate that coaching practice is a dynamic and complex process which is more about improvisation than structured and prescribed behaviours [65, 66]. A coach consistently analyses the behavioural responses of the athlete, which allows the coach to make appropriate behavioural changes to enable the athlete achieve the desired goal [65, 67]. These findings are in line with the propositions of Chelladurai's Multidimensional Model of Leadership. The focus of the coach on the athletes' requirements reduces perceptual congruence and more closely aligns preferred, required and actual behaviour [68]. Behaviours and characteristics such as diagnosing or understanding the athletes' requirements, adapting or the capacity to be flexible and innovative as well as the ability to communicate effectively, are also reflected in our findings. Such findings are in line with the Booker and Meir [37] model of the coaching process specifically designed for strength and conditioning. The findings further support the coaching effectiveness model proposed by Côté and colleagues. Central to the coaching model is the mental representation of the athletes' potential which relates to creating a vision of the athletes potential. Our results confirm that the coaches' vision of the athletes potential and belief in the athlete ability underlined by the coaches' authenticity are core characteristics of effective strength and conditioning coaching.

Coaches' authenticity has been defined as "being deeply aware of how they think and behave and are perceived by the athletes, as being aware of their own and the athletes' values/morals perspectives, knowledge, and strengths; aware of the context in which they operate and who are confident; hopeful, optimistic, resilient and of high moral character" [69, p 4]. The coaches' authenticity is reflected in our results through behaviours and characteristics such as consistency, commitment, optimism, flexibility and being balanced. This authenticity forms the basis or root of an effective coach-athlete relationship. Authentic leadership applied to coaching expresses the most accurate and best articulation of the athletes' future potential and over time provides the impetus for the athlete to be more engaged, possibly resulting in enhanced performance [58]. Furthermore, the findings complement previous research of the effectiveness of authentic leadership behaviour on athlete development [70], but further research is needed linking the authentic coaching approach to more specific outcomes impacting the athletes performance such as increased self-confidence, motivation and effort.

A key finding from our data concerns the importance athletes attach to behaviours of their coach that serve to develop and strengthen the relationship between the strength and conditioning coach and their athlete. This data supports the theorising from previous research that has examined the coach-athlete relationship [71, 72]. Jowett identified three different dimensions; commitment, closeness and complementary which are suggested to initiate, maintain and build an effective coach-athlete relationship. In partial support of Jowett's theorising, participants in the current study highlighted coach behaviours that enhance commitment and closeness to be essential in developing an effective relationship. The complementary dimension, or the behavioural responses of cooperation and responsiveness between the athlete and coach resulting from an effective relationship, was not evident in our findings. These findings concerning relatedness and closeness support the assumption that both coaching and leadership are constituted and maintained by interpersonal relationships. The coach encourages a two-way relationship and pays a high degree of attention to the individual athletes' needs aiming to develop them to their full potential. By encouraging closeness of relationship the coach is able to understand the differences in the athlete's needs (i.e., some athletes receive more autonomy and some more encouragement). In our study, effective strength and conditioning coaches were perceived by the athletes to lead by

example, and were seen to be consistent, trustworthy and approachable. Furthermore, the coaches' active modelling of these behaviours and self-confidence encourages the athlete to adopt the characteristics and behaviours exhibited by the coach [73, 74]. Our findings suggest that effective role modelling of the coach encourages trust and respect as well as admiration. These results further parallel those of Bass and colleagues [75-77] regarding the importance of the coach acting as a role model to cultivate such characteristics. However, more targeted research is needed to further understand the effect of the coaches' role modelling on specific outcomes such as the athletes' motivation and performance.

More recently, research examining effective coaching has been underpinned by the transformational leadership theory [66, 78]. Our findings revealed a number of effective behaviours and characteristics that could be mapped onto this leadership theory such as motivation, high performance expectations, inspiration, trust, respect and authenticity. The essence of a transformational coach is to inspire, develop and empower the athletes" [79]. Four key transformational behaviours have been conceptualised: idealised influence, inspirational motivation, individual consideration and intellectual stimulation [80]. However, Bass proposed the full range leadership model which further includes transactional behaviours. Transactional leadership behaviour prescriptively outlines tasks and the manner they should be achieved. Athletes engage by prescription, meaning they complete the task the prescribed way in exchange for material (awards) or psychological compensation (recognition). Part of the transactional style includes the corrective element of active-management-by-exception, which is a valid description of strength and conditioning coaches' active behaviour within the training context and is fundamental to sports training sessions [70]. Conceptualised as instruction, mistakes in technique are observed by the coach and corrective actions are implemented to enhance the physical attributes of the athlete. In our study, athletes perceived the ability of the coach to effectively instruct as fundamental which compare directly to a transactional style [70, 81]. In contrast, elements of a transformational coach include behaviours such as promoting ideals, showing care and concern and overcoming problems through being flexible and innovative are further reflected in our results.

Our results confirm previous research of behaviours or coaching actions identified as essential to effective coaching such as instruction [19, 82, 83]. Effective instruction, essential to the teaching or educating part of coaching, is determined by the technical knowledge of the coach [82]. The pursuit of scientific knowledge within the field of strength and conditioning has been prevalent within strength and conditioning accreditation bodies such as the UK Strength and Conditioning Association and the National Strength and Conditioning Association. The importance of up-to-date scientific knowledge in delivering effective strength and conditioning programmes is reflected by the results of the current study. Furthermore, the results endorse previous findings that the transactional element of active management-by-exception has become a coaching style deemed to be effective within strength and conditioning [70]. Within this educating or teaching process, the strength and conditioning coach detects and corrects the athletes' mistakes and therefore directly interacts with the athletes thus creating trust and initiating relationship. Interestingly, the participants identified positive feedback or 'praise' as essential. Building on initiating relationship through instruction, 'praise' can be construed as a reward, meaning a transactional coaching behaviour, but when it is used as a psychological aid it becomes a transformational or higher order behaviour [84]. Furthermore, the study results strengthen previous findings that effective coaching is delivered through good communication skills [18]. Good communications and interpersonal skills have been linked with building rapport and trust and

hence would be essential in initiating and maintaining an effective relationship [38]. An indirect way of effective communication is through planning and organisation [18]. The planning and organisational themes incorporated optimisation, creativity and innovation on behalf of the coach. Creativity and innovation imply that the coach is incorporating the athletes' opinions and their decision making [75], whereas optimising and planned out sessions challenge the athlete to reach higher levels of achievement [17]. Although the results of the current study confirm previous research regarding effectiveness of the default transactional coaches' actions, they further indicate that higher order characteristics and behaviours should be encouraged to promote coaches' effectiveness.

Another parallel with previous research involved the coaches' values. These findings support the research of Hardy et al. [85] who suggest that high performance expectations or expressed coaches' behaviour that expects excellence, quality and high performance on the part of the athlete, positively impact athletes' development. High performance expectations have often been explained as consequence of the Galatea and Pygmalion effect. Research has explored the possible transference of expectations from the leader to the follower [86]. As a consequence, athletes' expectations and performance can be raised as an unintentional consequence of the Pygmalion effect either through subconscious high expectations of the coach or deliberate direct communicated high performance expectations [87]. Previous research has shown that the coaches' high expectations predict performance [88]. Although results from the current study highlight the importance of the strength and conditioning coaches' high performance expectations, further research is needed to link this characteristic to specific outcomes such as performance or increased effort.

Various researchers have highlighted coaches' motivation and inspiration skills to be essential and impactful on athletic development [14, 17, 18]. The current findings support the necessity of higher order characteristics such as inspiration and motivation to articulate and sell the coaches' vision to the athlete. Leadership researchers have found transformational behaviours have augmented transactional behaviours [89-92]. With the emergence of transformational behaviours in our data, it might be suggested that such behaviours within strength and conditioning coaching could have a positive, augmentative effect beyond that accounted for by the default transactional approach. For example, the coaches' ability to motivate might encourage the athlete to go further than the standard expectations by increasing intrinsic goal-setting [93]. As a consequence of this increase in the motivational climate, coaches might inspire their athlete to higher levels of commitment to the common vision [94, 95]. Thus, in the current study, it can be tentatively suggested that higher order transformational behaviours augment the transactional behaviours; however, future research is needed to explore this proposition more fully.

## CONCLUSION

The current findings highlight the contribution of higher order leadership characteristics and behaviours on the athletes' development. However, future research should aim to confirm these findings by considering the impact of these characteristics and behaviours on athletes' development. Such approaches might incorporate different qualitative or quantitative methods to further stimulate responses to various different coaching scenarios. Furthermore, further research is needed to explore the impacts of these higher order characteristics and their augmentative effect above the default transactional style on specific outcomes such as motivation, performance, effort and adherence. As a first practical application, these results provide strength and conditioning coaches with examples of effective behaviours and characteristics such as high performance expectation, motivation, inspiration, role

modelling, trust, respect and instruction. Encouraging self-reflection, practitioners can identify individual areas of strength and weaknesses in their own work with athletes, which might result in more targeted, specific personal development. For example, some coaches might identify that they need to increase their motivation skills or develop their interpersonal skills in order to enhance trust with the athlete. As a second practical application, these results could further the development of strength and conditioning coaching competencies by incorporating personal development modules based on identified higher order behaviours and characteristics. As a final practical application, the results suggest that strength and conditioning coaches might pursue current leadership training programmes such as the transformational leadership style to enhance coaching effectiveness.

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