

# Relationship between score and coaches' verbal behaviour

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## ABSTRACT

Calpe V, Guzmán J, Grijalbo C. Relationship between score and coaches' verbal behaviour. *J. Hum. Sport Exerc.* Vol. 8, No. Proc3, pp. S728-S737, 2013. The way the coach act the most during the development of the game is meanwhile verbal behaviour directed to their players (Moreno et al., 2000), being it influenced by his own cognitions, motivations, and emotions, together with players behaviours and playing situation (Borrie, 1996; Smoll & Smith, 1989). The aim of this study was to analyse the relationship between a situational variable, the score during the game, and verbal behaviour of handball coaches in competitive situation. To do this, five coaches were analysed in five games. Two variables were studied in that games, coach's verbal behaviour and score, defining three situations in the second case: large win, set score and large defeat. Coaches' verbal behaviour was coded according to Coach Analysis and Intervention System (Cushion et al., 2012). Results showed significant differences in the coaches' verbal behaviour depending on the score (Chi-Square=239.44; df=40; p<.001). Specifically, 'general feedback positive' was most repeated in set score. 'Instruction' appeared more frequently and 'management-criticisms' less often in large win situation. 'Management-direct', 'confer with assistant' and 'question' were more repeated in the large defeat. Prevalence of confers with assistant and questions on large defeat situation represents low quality of verbal behaviour. This result is consistent with those obtained by Guzmán & Calpe-Gomez (2012), which reported that negative actions generated increasing doubts and insecurity in the coach. On the other side, the low number of management-criticisms and the high percentage of instructions on large win imply a high quality of intervention. Results confirm that having good results allows coaches to feel less pressed, enabling them to show a more relaxed and variable intervention (Moreno et al., 2004). **Key words:** COMMUNICATION PATTERNS, MANAGEMENT TEAM IN COMPETITION, CONTEXTUAL VARIABLES, CAIS.

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## INTRODUCTION

Coaches are a central figure in the athletic environment (Cushion & Jones, 2001), because through their words and actions they influence both the athletes' performances and their social and emotional well-being (Zetou et al., 2011). Also, Sanz et al. (2004) noted that the formation of the coach can be a variable that impact in a relevant way on the quality of the intervention of the coach with his players, and thus, on the possible optimization of sports performance. Moreno et al. (2004) added that the performance of the coach during the team management is one of the many variables that influence both training and competition. Regarding the competitive environment –which is wherein this paper is developed– Moreno et al. (2000) noted that during the development of sports competition the coach's intervention possibilities are limited by the regulations. These authors presented an example of application of these possibilities to volleyball, which may be extrapolated to other sports with similar characteristics such as basketball and handball. First, they argued that the coach may intervene directly in the course of the game by requesting changes and time outs. At another level, the coach can influence the development of the game according to the pressure or behaviour towards the referee, coach, opposing players, etc. But the way the coach can act the most during the development of the game is giving information to their players, either through verbal or nonverbal behaviours.

Feedback and instructions are two of the major communication skills that any coach must master, regardless of sport or competitive level where they develop their work. In this line, Franks (1996, 2004) pointed out that the coach's responsibility is to provide the best possible feedback that allows the athlete to accurately compare what he has done with what was intended to do, and that this information is one of the most important variables that influence skill performance. For his part, Hughes & Franks (2007) commented that the feedback provided by the coach has the potential to greatly affect performance by the athlete, although it is essential that coaches should carefully consider how and when they will provide. In this regard, Guzman & Calpe-Gómez (2012) highlighted the importance of not saturating the athlete with too much information, while More & Franks (1996) suggested that the information provided by the coach should reinforce the specific aspects of performance that are correct, and identify discrepancies between actual and desired response, so that incorrect aspects of performance could be modified. As to the importance of the instructions, Sanchez & Viciania (2002) indicated that within the framework of variables surrounding the analysis of the coaching behaviour, the instructions they provide to the players will condition the effectiveness of them in the game. Meanwhile, More & Franks (1996, 2004) added that effective instruction is an important factor in the pursuit of optimal sporting performance, because the more effective the instruction, the more fully the instructor's role will benefit the athlete's performance. These same authors emphasized that quantitative analysis of the instructional process promotes the objective assessment of instructional behaviour and provides information on variables thought to be important in determining effectiveness. They also indicated that systematic observation could be a valid procedure to carry out the above objective assessment, as it permits a trained observer to use a set of guidelines and procedures to observe, record and analyse observable events and behaviours.

Elaborating on this aspect, Borrie (1996) pointed out that the complexity of coaching is indisputable, consequently only a systematic and objective assessment of the subject would allow scientists and coaches to develop a clear understanding of coaching behaviour. The same author stated that scientific analysis of coaching behaviour is fundamental to the continued provision and development of high quality coaches. In this sense, Lorenzo et al. (2006) noted that observational methodology has proved to be an effective method of data collection in the area of human behaviour. Anguera et al. (2000) added that the observation should be able to describe and explain the behaviour, and obtain adequate and reliable data

relating to it. Further specifying, Delgado (1995) proposed a division of coaches' verbal behaviours in verbal and nonverbal.

In another vein, Borrie (1996) pointed that the majority of researchers agree that three factors interact in determining what pattern of coaching behaviour will produce the best results. These interacting variables are the coach, the player who is being coached and the situation in which the coaching is done. The same author said that all these have an influence on the effectiveness of various coaching styles in producing good competitive performance and satisfied players. This approach is closely approximated to the mediational model of leadership in sport posed by Smoll & Smith (1989), which argues that coaches' behaviours alter the performance, motivation, attitudes and actions of their players, and behaviours of them, in turn, affect the coach. Thus, factors relating to the coach (previous training, proposed objectives or expectations it has on its players), the players (personal characteristics, age, gender, etc.) and the situation (competitive level, sport, etc.) influence perceptions and behaviours of both the coaches and the athletes. Based on the above, the situation of the team on the scoreboard throughout the competition may prove as a vitally important situational variable in defining the verbal behaviour of the coaches.

As already mentioned, the manner in which the coaches can be involved more in the course of the competition is providing verbal information to their athletes. In this respect, Smith & Smoll (1990) noted that certainly a repressive factor of coaches' quality performance is that they usually do not know the frequency of their behaviours as well as if and how they influence their athletes. Thus, the objective of this study was to analyse the relationship established between a situational variable, the score during the match, and handball coaches' verbal behaviour in competitive situation. It should be mentioned that the sport chosen to develop the study was the handball because being able to make unlimited changes and request a timeout in each of the periods give the coach a significant role in a situation of competition that is not available in other sports like football or rugby.

## MATERIAL AND METHODS

### *Participant*

The study sample was composed by five matches for junior ( $N = 1$ ) and seniors male teams ( $N = 4$ ), in which five male coaches aged between 21 and 51 years ( $M = 36.2$ ,  $SD = 10.8$ ) were analysed. The teams competed in the categories of First National Division ( $N = 1$ ), First Regional Division ( $N = 3$ ) and Second Regional Division ( $N = 1$ ).

### *Instruments*

To analyse verbal behaviour of the coaches it was used the Coach Analysis and Intervention System (CAIS; Cushion et al., 2012). This tool presents six coding steps in which first the 'primary behaviour' is identified, which subsequently qualify through 'secondary detail of behaviour'. In order to simplify the analysis of the data, in this study it was decided to analyse only the 'primary behaviour' of coaches, which consists of 23 items grouped in eight dimensions. Also noteworthy is that it was decided to add 'alert' and 'inform' behaviours with the aim of providing greater specificity to the instrument, thus leaving a total of 25 items. Table 1 shows the description of the items that were used for the study.

The coding of verbal behaviour was made by three analysts. The reliability of their observations was adequate, for inter-observer agreement the mean Kappa value was 0.82 and for intra-observer agreement was 0.86. The reliability of the categories added to CAIS was also adequate. To 'alert' it was obtained 0.83

in Kappa inter-observer and 0.88 in Kappa intra-observer, whereas for 'inform' Kappa values were 0.83 and 0.87 respectively.

**Table 1.** Items and description of CAIS' primary behaviours (taken by Cushion et al., 2012)

Primary Behaviour	Description
1. Positive Modelling	Skill demonstration- with or without verbal instruction that shows performer the correct way to perform.
2. Negative Modelling	Skill demonstration- with or without verbal instruction that shows the performer the incorrect way to perform.
3. Physical Assistance	Physically moving the performer's body to the proper position or through the correct range of movement.
4 & 5. Specific Feedback (positive or negative)	Specific verbal statements (either positive or supportive OR negative or unsupportive) that specifically aim to provide information about the quality of performance (can be delivered concurrently or post).
6 & 7. General Feedback (positive or negative)	General verbal statements OR non-verbal gestures (either positive or supportive OR negative or unsupportive (can be delivered concurrently or post).
8. Corrective Feedback	Corrective statements that contain information that specifically aim to improve the player(s) performance at the next skill attempt (can be delivered concurrently or post).
9. Instruction	Verbal cues, reminders or prompts to instruct / direct skill or play related to player(s) performance.
10. Humour	Jokes or content designed to make players laugh or smile.
11. Hustle	Verbal statements or gestures linked to effort to activate or intensify previously directed behaviour.
12. Praise	Positive or supportive verbal statements or non-verbal gestures which demonstrate the coach's general satisfaction or pleasure to a player(s) that DO NOT specifically aim to improve the player(s) performance at the next skill attempt.
13. Punishment	Specific punishment following a mistake.
14. Scold	Negative or unsupportive verbal statements or non-verbal gestures demonstrating displeasure at a player(s) that DO NOT specifically aim to improve the player(s) performance at the next skill attempt.
15. Alert (not in CAIS)	Verbal statements intended to warn players about an event that is happening at that moment or that may occur immediately after.
16. Inform (not in CAIS)	The coach emphasizes or communicate to players about some aspect of the game that considers relevant score, time, most dangerous players or other team tactics.
17. Uncodable	Not clearly seen or heard, not belonging to any other category.
18. Silence	Coach is silent this can be on- or off-task.
19. Question	Coach asks a question about skill, strategy, procedure or score, the status of a player's injury, about the welfare of a player, to a match official, etc.
20. Response to a question	Coach responds to a question that may or may not be directly be related to practice or the match competition.
21. Management-Direct	Management that is practice/match competition related coach behaviour contributing directly to practice/ match competition or explaining how to execute the skill, drill or game.
22. Management-Indirect	Management that is practice related coach behaviour, not contributing directly to practice/the match Competition.
23. Management-Criticisms	Management that demonstrates displeasure at the player(s) behaviour or match official's decisions.
24. Verbal Protocol Analysis	Coach engaged in Verbal Protocol Analysis ('think aloud techniques', verbalizing their actions, communications, thoughts, and feelings).
25. Confer with assistants	Coach confers with assistants to talk about, manage or reflect on anything concerned with the practice.

To code the score, the goals scored and conceded by the team of coach analysed were recorded, and on this basis three possible situations were identified: large win (going ahead by 3 goals or more), set score (winning or losing by two goals or less) and large defeat (losing by 3 goals or more). The coding of the score during the game was also conducted by three analysts, being adequate the reliability of their observations, with a Kappa value of 1 both in intra and inter observer agreement.

### *Procedure*

The record of coaches' verbal behaviour was conducted using a digital recorder that was placed on the coach waist. In addition, a video camera was located on the opposite side of the bench to analysed coach, as far as possible of their visual field, to record his movements throughout the match. For recording the score during the game, a second video camera was placed at the centre line of the field, high enough to encompass both goals and be able then to note scored and conceded goals by the team of the analysed coach. Coaches' verbal behaviour and score during the game were synchronized by a timeline with an accuracy of seconds coincident with the development of the match. Time between goals scored and / or conceded was coded as large win, set score or large defeat according to goal difference between analysed coaches' team and their rival at each moment of the match, as explained previously.

### *Data analysis*

Statistical analysis was performed with SPSS (Statistical Package for the Social Sciences), version 20.0 (SPSS Inc., Chicago, Illinois, United States). Simple statistical methods were used to calculate the frequencies and percentages of the 'primary behaviours' defined by the CAIS depending on the situation on the scoreboard. Pearson Chi-Square value was calculated to establish significant differences in the 'primary behaviour' according to the score, setting the significance level at  $p < .05$ . To determine in which specific items such differences were produced, comparison of proportions between columns were performed, setting once again the level of significance at  $p < .05$ .

## **RESULTS**

Results are shown in Table 2. There were a total of 2838 messages over the five games, 1421 of which were produced in large win situation, 1069 in set score situation and 348 in large defeat situation; which means percentages of 50.07, 37.67 and 12.26 respectively. 'Negative modelling', 'physical assistance', 'silence' and 'management-indirect' behaviours did not have any records during the five games. The most repeated behaviour in the situation of large win was the 'instruction' (39.4%), while the least recorded was 'punishment' (0.1%); in set score situation greater frequency behaviour was also the 'instruction' (30.2%), in terms of less frequent was not obtained any record of 'punishment'; in the large defeat situation over repeated conduct was 'management-direct' (18.1%), on the opposite side appeared 'positive modelling', 'specific feedback positive', 'general feedback negative', 'humour' and 'praise' behaviours, which did not have any records.

Pearson Chi-Square value showed significant differences in the 'primary behaviour' of coaches depending on the situation on the scoreboard (Chi-Square = 239.440,  $df = 40$ ,  $p < .001$ ). More specifically, there were as many 'instructions' and 'alerts' at the large win than in the other two situations, while the 'instruction' was also more frequent in the set score than in the large defeat. 'General feedback positive' was more repeated in set score situation than in the other two. 'Management-direct', 'question' and 'confer with assistants' behaviours appeared more in the situation of large defeat than in the other two in a statistically significant way, being the 'confer with assistants' in turn more frequent in the set score than in the large win. Finally, there were as many 'management-criticisms' in set score and large defeat situations than in large win. In

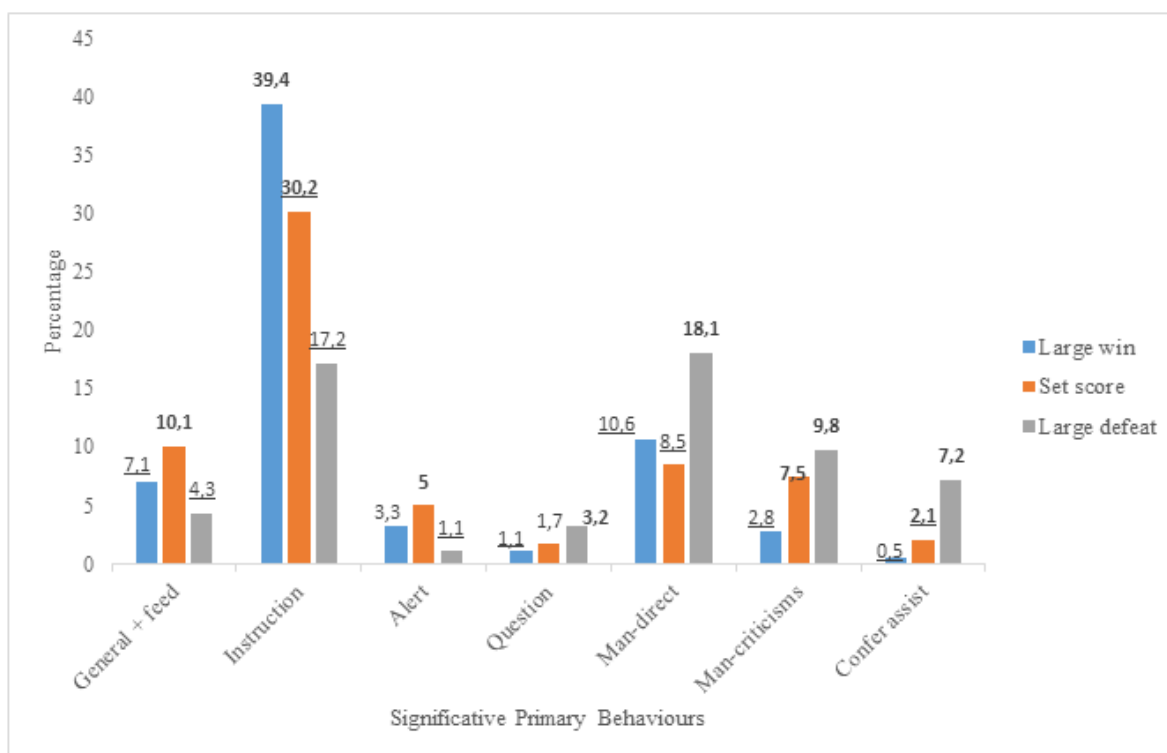


order to graphically illustrate behavioural profiles of the analysed coaches and facilitate understanding of the results presented, Figure 1 shows the percentages of 'primary behaviours' in which there were significant differences according to the different situations raised on the scoreboard.

**Table 2.** Frequencies and percentages of coaches' verbal behaviour according to the score and significance of the differences (Chi-Square)

Primary behaviour	Large win		Set score		Large defeat		Sig.
	Freq	%	Freq	%	Freq	%	
Positive modelling	5	0.4	2	0.2	0	0	NS
Negative modelling	0	0	0	0	0	0	-
Physical assistance	0	0	0	0	0	0	-
Specific feedback positive	18	1.3	6	0.6	0	0	NS
Specific feedback negative	38	2.7	28	2.6	9	2.6	NS
General feedback positive †	101	7.1*	108	10.1*	15	4.3*	<.05
General feedback negative	4	0.3	5	0.5	0	0	NS
Corrective feedback	48	3.4	28	2.6	6	1.7	NS
Instruction †	560	39.4*	323	30.2*	60	17.2*	<.05
Humour	5	0.4	3	0.3	0	0	NS
Hustle	115	8.1	99	9.3	37	10.6	NS
Praise	3	0.2	4	0.4	0	0	NS
Punishment	1	0.1	0	0	1	0.3	NS
Scold	10	0.7	12	1.1	6	1.7	NS
Alert †	47	3.3	53	5*	4	1.1*	<.05
Inform	71	5	48	4.5	20	5.7	NS
Undodable	44	3.1	42	3.9	18	5.2	NS
Silence	0	0	0	0	0	0	-
Question †	15	1.1*	18	1.7	11	3.2*	<.05
Response to a question	34	2.4	23	2.2	14	4	NS
Management-direct †	151	10.6*	91	8.5*	63	18.1*	<.05
Management-indirect	0	0	0	0	0	0	-
Management-criticisms †	40	2.8*	80	7.5*	34	9.8*	<.05
Confer with assistants †	7	0.5*	22	2.1*	25	7.2*	<.05
Verbal protocol analysis	104	7.3	74	6.9	25	7.2	NS
<b>Total</b>	<b>1421</b>	<b>100</b>	<b>1069</b>	<b>100</b>	<b>348</b>	<b>100</b>	

It have been marked with a cross the behaviours in which significant differences were obtained and with an asterisk the score situations among which occurred the differences. Significance levels were set at  $p < .05$ . NS: Non-significant



It have been marked in bold the score situations in which the percentage of behaviours prevailed in a statistically significant way, and it have stressed the percentages of those situations on which there is the predominance. Significance levels were set at  $p < .05$ .

**Figure 1.** Coaches behavioural profiles depending on the score

## DISCUSSION AND CONCLUSIONS

Volleyball is the sport in which the interaction raised in this study has been further analysed. More specifically, in the studies reviewed (Moreno et al., 2004, Rodrigues & Pina, 1999) it was analysed the effects of the outcome of the set on the performance of the coaches and the instructions given by them during the subsequent interval between sets. At this point it is necessary to mention the difference between the scoring system and the procedure relating to the works reviewed and this study. Differences lie in that in the volleyball studies coaches' behaviour only was recorded at intervals set, and the situation on the scoreboard only took into account the total result set; while in the present work, all messages sent by the coaches from the opening whistle to the final whistle were coded, and the situation on the scoreboard was also recorded throughout the whole game, not just at specific moments. Apart from the above, it is noteworthy that in the studies reviewed the results were diverse. In the case of Moreno et al. (2004), whose sample consisted of seven coaches of volleyball school teams, results showed that there were no significant differences in verbal behaviour of the coaches at set intervals, regardless of the outcome of the previous set, but noted that the verbal conduct of studied coaches showed greater similarity in the intervals between sets after lost sets than in the intervals between sets after won sets. Meanwhile, Rodrigues & Pina (1999), who developed a similar study but with coaches of first division teams, found that after the lost sets coaches provided more information to their players, with greater presence of negative valuation and using most frequently instructions.

As for the results obtained in this work, seem glimpsed behavioural patterns related to the different situations raised in the score. In the case of large win, Moreno et al. (2004) noted that the tranquillity of the result allows the coach to feel less pressed, without the feeling of having to solve certain problems (although these may be happening), enabling him a more relaxed and variable intervention. Based on this, it could be justified the predominance of instructions regarding the other two situations, and the largest number of 'management-criticisms' and 'confer with assistants' that appeared in that other two situations (set score and large defeat) with regard to large win. Thus, the increase in valuable information for athletes ('instructions') and low percentages of finance irrelevant in the course of the competition ('management-criticisms' and 'confer with assistants') result in an increase in the quality of coaches' verbal behaviour. In regard to large defeat, Guzman & Calpe-Gómez (2012) noted that negative actions generate increasing doubts and insecurity in the coach, and that this could be due to reduced effectiveness in the mechanisms of information processing and decision making in compromised situations. All of this leads to a loss of quality in verbal behaviour emitted by the coach, which is reflected in the prevalence of behaviours as 'management-criticisms', 'questions' or 'confer with assistants' and the scarcity of other as 'general positive feedback', 'instructions' and 'alerts' regarding set score and large win situations. This profile shows how in unfavourable score situation the focus of coaches concentrates on aspects that are beyond their control (protests the referee), neglecting aspects of verbal behaviour valuable to their athletes (feedback and instruction), while the prevalence of inquiries and requests represents an increase of doubts and insecurity. Finally, the behavioural characteristics of the set score situation seem to come given greater extent by the other two situations, than by an inherent tendency to the above situation. Thus, the prevalence of 'general positive feedback', 'instructions' and 'alerts' on the large defeat situation, seem to come given by the declining quality of behaviour belonging to the latter; while on the other hand, the predominance of 'management-criticisms' and 'confer with assistants' regarding large win situation, could result from the tranquillity representing win easily belonging to that situation. However, the greatest amount of 'general feedback positive' recorded in set score situation regard to large win, and the prevalence of 'management-direct' in large defeat situation regarding set score, do not seem to fit the foregoing; because on the one hand the 'management-direct' is not related to a loss of quality and efficiency in decision-making, and in the other hand would be more consistent that the 'general feedback positive' will provide a greater extent in large win situation, regardless of the marker-derived relaxation.

In conclusion, the results of this study provide information that can help to establish behavioural patterns of coaches in competitive situation based on variables derived from the competition itself –in this case, the score throughout the match–. The information presented may also be valuable when designing and implementing intervention programs designed to improve coaches' behavioural skills. However, it is necessary to deepen the relationship suggested in this study, especially with regard to the situation of set score, since the performance of the coach in such situations can be crucial in determining the final outcome of a game. Finally, it is also considered important to further analyse the relationship between verbal behaviour of the coach and situational variables derived from competition both in handball as in other sports.

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