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Coaching Leadership Behaviours in Strength and Conditioning Coaching: Preferences of NCAA Division I and II Collegiate Student-Athletes Based on Level of Competition

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ABSTRACT

This study explored collegiate student-athletes' preferences of coaching leadership behaviours in strength and conditioning coaching, evaluating differences between the preferences of coaching leadership behaviours based on the level of competition. A total of 145 National Collegiate Athletic Association student-athletes (Division I = 77, Division II = 68), aged 18-25 years, with a mean = 3 (SD = ±1) strength and conditioning sessions per week, participated. Participants completed an electronic questionnaire involving the athletes' preference version of the Revised Leadership Scale for Strength and Conditioning. Summary statistics outlined that the most preferred behaviour was 'training and instruction', median = 4.5 (IQR = 1.0), whilst the least preferred was 'autocratic', median = 2.0 (IQR = 0.5). Similar results were observed for both Division I and II groups. No statistically significant differences were identified between groups. Effect sizes indicated that the magnitude of differences between groups was small, with the highest value for autocratic behaviour (d = 0.2). The observation of no statistically significant differences between Division I and Division II participants suggests how both levels of competition value similar positive coaching behaviours. This study sheds light on the preferences of coaching behaviours among student-athletes in strength and conditioning coaching. The findings underscore the importance of positive psychosocial behaviours such as training and instruction, positive feedback, situational considerations, and social support for different levels of competition and offer a foundation for further research to explore coaching leadership behaviours in strength and conditioning coaching.

Keywords: Coaching, Coaching Behaviour, Coaching Effectiveness, Leadership, Strength and Conditioning.

INTRODUCTION

Sports coaching research has extensively examined coaching behaviours and leadership styles (Gilbert & Trudel, 2004; Griffo et al., 2019). Exploring these

topics in strength and conditioning coaching has gained increased attention in the past two decades but is still limited, indicating a clear research gap.

For over 40 years, the multidimensional model of leadership (MDML; Chelladurai, 1978, 1993, 2007) has been one of the key frameworks to study leadership behaviours in sports contexts (Arthur & Bastardoz, 2020). The MDML outlines a pathway that links behaviour antecedents (situational, leader, and member characteristics), central mechanisms (required, actual, and preferred leader behaviour), and outcomes (satisfaction and performance). Central mechanisms act as the link between behaviour antecedents and outcomes. Its proposition is that the congruence between actual leader behaviours and the preferred and required behaviours of the followers will determine satisfaction and performance (Chelladurai, 1993, 2007; Arthur & Bastardoz, 2020).

Based on the MDML, Chelladurai and Saleh (1980) created the Leadership Scale for Sport (LSS), a 40-item scale that has been extensively employed in sports leadership research (Chelladurai & Carron, 1981; Yenen et al., 2023). The scale tests five behavioural dimensions: training and instruction, democratic and autocratic behaviour, social support, and positive feedback. It has three versions: athlete-reported coach behaviour, athlete-reported preferred leader behaviour, and leader self-reported behaviour. However, according to Zhang et al. (1997), the LSS lacked a dimension for situational considerations. This was considered a limitation as the LSS did not take into account the ways in which coaches consider situational factors to adapt their behaviour. Hence, their development of the Revised Leadership Scale for Sport (RLSS), a 60-item scale with the same measures and versions as the LSS but with the additional dimension of situational considerations.

Leadership behaviours have seen increased attention in strength and conditioning coaching research, with various research methods adopted. These methods include scales (Chesters, 2013; Lee et al., 2013; Radcliffe et al., 2013; Eisner et al., 2014; Greenslade & Willams, 2019; LaPlaca & Schempp, 2020; Tiberi & Moody, 2020; Quartiroli et al., 2022), observations (Massey et al., 2002; Gallo & DeMarco, 2008), reviews (Gilbert & Baldis, 2014; Fraser et al., 2022; Jones & Newland, 2022), interviews (Dorgo, 2009; Szedlak et al., 2015; Gillham et al., 2016; Shuman & Appleby, 2016; Gillham et al., 2017; Radcliffe et al., 2018; Foulds et al., 2019; Gillham et al., 2019; Szedlak et al., 2022), and original methods (Szedlak et al., 2018).

The LSS and RLSS have been employed in two studies in strength and conditioning coaching research (Brooks et al., 2000; Magnusen, 2010). However, Brooks et al. (2000) reported low internal consistency, which negatively impacted the reliability of results, and Magnusen (2010) presented unvalidated language modifications that could affect the scale's validity. Additionally, both studies focused on self-reported coach behaviour rather than the athletes' preferences, suggesting that the athlete-reported preferred leader behaviour version of those scales has not been adopted and could contribute to the current state of knowledge. It is worth noting that Gearity (2003) developed the Revised Leadership Scale for Strength and Conditioning (RLSSC), an instrument that provides an alternative to the LSS and RLSS in strength and conditioning coaching. The author indicated acceptable levels of reliability by employing Cronbach's alpha (αC) coefficients (Table 2), together with a linguistically altered scale. This scale was used recently by Tiberi et al. (2023, 2024) to explore leadership behaviours in strength and conditioning coaching and evaluate sex- and task-dependence-based differences.

In the past five decades of sports coaching research, in line with the MDML pathway, Arthur and Bastardoz (2020) showed how member, leader and situational characteristics have been studied to propose preferred leadership behaviours. Consistent with this pathway, where situational characteristics influence preferred behaviours, level of competition has been examined in sports coaching research to identify differences in behavioural preferences (Chelladurai & Carron, 1983; Riemer & Toon, 2001; Beam et al., 2004; Hoigaard et al., 2008; Borghi et al., 2017; Cruz & Kim, 2017) underscoring the interest in the impact of this variable. The discussion is ongoing with early research reporting differences (Chelladurai & Carron, 1983; Riemer & Toon, 2001), and more recent studies indicating no significant differences (Beam et al., 2004; Hoigaard et al., 2008; Borghi et al., 2017; Cruz & Kim, 2017).

Some studies reported the level of competition when focusing on behaviours in strength and conditioning coaching. However, it was either not of primary interest (Chesters, 2013; Leet et al., 2013; Tiberi & Moody, 2020; Tiberi et al., 2023, 2024), or it was used to address a different study aim (Magnusen

& Rhea, 2009; Eisner et al., 2014; Shuman & Appleby, 2016). Two qualitative studies reported high-performance athletes' perceptions of strength and conditioning coaches' effective behaviours (Szedlak et al., 2015; Foulds et al., 2019). Szedlak et al. (2015) indicated how elite athletes considered effective strength and conditioning coaches to be those characterised by their ability to build relationships founded on trust and understanding and their ability to communicate and instruct clearly whilst providing inspiration through their confidence and passion. Similarly, Foulds et al. (2019) reported that high-performance athletes preferred coaches with a positive outlook and an athlete-centred approach, with active listening and personalised goal setting to build a positive relationship. However, none of the cited studies employed the RLSSC to specifically investigate differences between participants' preferences towards coaching leadership behaviours in strength and conditioning coaching based on the level of competition.

Therefore, the aim of the present study was 1) to investigate collegiate student-athletes' preferences of coaching leadership behaviours in strength and conditioning coaching using the preference version of the RLSSC (Gearity, 2003) and 2) to evaluate potential differences between collegiate student-athletes' preferences of coaching leadership behaviours in strength and conditioning coaching based on the level of competition across the six behavioural dimensions of the RLSSC.

METHODS

Participants

A total of *n* = 145 male and female National Collegiate Athletic Association (NCAA) Division I and II (DI and DII) student-athletes participated in the study (DI = 77, DII = 68). Participants were involved in various sports: American football (*n* = 18); baseball (*n* = 9); basketball (*n* = 12); bowling (*n* = 1); cross country (n = 3); fencing (n = 6); football (*n* = 10); golf (*n* = 1); hockey (*n* = 1); lacrosse (*n* = 16); rowing (*n* = 12); softball (*n* = 8); swimming (*n* = 15); synchronised skating (*n* = 2); tennis (*n* = 5); track and field (*n* = 17); and volleyball (*n* = 9). The age range of participants was between 18-25 years, and they engaged on average in ($\bar{x}$ ± SD) = 3 ± 1 strength and conditioning sessions per week over one academic year (9 months). There were three inclusion criteria: 1) each participant had to be an NCAA DI or DII student-athlete, 2) they had to have trained for at least one academic year under the supervision of a strength and conditioning coach before this research, and 3) to ensure that each participant had sufficient experience of the coaching process, they had to have trained on average at least twice per week in that academic year. These inclusion criteria reduced an original sample from *n* = 236 total responses to one of *n* = 162. Sample was further reduced to *n* = 145 since *n* = 17 participants only provided partial responses. This population was targeted based upon three considerations: 1) the used scale and the scales on which it is based have been used extensively in NCAA contexts, 2) the experience relevant to the research topic addressed with inclusion criteria, and 3) accessibility.

Ethical Considerations

The Cardiff School of Sport & Health Sciences Research Ethics Committee approved the study (Institutional reference: PGR-3440). Adhering to contemporary ethical considerations (Thomas et al., 2023), openness and honesty were addressed by providing participants with an information sheet detailing the voluntary nature of the study, with the option to withdraw at any point during the survey completion phase. All the institutions and participants contacted were notified that consent was provided by completing the questionnaire and that strict confidentiality and anonymisation were ensured. Additionally, secure measures were implemented to guarantee data security, including encryption on cloud storage (OneDrive) and storage on a password-protected computer.

Instrumentation

The study used an online questionnaire (SurveyMonkey, Momentive, 2021) consisting of demographic and strength and conditioning questions to verify the inclusion criteria. The research employed the athletes' preference version of the RLSSC (Gearity, 2003). This scale was adopted for two reasons: 1) to address a knowledge gap in the relatively young discipline of strength and conditioning coaching, and 2) to contribute to the accumulation of knowledge. The 60 leadership items in the RLSSC are distributed randomly among six dimensions of coaching leadership behaviour: autocratic (8), democratic (12), positive feedback (12), situational considerations (10), social support (8), and training and instruction (10) behaviour. The individual items in this 5-point Likert scale represent

the athletes' preferences of the frequencies of specific behaviours exhibited by a strength and conditioning coach. The scale ranges from "1 indicating 'never' 0% of the time", "2 'seldom' 25% of the time", "3 'occasionally' 50% of the time", "4 'often' 75% of the time", and "5 'always' 100% of the time". Each item is preceded by the phrase 'I prefer my strength and conditioning coach to…'.

Procedures

Participants were recruited via e-mail communication. The NCAA website (NCAA, 2023a) was used to identify all NCAA institutions across Divisions I, II, and III. The e-mail addresses of the Athletic Director, Compliance Officers, and Administrative Assistants were collected. A total of 1,118 institutions were identified, and 2,839 e-mails were sent. The e-mail requested that the athletic department distribute the questionnaire on behalf of the researcher to reach student-athletes and, importantly, protect participants from any potential power relationships with coaches and safeguard their privacy whilst offering them the opportunity to participate in the study. The e-mail provided details about the study, an information sheet, and a SurveyMonkey questionnaire link for participation. Reminder e-mails were sent every week for four consecutive weeks. The survey was closed after the fifth week. A multi-modal approach was employed to enhance dissemination and increase participant response rates. No DIII institutions were included due to a lack of responses.

Level of competition

NCAA DI and DII athletic programmes differ in numerous areas. There are differences between Divisions regarding sports sponsorship, scheduling criteria, attendance requirements, and financial aid (NCAA, 2023b). DI programs sponsor a minimum of 14 sports, whilst DII programs sponsor 10 sports. DI programs play all of their competitions against other DI programs. In contrast, DII play at least 50% of their contests against DII or DI programs. For sports other than football and basketball, there are no scheduling requirements. DI programs classified as Football Bowl Subdivisions have attendance requirements, typically 15,000 attendants per home game. There are no attendance requirements for DII programs. DI programs must meet minimum financial aid requirements, and there are maximum financial aid awards for each sport. DII do not have to meet a minimum for financial aid; they have a maximum they cannot exceed (NCAA, 2023b). Whilst both divisions belong to the NCAA, it is reasonable to suggest that those different requirements create two distinct sporting environments, potentially influencing student-athlete preferences for coaching leadership behaviours (Beam, 2001).

Reliability and validity

Cronbach's alpha coefficients (αC) were calculated to estimate the reliability of each coaching behaviour dimension. In evaluating the veracity of these coefficients, the recommendation of Taber (2018) was followed, where values between 0.60 and 0.90 were considered acceptable. Whilst these have been published previously (Tiberi et al., 2023), they are reported in Table 2 for transparency and completeness. Nevertheless, the originality of the differences being investigated in the present study focuses on the non-dependent variable of level of competition as opposed to sex.

Data analyses

Table 1 indicates a summary model of the statistical approach taken to analyse the data collected, highlighting the hypothesis tested, statistical test used, effect size and related table. Results were pooled together to provide summary data. The non-dependent variable was the level of competition, with two independent groups: 1) DI and 2) DII. The dependent variables were the six dimensions of coaching leadership behaviour: autocratic, democratic, positive feedback, situational considerations, social support, and training and instruction.

Summary statistics outline the preferences concerning strength and conditioning coaching leadership behaviours of the total pool of student-athletes and indicate differences between the two independent groups (DI and DII). Median scores, interquartile ranges (IQRs), mean scores, standard deviations (SD) and effect sizes were used to describe the data. For all participants, preference scores were calculated by summing the scores of all the items in a specific coaching dimension and dividing by the number of items in that dimension (Chelladurai & Saleh, 1980; Zhang et al., 1997; Gearity, 2003). Because of the ordinal nature of the RLSSC, median scores were used to estimate central tendencies (excluding the calculation of effect sizes, where means were used). Cohen's d was used as the effect size statistic to indicate the practical significance of group differences for

Table 1. Summary model of the data analysis approach taken in the study.

Hypothesis tested	Statistical test used	Effect size	Summary table
Reliability – internal consistency – do scale items consistently measure the same characteristics?	Cronbach's alpha (αC)		Table 2
Summary of coaching preferences for the total pool of participants	Mean ($\bar{x}$) ± standard deviation (SD) Median and interquartile range (IQR)		Table 3
Differences between Division I and Division II athletes	Mann-Whitney *U* *p*-value	Cohen's *d* Based upon $\bar{x}$ and SD	Table 4 and Table 5

each coaching dimension, where $d = \bar{x}\Delta/_{sp}$, $\bar{x}\Delta$ = difference between the DI and DII sample means, sp = the pooled SD = $\sqrt{[(_{s1}{}^2(_{n1}\text{-}1) + (_{s2}{}^2(_{n2}\text{-}1))/(_{n1}+_{n2}\text{-}2)]}$, $_{s1}$ = SD for DI, $_{s2}$ = SD for DII, $_{n1}$ = sample size for DI, and $_{n2}$ = sample size for DII (Cohen, 1988). Effect sizes were defined as 'small' (0.2 to 0.5 of SD), 'medium' (0.5 to 0.8 of SD), and 'large' (> 0.8 of SD) (Cohen, 1988). Given the study's exploratory nature, median scores calculated for each participant were categorised as either 'preferred' or 'not preferred' and interpreted according to values, where median scores ≤2.59 indicated 'not preferred' behaviours (never and seldom), and scores ≥ 3.40 indicated 'preferred' behaviours (often and always). Whilst the response 'occasionally' (median score between 2.60 to 3.39) could be considered in either category, it was not included in either of the two preference groups. Because of the ordinal nature of the data and the assumptions underpinning the comparison of two independent groups, the median differences between groups (DI vs DII) were tested for each of the six dependent variables (coaching leadership behaviour dimensions) using the Mann-Whitney U test (Corder & Foreman, 2014; Abbott, 2017). The level of statistical significance was accepted at $p \leq 0.05$ throughout the analyses.

RESULTS

Reliability scores for the RLSSC

Table 2 summarises the Cronbach's alpha (αC) coefficients for data generated during the present study and references those reported in previous research. Subscale scores were similar to those reported in earlier studies, and according to Taber (2018), they indicate acceptable estimates of measurement reliability. Autocratic behaviour showed the highest value (αC = 0.74), and situational considerations reported the lowest value (αC = 0.62).

Preferences of the total pooled sample

Table 3 indicates that participants' most preferred behaviour was training and instruction, median = 4.5 (IQR = 1.0), followed by situational

Table 2. Cronbach's alpha (αC) reliability test statistics for the current and previously published studies' six coaching behaviour dimensions of leadership scales.

Coaching Behaviour Dimension	No. of items	LSS Chelladurai and Saleh (1980)	RLSS Zhang et al. (1997)	RLSSC Gearity (2003)	RLSSC Tiberi et al. (2023)	RLSSC Present study
					Sex	Level of competition
		Cronbach's Alpha Coefficients (αC)				
Autocratic	8	0.45	0.59	0.64	0.74	0.74
Democratic	12	0.75	0.96	0.83	0.86	0.86
Positive Feedback	12	0.82	0.89	0.84	0.88	0.88
Social Support	8	0.70	0.88	0.75	0.71	0.71
Training and Instruction	10	0.83	0.87	0.90	0.78	0.78
Situational Considerations	10	N/A	0.84	0.76	0.62	0.62

Table 3. Summary statistics for the coaching preferences of the total pool of student-athletes.

Coaching Behaviour Dimension	*n*	Mean	SD	Median	IQR
Training and Instruction Behaviour	145	4.3	0.4	4.5	1.0
Positive Feedback Behaviour	145	3.9	0.6	4.0	1.5
Situational Considerations Behaviour	145	3.9	0.4	4.0	1.0
Social Support Behaviour	145	3.3	0.5	3.5	1.0
Democratic Behaviour	145	3.3	0.6	3.0	1.0
Autocratic Behaviour	145	2.5	0.5	2.0	0.5

n = number of responses; SD = standard deviation, IQR = interquartile range

Table 4. Summary statistics and effect sizes for coaching preferences of the total pooled sample grouped by level of competition.

Coaching Behaviour Dimension	*n*	Mean	SD	Cohen's *d*	Median	IQR
Training and Instruction Behaviour						
Division I	77	4.3	0.4	0.0	4.5	1.0
Division II	68	4.3	0.5		4.5	1.0
Positive Feedback Behaviour						
Division I	77	3.9	0.6	0.0	4.0	1.5
Division II	68	3.9	0.6		4.0	1.5
Situational Considerations Behaviour						
Division I	77	4.0	0.3	0.1	4.0	1.0
Division II	68	3.9	0.4		4.0	0.5
Social Support Behaviour						
Division I	77	3.3	0.5	0.1	3.5	1.0
Division II	68	3.4	0.5		3.5	1.0
Democratic Behaviour						
Division I	77	3.2	0.6	0.2	3.0	1.0
Division II	68	3.3	0.5		3.0	1.0
Autocratic Behaviour						
Division I	77	2.4	0.5	0.2	2.0	0.5
Division II	68	2.5	0.6		2.0	1.0

n = number of responses; SD = standard deviation, IQR = interquartile range

considerations and positive feedback, median = 4.0 (IQR = 1.0); social support, median = 3.5 (IQR = 1.0); democratic, median = 3.0 (IQR = 1.0); and autocratic, median = 2.0 (IQR = 0.5) was the least preferred behaviour. The variability of participants' responses appeared similar for the six coaching dimensions. The greatest variability was recorded for positive feedback behaviour (SD = ±0.6). The smallest variability was for situational considerations behaviour (SD = ±0.4), suggesting only small differences in standard deviations between all six coaching dimensions.

Preferences based on the level of competition

Table 4 shows that, for all six coaching behaviour dimensions, DI and DII student-athletes responded with the same preferences, resulting in identical median scores. The variability of responses was similar for both groups across the six dependent variables. For DI athletes, the variability ranged between SD = ±0.6 for positive feedback and democratic behaviours and SD = ±0.3 for situational considerations behaviour. For the DII athletes, variability ranged between SD = ±0.6 for positive feedback and autocratic behaviours and SD = ±0.4 for the situational considerations behaviour. Similarly, interquartile ranges indicated only small to moderate variability, with the highest being positive feedback behaviour for both groups (IQR = 1.5) and the lowest IQR = 0.5 for the DI autocratic and the DII situational considerations behaviours. Effect sizes indicated that the difference between the preference scores for DI and DII participants was small for all six coaching behaviour dimensions. Values of Cohen's d ranged between 0.0 (training and instruction and positive feedback) and 0.2 for autocratic and democratic behaviours.

Table 5. Differences between Division I and Division II in coaching leadership behaviour

Coaching Behaviour Dimension	Division I			Division II			*p*
	n	Median	IQR	*n*	Median	IQR	
Autocratic	77	2.0	0.5	68	2.0	1.0	0.396
Democratic	77	3.0	1.0	68	3.0	1.0	0.355
Positive Feedback	77	4.0	1.5	68	4.0	1.5	0.803
Social Support	77	3.5	1.0	68	3.5	1.0	0.902
Situational Considerations	77	4.0	1.0	68	4.0	0.5	0.090
Training and Instruction	77	4.5	1.0	68	4.5	1.0	0.898

Statistical significance: $p \leq 0.05$

Table 5 reports that comparative analyses indicated no statistically significant differences between the groups for the six coaching dimensions, training and instruction (p = 0.898), situational considerations (p = 0.090), social support (p = 0.902), positive feedback (p = 0.803), democratic behaviour (p = 0.355), and autocratic behaviour (p = 0.396).

DISCUSSION

The present study examined collegiate student-athletes' preferences of coaching leadership behaviours in strength and conditioning coaching using the preference version of the RLSSC. It explored potential differences in preferred behaviours based on the level of competition (DI and DII) across the six behavioural coaching dimensions of the RLSSC: autocratic, democratic, positive feedback, situational considerations, social support, and training and instruction behaviours. Based on the MDML, which posits that preferred leadership behaviours are influenced by situational characteristics (Chelladurai 1993, 2007; Arthur & Bastardoz, 2020), the hypothesis was that level of competition-based differences were likely to emerge.

Existing research in strength and conditioning supports the results of the current study, where training and instruction, positive feedback, situational considerations, and social support were classified as preferred behaviours. In quantitative research, Chesters (2013) presented how highly valued attributes for strength and conditioning coaches include knowledge and a positive and approachable demeanour. Similarly, Tiberi and Moody (2020) indicated how attributes such as being knowledgeable, communicative, providing positive feedback, supportive, honest, organised, and approachable were perceived as important by student-athletes. Furthermore, Lee et al. (2013) reported how positive psychosocial behaviours (supportive behaviours) positively influenced the compatibility between strength and conditioning coaches and student-athletes. According to Greenslade and Williams (2019), student-athletes value coaches who build trust and respect, provide encouragement and support, offer constructive feedback, possess strong communication skills, and are motivational and inspirational whilst maintaining high-performance expectations.

Similar findings were suggested from a qualitative perspective. Szedlak et al. (2015) indicated that elite athletes viewed strength and conditioning coaches as effective when they built solid relationships based on trust and understanding. These coaches were proficient in instruction and communication, maintaining high-performance expectations, and motivating athletes through confidence and passion. Shuman and Appleby (2016) observed that most participants in their study valued the qualities of knowledge, personality, professionalism, and support in their interactions with their strength and conditioning coach. Foulds et al. (2019) noted that athletes value coaches who cultivate close relationships by building trust and showing care and commitment through a positive outlook that includes planning and mutual goal-setting, displaying adaptability and role model traits, and employ effective communication through feedback, openness, and understanding of individual needs.

The current results on differences between levels of competition contribute to the ongoing discussion. Early research in sports coaching indicated differences, reporting how preferences of training and instruction behaviour decreased in the last stages of high school and increased at the university level, and social support behaviour increased with higher levels of competition (Chelladurai & Carron, 1983). Similarly, Riemer and Toon (2001) proposed that DII athletes preferred more positive feedback behaviour than DI athletes. More recently, however, these results were challenged as various authors

in different geographical contexts did not observe significant differences in preferences based on the level of competition (Beam et al., 2004; Hoigaard et al., 2008; Borghi et al., 2017; Cruz & Kim, 2017).

Our results align with recent literature. No significant differences were observed for DI and DII participants across the six coaching dimensions, and small effect sizes indicate that the magnitude of difference between the preference scores of the two levels of competition was low. These results align with studies conducted in strength and conditioning coaching, where the level of competition was clearly stated, and effective coaching behaviours were proposed (Szedlak et al., 2015; Foulds et al., 2019). Supporting the current findings, a recent review on strength and conditioning coaching by Fraser et al. (2022) highlighted the significance of positive psychosocial behaviours, building trust, care, effective teaching skills, and adapting leadership styles in fostering positive coach-athlete relationships, which contribute to athlete performance and well-being.

The authors expected that level of competition-based differences would be observed. This belief arose from the MDML framework and the differences in NCAA DI and DII standards regarding sports sponsorship, scheduling criteria, attendance requirements, and financial aid (NCAA, 2023b). However, current results reject the hypothesis.

Considering the lack of research in strength and conditioning coaching, our findings provide valuable insight, suggesting collegiate-athletes' preferred coaching behaviours, training and instruction, situational considerations, positive feedback, social support, and least preferred democratic and autocratic behaviours. As such, this aligns with existing research, emphasising the importance of positive psychosocial behaviours in strength and conditioning coaching (Fraser et al., 2022). The ranking of preferred behaviours, such as training and instruction, positive feedback, situational considerations, and social support, provides insight into areas student-athletes value the most in their coaching interactions. Surprisingly, democratic behaviour ranked lower in preference and was not classified as preferred using the proposed framework. This suggests that collegiate athletes might not prioritise participative decision-making from their coach. Furthermore, autocratic behaviour ranked the lowest, suggesting that collegiate athletes may not value particularly authoritarian coaches. The observation of no statistically significant nor practical differences between DI and DII athletes' preferences might suggest that a uniform coaching approach could be employed.

It is important to highlight certain limitations. It was difficult to confirm the sample size was truly random because of potential bias from the survey recipients or the intermediaries administering the survey. The study only quantitatively examined one aspect of situational characteristics associated with one of the MDML central mechanisms (preferred behaviours), whilst several other factors and personality dimensions might necessitate further quantitative and qualitative investigation using various methods and analyses. Additionally, recruiting more participants could have added greater depth to our findings.

This study offers novel data on the preferences of coaching behaviours from a representative sample of NCAA collegiate athletes in a strength and conditioning coaching context. Whilst the results may apply to similar contexts, caution should be exercised when generalising the findings to other coaching settings, as behaviours are part of a dynamic process that depends on several other unique factors as part of the MDML. The study's findings have practical implications for strength and conditioning coaches, suggesting the importance of understanding athletes' preferences in coaching behaviours. Training and instruction, positive feedback, situational considerations, and social support are preferred behaviours and can help build positive coach-athlete relationships. Understanding that DI and DII athletes may value similar coaching behaviours could guide coaches in creating strategies that adapt to all athletes' needs. Based on the identified limitations, future research should consider other ways of communicating with participants for direct engagement and increased number of participants. Additionally, to address the considerable gap in strength and conditioning coaching research and to expand beyond levels of competition, future studies should explore additional member and situational characteristics. Investigating these factors will provide a broader application of the MDML framework to strength and conditioning coaching and contribute to the advancement of knowledge in this field.

CONCLUSION

This study suggests preferences of coaching leadership behaviours among NCAA collegiate

athletes in strength and conditioning coaching. The results provide insights into aspects that athletes prioritise in their interactions with strength and conditioning coaches, emphasising key dimensions such as training and instruction, positive feedback, situational considerations, and social support. The findings underscore the importance of these behaviours that coaches may consider to foster positive relationships. Although minor variations were observed between DI and DII athletes' preferences, these were not practically significant, suggesting how there may be an underlying pattern of preferred strength and conditioning coaching leadership behaviours in DI and DII contexts.

These findings have potential implications for coaching practice as strength and conditioning coaches should consider preferences of coaching behaviours with their athletes. Furthermore, the awareness that athletes across different levels of competition share similar preferences could guide coaches in developing tailored approaches.

The study's aim was to contribute to the current gap in strength and conditioning coaching research, thus providing a basis for future investigations that might venture beyond the level of competition, directing the attention to other behaviour antecedents, and, consequently, leading to the adoption of various research avenues to interrogate leadership behaviours in strength and conditioning coaching.

CONFLICTS OF INTEREST

There are no conflicting relationships or activities.

FUNDING

This study received no specific funding in order to be completed.

ETHICAL APPROVAL

The Cardiff School of Sport & Health Sciences Research Ethics Committee approved the study (Institutional reference: PGR-3440)

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