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Page, Tom, Knowles, Zoe, Green, Matt, Drust, Barry  and Andrew, Matthew  (2025) Verbal Feedback Is the Primary Mechanism for Performance-Related Review in Professional English Male Soccer: A Quantitative Exploration. *International Journal of Sports Physiology and Performance*. pp. 1-19. ISSN 1555-0265

DOI: <https://doi.org/10.1123/ijsp.2024-0300>

Publisher: Human Kinetics

Version: Accepted Version

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Verbal Feedback is the Primary Mechanism for Performance-Related Review in Professional English Male Soccer: A Quantitative Exploration

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Purpose: Feedback is information that is provided to aid reflection and learning, and enhance future performances. Due to the increased demands of professional soccer and governance around staffing structures, the number of stakeholders delivering/receiving feedback has grown over the past 2 decades. The aim of the present study was to explore the feedback strategies used within professional male soccer in England. **Methods:** One hundred and thirty-nine respondents comprising of coaches (n = 34), players (n = 39), and performance staff (n = 66) from the English Premier League and football leagues completed an online survey. The survey included 19 questions covering giving and receiving feedback. **Results:** Daily verbal interactions, such as conversations and informal chats were the primary source of feedback and were highly prevalent between the 3 groups (59%–80%). Feedback was delivered frequently (daily/weekly) by all stakeholders at regular time points (before, during, and after training and matches) with >75% of coaches reporting giving feedback at all time points. Two-way feedback was also prevalent, with >76% of participants delivering or receiving feedback 2-ways. **Conclusions:** The data highlighted the importance of verbal communication within the process of optimizing professional soccer player's development and performance. Professional soccer clubs should focus on interpersonal and intrapersonal skill development and an approach that facilitate positive interactions between staff and players within the optimal environment (ie, time and space). We recommend further exploration of stakeholders' perceptions and effectiveness of feedback in influencing decision making and informing behavior change.

Keywords: development, data, practice, survey, decision making

Feedback is defined as information provided to a learner that allows them to reflect on their performance and determine what they subsequently should or should not do next.¹ The use of feedback has now expanded beyond skill acquisition and education-based literature to other contexts of sport such as the perceptions of athletes and coaches on the impact of feedback on their performance.^{2,3} Athletes perceive feedback to be central to self-reflection and have repeatedly indicated preferences for delayed and individual feedback.⁴ This feedback is provided not only from their coach but from other stakeholders, such as performance staff, parents/careers, and teammates/peers.⁴⁻⁶ Furthermore, athletes and coaches from various sports highlight that feedback is a 2-way process between the giver and receiver.^{7,8} For example, team-sport players have indicated that feedback provided them with guidance on areas of development and performance, as well as a platform to share reflections with their coaches.^{2,3} However, in these studies, preferences for greater opportunity to feedback to coaches and increases in individual feedback were demonstrated, as athletes felt that this gave them opportunities to clarify the feedback and increased the perceived quality of the information provided.^{4,9} Evidence from rugby and soccer players suggests that future performance may be optimized when a 2-way multimodal feedback approach (ie, visual, auditory, written, and kinesthetic) is utilized.^{4,9} While studies recognize a need for 2-way feedback between coaches and athletes, there is limited information on how this feedback is delivered (ie, frequency, type, timing, location, etc) by a range of stakeholders.¹⁰

Both the acute and chronic physical demands of professional soccer have evolved and increased over time.^{11,12} In England, the Elite Player Performance Plan specifies minimum requirements for performance staff and has therefore resulted in an increase in provision, resources, and staffing across soccer academies.¹³ Subsequently, professional soccer clubs employ performance staff (eg, sport scientists) to feedback physical performance data to players and coaches.¹⁴ Furthermore, with the evolution of rules, equipment, and technology, there has been a significant growth of performance staff (sports scientists, medical staff, and performance analysts) over the last 2 decades.¹⁵ These performance staff typically use technologies such as GPS and microelectrical mechanical systems to assess athlete physical loading and activity profiles. Feedback of this information may support coaches' decision-making processes for training prescription and return to play.^{10,16,17} For example, when examining the perceptions of practitioners and coaches, these stakeholders generally agree that feedback of training load data is beneficial to their club.^{18,19} Furthermore, coaches, performance staff, and players rated physical performance feedback as at least "somewhat important" in guiding coaching practice and influencing the practices/behaviors of coaches and players.¹⁰ While these studies have provided insights into the *what* and *why* of feedback in professional soccer, it is important to understand the mechanisms of *how*. Thus, greater understanding of the mechanisms of feedback employed in professional soccer are required.

The aim of the current study is to examine current feedback strategies of performance-related information employed by stakeholders in professional male soccer in England. Furthermore, we

aimed to establish the use of 2-way feedback across the stakeholder groups. Examinations of the behaviors of youth soccer coaches have indicated verbal feedback is one of the most frequently utilized strategies.²⁰ Likewise, coaches and athletes have exhibited preferences for learning and information sharing through informal sources.^{21,22} Due to the increased workforce and regular communication within professional male soccer clubs, it was hypothesized that verbal interactions would be the primary source of feedback (eg, coaching instructions and conversations).

Methods

Participants

Coaches (n = 34), performance staff (n = 66), and players (n = 39) working in male professional English soccer clubs voluntarily completed an online survey. For the purposes of this study, professional soccer clubs (time of data collection) were defined as those within the English Premier League and football leagues/tiered academy structure. In line with the Elite Player Performance Plan, academies are categorized from categories 1 to 4 based upon the support that they offer to their players (ie, facilities, education, coaching, and welfare provision).¹³ To meet the inclusion criteria, players were required to be >16 years and representing the professional development phase (PDP; 16–23 y) or first (senior) team. Coaches and performance staff were required to be working full-time with any age group from foundation phase (9–11 y), youth development phase (12–16 y), PDP, and first team¹³; there were no stipulations on how much experience participants had in these roles. All participants were provided with an information sheet on the first page of the survey and implied consent was given on submission. For players <18 years of age, parental consent was provided. The procedure was in line with the Declaration of Helsinki and approved by a university research ethics committee (18/SPS/029).

Design

Participants were recruited using social media platforms and directly through the research team's professional network of contacts. "Snowball" sampling was used to increase visibility where participants were encouraged to circulate to their networks/peers.²³ The survey was open for approximately 20 weeks with regular promotions. Participants were purposely targeted to represent the 3 groups.

Methodology

Three separate surveys were created for each group and took an average of 4 (1) minutes to complete. Surveys began with a glossary of terms defining feedback as "information on performance that is used to improve performance and/or development." This was followed by several multiple-choice questions examining participant demographics and several key topics relating to feedback including: frequency of providing and/or receiving feedback¹⁹ (to understand how often stakeholders exchange information between each group), timing of providing and/or receiving feedback¹⁹ (to understand the key timepoints when stakeholders exchange important information), and location of providing and/or receiving feedback (to understand where and how important information was exchanged).¹⁰ Each theme was contextually set to explore verbal, written, and visual feedback. Some questions were specific to each group, while some were standardized to allow comparison across groups. Questions included multiple choice and binary (ie, yes/no). A free-text response option was added to questions where required, allowing for

respondents to provide context. Despite this, no participants opted to add extra detail; meaning, no analysis of free-text data was required. Questions were developed by the research lead and were based on experience and relevant literature.^{10,14,19} The survey was reviewed for content validity via 4 rounds of discussion with the research team.²¹ Two rounds of pilot testing were performed though discussion with 2 coaches (assistant and lead PDP), 2 players (1 PDP [18 y] and 1 first team [22 y]), and 2 performance staff (PDP and first team-sport scientists) working in a championship club (participants were not included in the final data collection). The pilot testing resulted in changes in the wording of some questions/responses to enhance readability and/or understanding (coach = 6; performance staff = 6; player = 7), which were readdressed and approved by the same stakeholders. The online surveys were then created via platform SurveyMonkey, and consisted of 19 items for coaches and performance staff (11 multiple choice; 8 yes/no) and 17 items for players (9 multiple choice; 8 yes/no). Links and QR codes for each survey were created for dissemination via posters, social media posts, and contact emails.

Statistical Analysis

Survey responses were exported into Microsoft Excel and subsequently SPSS for further analysis. For categorical, multiple-choice, and binary questions, we calculated frequencies and percentages for each response. To assess between-group differences in responses, magnitude-based inferences were used.^{10,19} Proportion ratios were calculated and assessed against the following magnitude scale. Qualitative inferences trivial, small, moderate, large, very large, and extremely large were represented by the ratios 1.00, 1.11, 1.43, 2.0, 3.3, and 10, respectively, with their inverses represented by ratios of 0.9, 0.7, 0.5, 0.3, and 0.1.^{24,25}

Results

Participant Demographics

Of the 139 respondents (34 coaches, 66 performance staff, and 39 players), the coaching group contained lead coach (59%), assistant coach (24%), head of coaching (12%), and academy manager (3%). Performance-staff group included sports scientists (38%), strength and conditioning coaches (9%), performance analysts (26%), physiotherapists (6%), nutritionists (6%), psychologists (3%), heads of sports science and medicine (6%), heads of physical performance (6%), and physiotherapists (6%). Players represented the U23s (41%), U18s (38%), and first team (21%) squad (Table 1). All coaches (100%) and all but one of the players (97%) represented clubs in either the English Premier League or the football leagues Championship (1 (3%) respondent was from League 2). Performance staff were more evenly distributed across leagues represented by clubs in the English Premier League (37%) and football leagues championship (37%). Within first team environments, players (21%) and performance staff (39%) were represented more than coaches (5%), resulting in very large and extremely large differences, respectively. Most performance staff (75%) worked with players >16 years (PDP or first team), whereas the distribution of coaches through the other phases was more even. Respondents within academies were mainly represented by category-1 and 2 clubs; yet, there was some representation of performance staff (16%) and coaches (10%) across category-3/4 clubs, whereas there was none for players, representing extremely large differences.

Table 1 Proportion of League Clubs Worked With, Player Age Categories, Academy Status, and Level of Experience Represented by the Participants

	Coaches % (no.)	Performance staff % (no.)	Players % (no.)	Proportion ratio	Qualitative inference
Which league does your senior team/club currently play in? ^{a,b}					
Premier league	33 (1)	37 (13)	3 (1)	0.9; 13; 14.5	Small; extremely large; extremely large
Championship	67 (2)	37 (13)	95 (37)	1.8; 0.7; 0.4	Moderate; small; large
League 1	0 (0)	9 (3)	0 (0)	0.0; 0.0; 0.0	Extremely large; extremely large; extremely large
League 2	0 (0)	17 (6)	3 (1)	0.0; 0.0; 6.7	Extremely large; extremely large; extremely large
Which team/age group do you currently mainly work with/play for? ^{c,d}					
First team	5 (2)	39 (35)	21 (8)	0.1; 0.2; 1.9	
Professional development phase	41 (18)	36 (32)	79 (31)	1.1; 0.5; 0.5	
Youth development phase	36 (16)	17 (15)	0 (0)	2.2; N/A; N/A	
Foundation phase	16 (7)	8 (7)	0 (0)	2; N/A; N/A	
What is your club's current academy status? ^e					
Category 1	53 (16)	68 (21)	77 (23)	0.8; 0.7; 0.9	Small; small; small
Category 2	37 (11)	16 (5)	23 (7)	2.3; 1.6; 0.7	Large; moderate; small
Category 3	7 (2)	13 (4)	0 (0)	0.5; 0.0; 0.0	Moderate; extremely large; extremely large
Category 4	3 (1)	3 (1)	0 (0)	1.0; 0.0; 0.0	Trivial; extremely large; extremely large
How many years' experience do you have in your current role? ^f					
0–1 y	15 (5)	6 (4)		2.4	Large
1–3 y	12 (4)	38 (25)		0.3	Very large
3–6 y	24 (8)	21 (14)		1.1	Small
6–9 y	24 (8)	20 (13)		1.2	Small
10–12 y	9 (3)	9 (6)		1.0	Trivial
12+ y	18 (6)	6 (4)		2.9	Large

Note: Also included are proportion ratios (coaches: performance staff, coaches: players, and performance staff: players) and the qualitative inferences.

^a77 total responses, with 3 by coaches, 35 by performance staff, and 39 by players. ^bCoaches and performance staff only answered if they worked with first team. ^c172 total responses, with 44 by coaches, 89 by performance staff, and 39 by players. ^dProfessional development phase was further subdivided into U23s and U18s for players. ^e91 total responses, with 30 by coaches, 31 by performance staff, and 30 by players. ^fParticipants did not respond if they selected that they worked with first team on previous question.

Type and Frequency

Most performance staff (80%) and coaches (71%) reported that verbal feedback was delivered through daily informal chats. Moreover, verbal feedback was delivered through formal meetings on a daily (performance staff, 35%; coaches, 27%) and weekly basis (performance staff, 39%; coaches, 45%). Written feedback between performance staff and coaches was primarily delivered as a combination of daily and weekly reports on a computer screen (62%–63%) and emails/texts (61%–72%; Table 2). Verbal feedback from performance staff to players was delivered through daily (performance staff, 79%; players, 59%), and weekly informal chats (performance staff, 14%; players, 31%) and instructions during training (performance staff, 71%; players, 90%). For visual feedback, 51% of players reported receiving video feedback from performance staff on a weekly basis; however, there were small to large differences between groups for the frequency of video feedback due to the varied responses by performance staff. Most written feedback was delivered daily and weekly through paper-based reports (51%–72%) and reports shown on a computer screen (68%–74%) (Table 3). Verbal feedback was delivered by coaches to players through daily informal

chats (coaches, 79%; players, 72%) and daily instructions during training/matches (coaches, 91%; players, 92%). Visual feedback was primarily delivered through daily demonstrations (coaches, 79%; players, 67%), weekly video feedback (coaches, 74%; players, 77%), and weekly use of a tactics board (coaches, 56%; players, 77%). There was less use of written feedback between coaches and players, with reports shown on a computer screen on weekly basis only being reported 51% to 56% of the time (Table 4).

Timing

Most feedback between performance staff and coaches was delivered after training and matches (>85%), with 68% of performance staff and 74% of coaches reporting delivering and/or receiving feedback before training. 50% to 55% reported delivering and/or receiving feedback during training and matches (Figure 1a). Feedback from performance staff to players was delivered after training and matches, with over 86% of respondents from both groups responding *yes* to these times (Figure 1b). Over 72% of players and coaches reported that feedback occurred across all time points (Figure 1c).

Table 2 Proportion of Performance-Staff and Coach Responses to the Frequency of Delivery and Reception of Verbal, Visual, and Written Forms of Feedback Along With Ratio of Proportion and Qualitative Inference for the Ratio

	Coaches % (no.)	Performance staff % (no.)	Proportion ratio	Qualitative inference
How often do you give/receive the following types of VERBAL feedback to/from your coach/performance staff?				
Informal chats or conversations				
Never	3 (1)	2 (1)	0.52	Moderate
Every day/session	71 (24)	80 (53)	1.14	Small
Every game/week	21 (7)	9 (6)	0.44	Large
Every 1–2 mo	3 (1)	9 (6)	3.09	Large
Every 3–6 mo	3 (1)	0 (0)	0	Extremely large
Formal meetings				
Never	12 (4)	15 (10)	1.25	Small
Every day/session	27 (9)	35 (23)	1.28	Small
Every game/week	45 (15)	39 (26)	0.87	Small
Every 1–2 mo	9 (3)	9 (6)	1.00	Trivial
Every 3–6 mo	6 (2)	2 (1)	0.25	Very large
How often do you give/receive the following types of VISUAL feedback to/from your coach/performance staff?				
Video				
Never	28 (9)	36 (24)	1.29	Small
Every day/session	19 (6)	18 (12)	0.97	Trivial
Every game/week	25 (8)	26 (17)	1.03	Trivial
Every 1–2 mo	16 (5)	9 (6)	0.58	Moderate
Every 3–6 mo	13 (4)	11 (7)	0.85	Small
Graph-based data				
Never	13 (4)	11 (7)	0.85	Small
Every day/session	28 (9)	42 (28)	1.51	Moderate
Every game/week	25 (8)	24 (16)	0.97	Trivial
Every 1–2 mo	25 (8)	20 (13)	0.79	Small
Every 3–6 mo	9 (3)	3 (2)	0.32	Large
How often do you give/receive the following types of WRITTEN feedback to/from your coach/performance staff?				
Reports on a computer screen				
Never	15 (5)	17 (11)	1.13	Small
Every day/session	21 (7)	30 (20)	1.47	Moderate
Every game/week	41 (14)	33 (22)	0.81	Small
Every 1–2 mo	12 (4)	18 (12)	1.55	Moderate
Every 3–6 mo	12 (4)	2 (1)	0.13	Very large
Email/text/WhatsApp				
Never	9 (3)	15 (10)	1.69	Moderate
Every day/session	24 (8)	34 (22)	1.40	Small
Every game/week	36 (12)	38 (25)	1.06	Trivial
Every 1–2 mo	18 (6)	6 (4)	0.34	Large
Every 3–6 mo	12 (4)	6 (4)	0.51	Moderate

Location

Between performance staff and coaches, the most frequent locations were training pitch (coaches, 88%; performance staff, 74%), email/text (coaches, 82%; performance staff, 80%), and offices (coaches, 85%; performance staff, 92%). Among performance staff and players, training pitch (performance staff, 72%; players, 77%), individual/group meetings (performance staff, 86%; players, 82%), and gym (performance staff, 72%; players, 85%) had the highest proportion of *yes* responses from both groups. Feedback between

coaches and players was primarily delivered on the training pitch (coaches, 100%; players, 100%), in group or individual meetings (coaches, 94%; players, 95%), and in the dressing room (coaches 85%; players, 69%).

Two-way Feedback

Survey responses to delivering or receiving 2-way feedback are shown in Figure 2. Two-way feedback within stakeholder groups was highly prevalent, with over 76% of participants responding *yes*

Table 3 Proportion of Performance-Staff and Player Responses to the Frequency of Delivery and Reception of Verbal, Visual, and Written Forms of Feedback Along With Ratio of Proportion and Qualitative Inference for the Ratio

	Performance staff % (no.)	Players % (no.)	Proportion ratio	Qualitative inference
How often do you give/receive the following types of VERBAL feedback to/from your players/performance staff?				
Informal chats or conversations				
Never	5 (3)	3 (1)	1.77	Moderate
Every day/session	79 (52)	59 (23)	1.34	Small
Every game/week	14 (9)	31 (12)	0.44	Large
Every 1–2 mo	2 (1)	8 (3)	0.20	Very large
Every 3–6 mo	2 (1)	0 (0)	0	Extremely large
Instructions during training/match				
Never	26 (17)	8 (3)	3.35	Very large
Every day/session	53 (35)	64 (25)	0.83	Small
Every game/week	18 (12)	26 (10)	0.71	Small
Every 1–2 mo	3 (2)	3 (1)	1.18	Small
Every 3–6 mo	0 (0)	0 (0)	N/A	N/A
How often do you give/receive the following types of VISUAL feedback to/from your players/performance staff?				
Video				
Never	26 (17)	21 (8)	1.26	Small
Every day/session	14 (9)	15 (6)	0.89	Small
Every game/week	32 (21)	51 (20)	0.62	Moderate
Every 1–2 mo	21 (14)	10 (4)	2.07	Large
Every 3–6 mo	8 (5)	3 (1)	2.95	Large
Graph-based data				
Never	18 (12)	3 (1)	7.09	Very large
Every day/session	18 (12)	21 (8)	0.89	Small
Every game/week	41 (27)	54 (21)	0.76	Small
Every 1–2 mo	20 (13)	13 (5)	1.54	Moderate
Every 3–6 mo	3 (2)	10 (4)	0.30	Large
How often do you give/receive the following types of WRITTEN feedback to/from your players/performance staff?				
Reports on a computer screen				
Never	17 (11)	13 (5)	1.30	Small
Every day/session	18 (12)	15 (6)	1.18	Small
Every game/week	50 (33)	59 (23)	0.85	Small
Every 1–2 mo	15 (10)	13 (5)	1.18	Small
Every 3–6 mo	0 (0)	0 (0)	N/A	N/A
Email/text/WhatsApp				
Never	33 (22)	62 (24)	0.54	Moderate
Every day/session	12 (8)	8 (3)	1.58	Moderate
Every game/week	32 (21)	21 (8)	1.55	Moderate
Every 1–2 mo	23 (15)	5 (2)	4.43	Very large
Every 3–6 mo	0 (0)	5 (2)	0.00	Extremely large

to delivering or receiving feedback 2 ways. All coaches reported yes to delivering feedback to other coaches.

Discussion

The aim of the present study was to examine the current mechanisms (ie, what, why, and how) underpinning feedback strategies of performance-related information in professional male English soccer clubs. The central finding was that the primary source of

feedback was verbal and was predominantly delivered in an informal nature, such as daily conversations between stakeholders. Furthermore, it was established that performance feedback between stakeholders was a 2-way process, demonstrating there were frequent opportunities where feedback can potentially improve player performance and assist in the reflective elements of the coaching process.

A key finding from the survey was the importance of informal communication between stakeholders. Most verbal feedback between performance staff, coaches, and players was daily and

Table 4 Proportion of Coach's and Player's Responses to the Frequency of Delivery and Reception of Verbal, Visual, and Written Forms of Feedback Along With Ratio of Proportion and Qualitative Inference for the Ratio

	Coaches % (no.)	Players % (no.)	Proportion ratio	Qualitative inference
How often do you give/receive the following types of VERBAL feedback to/from your players/coaches?				
Informal chats or conversations				
Never	0 (0)	3 (1)	0.00	Extremely large
Every day/session	79 (27)	72 (28)	1.11	Trivial
Every game/week	18 (6)	21 (8)	0.86	Small
Every 1–2 mo	0 (0)	5 (2)	0.00	Extremely large
Every 3–6 mo	3 (1)	0 (0)	0.00	Extremely large
Instructions during training/game				
Never	0 (0)	3 (1)	0.00	Extremely large
Every day/session	91 (31)	92 (36)	0.99	Trivial
Every game/week	9 (3)	3 (1)	3.44	Very large
Every 1–2 mo	0 (0)	3 (1)	0.00	Extremely large
Every 3–6 mo	0 (0)	0 (0)	N/A	N/A
How often do you give/receive the following types of VISUAL feedback to/from your players/coaches?				
Video				
Never	3 (1)	3 (1)	1.15	Small
Every day/session	12 (4)	13 (5)	0.92	Trivial
Every game/week	74 (25)	77 (30)	0.96	Trivial
Every 1–2 mo	12 (4)	8 (3)	1.53	Moderate
Every 3–6mo	0 (0)	13 (5)	0.00	Extremely large
Demonstration				
Never	0 (0)	8 (3)	0.00	Extremely large
Every day/session	79 (27)	67 (26)	1.19	Small
Every game/week	21 (7)	21 (8)	1.00	Trivial
Every 1–2 mo	0 (0)	5 (2)	0.00	Extremely large
Every 3–6 mo	0 (0)	0 (0)	N/A	N/A
How often do you give/receive the following types of WRITTEN feedback to/from your players/coaches?				
Paper-based reports				
Never	30 (10)	31 (12)	0.98	Trivial
Every day/session	3 (1)	3 (1)	1.18	Small
Every game/week	24 (8)	36 (14)	0.68	Moderate
Every 1–2 mo	27 (9)	15 (6)	1.77	Moderate
Every 3–6 mo	15 (5)	15 (6)	0.98	Trivial
Email/text/WhatsApp				
Never	33 (11)	51 (20)	0.65	Moderate
Every day/session	12 (4)	13 (5)	0.95	Trivial
Every game/week	27 (9)	21 (8)	1.33	Small
Every 1–2 mo	21 (7)	10 (4)	2.07	Large
Every 3–6 mo	6 (2)	5 (2)	1.18	Small

brief conversations. The combination of verbal instructions delivered daily during training and the informal conversations that surround the transfer of data to aid reflections posttraining/games is consistent with the research examining coaching practices and information sharing in multidisciplinary teams.^{10,19,20,22,26} For example, the relatively high frequency of verbal feedback reported by players may be underpinned by their increased prospect of engagement with the feedback process when presented in this way.¹⁰ Coaches typically favor developing their knowledge (eg, practice design) via informal (collaboration with peers and/or mentor) over formal sources.²⁷ Thus it is not surprising that the

most frequent method of feedback from performance staff to coaches was informal, supporting previous findings that more opportunities should be provided to aid informal interactions such as shared office spaces, canteens, and shared lounges.¹⁰ Furthermore, frequent informal communication methods employed by all stakeholders may be seen as integral to the effectiveness of multidisciplinary teams within professional soccer, as they provided opportunities for shared reflections, learning, and relationship building.¹⁴ Soccer clubs have previously reported that good internal communication among coaches, sports scientists, and medical staff leads to more favorable outcomes, such as lower

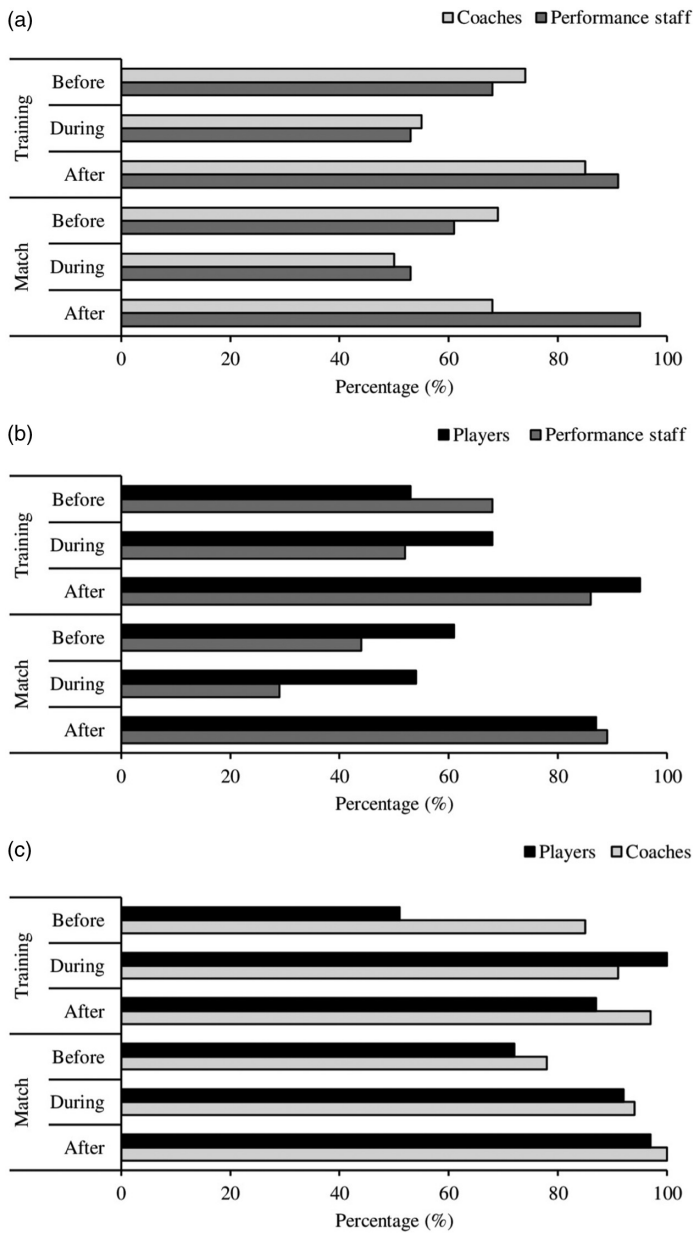


Figure 1 — Timing of feedback delivery between key stakeholders (a) performance staff (black bars) and coach (light-gray bars), (b) performance staff (dark-gray bars) and player, (c) coach and player.

player injury burdens, and higher training and match availability.²⁸ The data provides further evidence of the value of utilizing the power of informal interactions for effective communication between all stakeholders within the professional soccer environment. It may be recommended that stakeholders such as performance staff look to develop increased interpersonal skills, such as knowledge of social contexts, relationship building, and intrapersonal skills, such as self-regulation, and reflection to deliver meaningful feedback that is purposeful and not “noise.”^{16,29} Education sessions for performance staff and coaches should look to develop interpersonal and communication skills, given the increasing size of multi-disciplinary teams in elite professional soccer clubs.

The feedback process observed by coaches and performance staff were indicative of the current coaching process and workflow of stakeholders who operate in professional soccer environments.^{30,31}

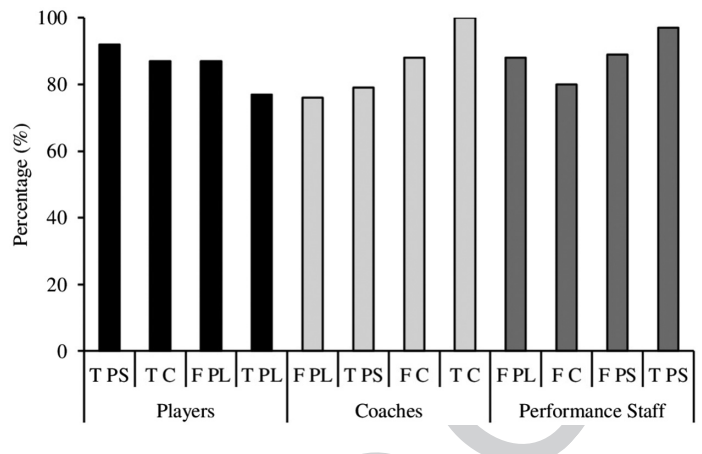


Figure 2 — Player, coach, and performance-staff responses to delivering and receiving 2-way feedback between (T = To; F = From) and within groups. C indicates coach; F, from; PL, player; PS, performance staff; T, to.

For example, feedback was delivered at a high frequency by performance staff to coaches in a range of formats (verbal, graphical, and written) on a daily/weekly basis (Table 2). In addition to informal communication, performance staff also reported they deliver feedback in formal meetings (74%) and using graph-based data (66%) or email/text/WhatsApp (72%) on a daily/weekly basis. This is not unexpected, given previous work examining the nature of feedback from scientists such as performance analysts across a range of sporting contexts.^{4,32,33} It has previously been reported that the clarity and timeliness of training load data reports are central for communication.^{10,18,19} However, coaches generally agree that high volumes of data and/or poor communication can cause barriers to effective feedback.¹⁰ Without consideration, performance staff may risk an information overload to coaches, an approach which is indicative of feedback strategies that can attenuate understanding/learning.¹ It could be recommended that reducing the amount of information provided to coaches, yet ensuring the correct data is included, may bridge the translational gap between data and decision-making.^{10,31,34} For instance, principal component analysis of training load data can be applied within professional soccer to reduce the amount of GPS information fed back from sports scientists to coaches.³⁵ Feedback was delivered in high frequencies and varying formats; however, further research is required to understand whether the information provided is perceived to be useful by all stakeholders.

The data illustrated that performance staff primarily provided feedback to coaches before training and after training/matches. This finding is consistent with previous literature indicating that both groups reflected postsession and evaluated previous training sessions prior to subsequent training.¹⁰ The higher values in the present study may be reflective of feedback from a broad range of performance staff rather than physical data alone, fed back by sports scientists. For example, it has been shown that as players progress through age groups, they are exposed to an increasing array of feedback providers such as physiotherapists, performance analysts, nutritionists, and strength and conditioning staff that provide information to both coaches and players before training sessions.⁶ Notwithstanding the nature of the information, these data support the suggestion that feedback of such information facilitates not only the use of reflection and/or review after training or matches^{36,37} but also planning and decision-making processes prior to training or matches.^{10,19} While information was typically

Table 5 Survey Questions and Possible Responses for Coaches

Question	Type of question	Possible responses
What is your current main role at your club?	Multiple choice	Manager Assistant manager Coach Assistant coach Head of coaching Academy manager Other (please specify)
How many years experience do you have in your current role?	Multiple choice	0–1 y 1–3 y 3–6 y 6–9 y 10–12 y 12+ y
Which team/age group do you currently mainly work with? Please indicate all that apply	Multiple choice	First team Professional development phase (Under-18s–Under-23s) Youth development phase (Under-12s–Under-16s) Foundation phase (Under-9s–Under-11s) Other (please specify)
Which league does your clubs' first team currently play in?	Multiple choice	Premier league Championship League 1 League 2 Other (please specify)
What is your club's current academy status?	Multiple choice	Category 1 Category 2 Category 3 Category 4 Other (please specify)
HOW OFTEN do you receive the following types of VERBAL feedback from your performance staff? Informal chats Formal meetings Phone calls Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you receive the following types of VISUAL feedback from your performance staff? Video Demonstrations (ie, technical information) Graph-based data Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you receive the following types of WRITTEN feedback from your performance staff? Paper-based printouts Report on a computer screen (ie, laptop shown to you) Email/text message Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
Do you receive feedback from your performance staff at the following times? Please indicate yes or no. Before training During training After training Before match During match After match Other (please specify)	Binary	Yes No

(continued)

Table 5 (continued)

Question	Type of question	Possible responses
Do you receive feedback from your performance staff in the following places? Please indicate yes or no. Training pitch Phone call Email/text Office Notice board Gym/treatment room Canteen Dressing room Other (please specify)	Binary	Yes No
HOW OFTEN do you give the following types of VERBAL feedback to your players? Talking to players Instructions during training/match Phone calls Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you give the following types of VISUAL feedback to your players? Video Demonstrations (ie, technical information) Tactics board Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you give the following types of WRITTEN feedback to your players? Paper-based printouts Report on a computer screen (ie, laptop you show them) Email/text message Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
Do you give feedback to your players at the following times? Please indicate yes or no. Before training During training After training Before match During match After match Other (please specify)	Binary	Yes No
Do you give feedback to your players in the following places? Please indicate yes or no. Training pitch Meeting—group or individual Phone call Dressing room Notice boards Gym/treatment room Other (please specify)	Binary	Yes No
GIVE any form of feedback (verbal, visual, written, other) to your performance staff? For example, you may tell the sports scientist that the players are looking fit and strong during the last 15 min of games at the moment.	Binary	Yes No

(continued)

Table 5 (continued)

Question	Type of question	Possible responses
GIVE any form of feedback (verbal, visual, written, other) to other coaches? For example, you may sit down for lunch with another coach and tell him what you thought of his session, and what he could improve upon for next time.	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from other coaches? For example, you may ask a more experienced coach to observe you coaching and provide you with some examples of how you could improve.	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from your players? For example, you may ask the players at the end of the session what they thought of the session and what could be done differently next time.	Binary	Yes No

Table 6 Survey Questions and Possible Responses for Performance Staff

Question	Type of question	Possible responses
Please indicate which category best represents your current main role?	Multiple choice	Sports scientist Strength and conditioning coach Performance analyst Physiotherapist Doctor Nutritionist Psychologist Head of sports science and medicine Other (please specify)
How many years' experience, in total, do you have in this role?	Multiple choice	0–1 y 1–3 y 3–6 y 6–9 y 10–12 y 12+ y
Which team/age group do you currently mainly work with? Please indicate all that apply	Multiple choice	First team Professional development phase (Under-18s–Under-23s) Youth development phase (Under-12s–Under-16s) Foundation phase (Under-9s–Under-11s) Other (please specify)
Which league does your club currently play in?	Multiple choice	Premier league Championship League 1 League 2 Other (please specify)
What is your club's current academy status?	Multiple choice	Category 1 Category 2 Category 3 Category 4 Other (please specify)
HOW OFTEN do you give the following types of VERBAL feedback to your coaches? Informal chats Formal meetings Phone calls Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you give the following types of VISUAL feedback to your coach(s)? Video Demonstrations (ie, technical information) Graph-based data Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo

(continued)

Table 6 (continued)

Question	Type of question	Possible responses
HOW OFTEN do you give the following types of WRITTEN feedback to your coach(s)?	Multiple choice	Never
Paper-based printouts		Every day/session
Report on a computer screen (ie, show them a laptop)		Every week/game
Email/text message		Every 1–2 mo
Other (please specify and describe how often)		Every 3–6 mo
Do you give feedback to your coach(s) at the following times? Please indicate yes or no.	Binary	Yes No
Before training		
During training		
After training		
Before match		
During match		
After match		
Other (please specify)		
Do you give feedback to your coach(s) in the following places? Please indicate yes or no.	Binary	Yes No
Training pitch		
Phone call		
Email/text		
Office		
Notice board		
Gym/treatment room		
Canteen		
Dressing room		
Other (please specify)		
HOW OFTEN do you give the following types of VERBAL feedback to your players?	Multiple choice	Never
Talking to players		Every day/session
Instructions during training/match		Every week/game
Phone calls		Every 1–2 mo
Other (please specify and describe how often)		Every 3–6 mo
HOW OFTEN do you give the following types of VISUAL feedback to your players?	Multiple choice	Never
Video		Every day/session
Demonstrations (ie, technical information)		Every week/game
Graph-based data		Every 1–2 mo
Other (please specify and describe how often)		Every 3–6 mo
HOW OFTEN do you give the following types of WRITTEN feedback to your players?	Multiple choice	Never
Paper-based printouts		Every day/session
Report on a computer screen (ie, laptop you show them)		Every week/game
Email/text message		Every 1–2 mo
Other (please specify and describe how often)		Every 3–6 mo
Do you give feedback to your players at the following times? Please indicate yes or no.	Binary	Yes No
Before training		
During training		
After training		
Before match		
During match		
After match		
Other (please specify)		

(continued)

Table 6 (continued)

Question	Type of question	Possible responses
Do you give feedback to your players in the following places? Please indicate yes or no. Training pitch Meeting—group or individual Phone call Dressing room Notice boards Gym/treatment room Other (please specify)	Binary	Yes No
GIVE any form of feedback (verbal, visual, written, other) to other members of the performance staff? Yes/No. For example, you (the sports scientist) send a report to the physiotherapist with the physical data for an injured player who has been doing rehab.	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from other members of the performance staff? Yes/No. For example, you (the physiotherapist) are carrying out a rehab session, the sports science staff are monitoring your session live and they tell you how much high-intensity distance the player has covered and what percentage of his maximum speed he has achieved.	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from your coach(s)? Yes/No. For example, you (the performance analyst) may sit down with the coach after a game and he may give you his opinion on the game. This will be the information you use to put the post match meeting together.	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from your players? Yes/No. For example, you (the strength & conditioning coach) have a conversation with a player at the end of a gym session. He explains why he avoids doing upper body weights during the session, it makes him feel “top-heavy” and the manager/coach has already told him he is looking heavy and should lose weight.	Binary	Yes No

Q4 Table 7 Survey Questions and Possible Responses for Players

Question	Type of question	Possible responses
Which team/age group do you currently mainly play for?	Multiple choice	First Team Under 23s Under 18s Other (please specify)
What is your club’s current academy status?	Multiple choice	Category 1 Category 2 Category 3 Category 4 Other (please specify)
Which league does your club currently play in?	Multiple choice	Premier league Championship League 1 League 2 Other (please specify)
HOW OFTEN do you receive the following types of VERBAL feedback from your soccer coach(s)? Talking to coach(s) Instruction during training/match Phone calls Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo

(continued)

Table 7 (continued)

Question	Type of question	Possible responses
HOW OFTEN do you receive the following types of VISUAL feedback from your soccer coach(s)? Video Demonstrations (ie, technical information) Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you receive the following types of WRITTEN feedback from your soccer coach(s)? Paper-based printouts Report on a computer screen (ie, laptop shown to you) Email/text message Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
Do you receive feedback from your soccer coach(s) at the following times? Please indicate yes or no. Before training During training After training Before match During match After match Other (please specify)	Binary	Yes No
Do you receive feedback from your soccer coach(s) in the following places? Please indicate yes or no. Training pitch Meeting—group or individual Phone call Dressing room Notice board Gym/treatment room Canteen Other (please specify)	Binary	Yes No
HOW OFTEN do you receive the following types of VERBAL feedback from your performance staff? Talking to performance staff Instructions during training/match Phone calls Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you receive the following types of VISUAL feedback from your performance staff? Video Demonstrations (ie, technical information) Graph-based data Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo
HOW OFTEN do you receive the following types of WRITTEN feedback from your performance staff? Paper-based printouts Report on a computer screen (ie, laptop shown to you) Email/text message Other (please specify and describe how often)	Multiple choice	Never Every day/session Every week/game Every 1–2 mo Every 3–6 mo

(continued)

Table 7 (continued)

Question	Type of question	Possible responses
Do you receive feedback from your performance staff at the following times? Please indicate yes or no. Before training During training After training Before match During match After match Other (please specify)	Binary	Yes No
Do you receive feedback from your performance staff in the following places? Please indicate yes or no. Training pitch Meeting—group or individual Phone call Dressing room Notice boards Gym/treatment room Other (please specify)	Binary	Yes No
GIVE any form of feedback (verbal, visual, written, other) to your soccer coach(s)? Yes/No. For example, at the end of the game the coach asks everyone what their thoughts were on the game and what we could do better next time. You say that you think we could be more aggressive in our individual battles.	Binary	Yes No
GIVE any form of feedback (verbal, visual, written, other) to your performance staff? Yes/No. For example, you fill in your wellness questionnaire in the morning before training and say how heavy and sore your legs are feeling, and also you had a really bad sleep last night.	Binary	Yes No
GIVE any form of feedback (verbal, visual, written, other) to your team mates? Yes/No. For example, during an analysis session you are asked to give 3 good and 3 bad things that a different unit did during a game (ie, defenders tell midfielders what they thought).	Binary	Yes No
RECEIVE any form of feedback (verbal, visual, written, other) from your team mates? Yes/No. For example, you are playing in a game during training and you play a good ball, which opens up an attack for the team, 1 of the players on your team shouts “what a ball, you’re on fire.”	Binary	Yes No

provided by coaches during practice, feedback from performance staff was more rare (Figure 1) therefore an “integrated delivery model” may not be regularly applied currently. For example, research contextualizing the physical actions such as high-intensity actions/sprints in relation to positional actions (eg, overlapping runs for full backs) highlights the potential for merging departmental disciplines (ie, coaching and sports science).³⁸ Integrated and contextualized feedback of physical, technical, and tactical skills in professional soccer is an area for development, which could enhance the functioning of interdisciplinary teams, thus potentially improving performance and developmental outcomes for players.

A further study aim was to identify the use of 2-way feedback processes across stakeholder groups. All participants reported they both delivered and received feedback between and within groups, indicating that a 2-way interaction exists (Figure 2).⁷ For instance, 2-way interactions between managers/coaches and their support staff, managers/coaches and their players, and managers/coaches and the

clubs board have been shown to be prevalent across different sports settings.³⁹ For players, the 2-way nature of the feedback mechanisms has been shown through athlete’s accounts of their involvement in video feedback sessions, demonstrating they are given the opportunity to feedback to their coaches and/or peers.^{3-5,9} These findings provide further evidence that athletes are no longer seen as just the receivers of feedback but now play an active role in the process.³² An agreement between both players and performance staff indicated that players are also the givers of feedback to both performance staff and coaches, showing further support for the suggestion that players should be recognized and included within the feedback process.^{10,22} The high quantity of 2-way feedback together with verbal feedback as the primary source demonstrates that lines of communication are open between all stakeholders, and 2-way feedback during daily conversations may be vital to improve performance and development in professional soccer. Professional soccer clubs may look to carefully consider facility design in order to optimize the time, space,

and opportunities for 2-way feedback to occur. Further research is still warranted to understand the mechanisms that underpin 2-way feedback and whether it is effective to inform practice and improve performance.

Limitations

With regard to response rate, 139 stakeholders completed the survey across 3 groups and could be considered low in comparison to the total number of players, coaches, and performance staff in professional soccer. Increased response rates are usually indicative of findings with greater external validity.⁴⁰ However, the current response rate is similar to previous survey-based studies examining feedback of training load data in professional soccer clubs.^{10,19} The novelty and quality of the data set should also be acknowledged while recognizing that challenges arise when recruiting participants from coach and player subgroups, thus limiting a full understanding of feedback in professional soccer. Further investigation of coach and player perceptions from a quantitative and qualitative perspective should be recommended. There is also a possibility within the findings of a clustering of responses, as multiple responses were allowed from 1 club. This was enabled to access as many participants as possible and to ensure ecological validity of the findings in the applied club environment in which the research was predominantly carried out. It should be acknowledged that responses are from a range of soccer clubs, yet the potential for sampling bias must also be acknowledged when interpreting the survey data for several reasons. First, there is a much higher representation from performance staff than coaches and players, which may indicate that the reach of the survey through social media and snowball sampling may have resulted in an overrepresentation of participants from this stakeholder group. Therefore, it could be anticipated that response rates were higher among this demographic and may skew the results.

Practical Applications

Frequent informal communication methods among all stakeholders are integral to the effectiveness of multidisciplinary teams within professional soccer, providing opportunities for shared reflections, learning, and relationship building. Through bespoke training and education sessions, performance staff, and coaches should develop interpersonal skills (eg, social context knowledge and relationship building), and intrapersonal skills (eg, self-regulation and reflection) to deliver meaningful and purposeful feedback. Reducing the amount of information provided to coaches, while ensuring the inclusion of relevant data, can help bridge the gap between data and decision making. An approach which optimizes the time, space, and opportunity for feedback may be recommended, yet further research is necessary to understand the mechanisms underpinning effective 2-way feedback to inform practice and improve performance.

Conclusions

Building on previous work in performance analysis, coaching, and training load monitoring, this study examined the *how* of feedback of performance-related information in professional soccer in England. Key findings from the survey demonstrated the prevalence of verbal feedback within this environment. Feedback was delivered

in several formats but was primarily delivered via daily informal conversations during planning, delivery, and reviewing of practice and matches, thus highlighting the importance of verbal communication in the process of attempting to optimize player development and performance. Stakeholders perceived feedback to be delivered highly frequently, highlighting the many opportunities where it can be utilized by practitioners. Finally, feedback was delivered via a 2-way process between all stakeholders, illustrating open channels of communication. Practitioners should aim to optimize their interpersonal and communication skills to capitalize on these frequent verbal feedback opportunities within the professional soccer environment. To improve the process, future research may provide opportunities to further explore stakeholders' perceptions of feedback, their motivations to use these strategies, and their effectiveness in influencing decision-making and informing behavior change.

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Queries

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