THE EFFICACY OF THE VERBAL BEHAVIOUR OF VOLLEYBALL COACHES DURING COMPETITION

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ABSTRACT

The study we present here, which concentrates on analysing the efficacy of the verbal behaviour of coaches, aims to define an intervention protocol for volleyball coaches during competition. The research was carried out by means of a questionnaire given to 25 volleyball experts (university volleyball teachers and volleyball coaches with experience at top national level).

The variables analysed consist of the study of the content of the information transmitted by the coaches, in accordance with each moment of the game in which communication with the players occurs.

As for the results obtained, and taking into account that there are differences between the different moments of the game, it should be stressed that the overall information must be mainly tactical and refer to both the opponents and one's own team in equal measure. It must be positive and should not include more than three pieces of information.

Key words: information to the player, team management, coach training, volleyball.

ESTUDIO DE LA EFICACIA DE LA CONDUCTA VERBAL DEL ENTRENADOR DE VOLEIBOL DURANTE LA COMPETICIÓN

RESUMEN

El estudio que presentamos, centrado en el análisis de la eficacia del comportamiento verbal de los entrenadores, pretende definir un protocolo de intervención de los entrenadores de voleibol durante la competición. La investigación se ha desarrollado mediante la aplicación de un cuestionario a 25 expertos en voleibol (profesores de voleibol en la universidad y entrenadores de voleibol con experiencia en el alto nivel nacional).

La variable analizada es el contenido de la información transmitida por los entrenadores, considerando los distintos momentos del juego en los que el entrenador puede comunicarse con los jugadores.

Como síntesis de los resultados obtenidos, y teniendo en cuenta que existen diferencias entre los distintos momentos del encuentro, la información debería ser principalmente de tipo táctico y referida a ambos equipos, propio y contrario, en similar cantidad. La información debe ser positiva y no incluir más de tres puntos clave de información.

Palabras clave**:** información al jugador; dirección de equipo; formación de entrenadores; voleibol.

1. INTRODUCTION

The didactic behaviour of coaches during the teaching-apprenticeship process of the various forms of sport has been the subject of a number of studies. As Piéron (1999) points out, this kind of works, aims to contribute towards achieving efficacy or pedagogical success, by means of the description of the behaviour of expert or efficient coaches and/or the correlation of the latter with optimum learning levels on the part of the sportsmen/women.

Most research carried out on this subject has analysed the performance of the coach during training, thus obtaining in a generalised form a predominance of instruction, correction, or feedback from the coaches. This is the case in the studies carried out by Tharp & Gallimore (1976) on basketball; Langsdorf (1979), and Segrave & Ciancio (1990) on football; Dodds & Rife (1981) on hockey; Claxton (1988) on tennis; and Rupert & Buschner (1989) on baseball.

In volleyball training the frequent use of instructions and corrections by the coach has also become clear. The analysis of the behaviour of volleyball coaches of women's teams at different levels (considering different training situations), carried out by Lacy and Martin (1994) showed that observation, instruction and correction by the coaches analysed predominate. 48.5% of the coaches' interventions were verbal in nature.

As to the instructions given by volleyball coaches, research was carried out by Rodrigues (1997), in which training objectives and the different levels of competition was linked to the pedagogical activity of coaches. This study demonstrated that the quantity of these interventions did not differ significantly in accordance with the two variables previously mentioned. For its part, victory or defeat in competition led to some instability in the behaviour of coaches of less successful teams. Coaches of top-level teams showed much more stable behaviour, independently of the point in the season or the result of the game.

The feedback contributed by coaches of women's teams of varying levels of success was different, according to the results of the study carried out by Markland & Martinek (1988). Those coaches who are more successful offered auditory feedback more frequently, were more approving, and concentrated on specific aspects of movement. For their part, less successful coaches were less approving and concentrated on more general aspects. Similar results were obtained in the Quintillan (1992) study that focused on the analysis of verbal and non-verbal behaviour by expert and amateur coaches. Expert coaches provided more specific information during training that amateur coaches, who focused on providing more general information. The Cusimano (1987) study also showed the frequent provision of specific feedback on skills by expert physical education teachers.

The suitability of the provision of specific knowledge on the task in hand by coaches is also highlighted within the area of motor learning (Moreno, Oña & Martínez, 1999; Oña, Martínez, Moreno & Ruíz, 1999). Magill (1993) underlines the importance of coaches analysing the task in hand and referring to the relevant aspects of the way it is carried out. As Ávila (2001:141) indicates, the capacity to select significant or relevant information from the technical gesture observed is a

determining factor in the experience or skill of a coach. According to that indicated, expert tennis coaches included in the Ávila (2001) study showed a more selective search process (with a smaller number of and less frequent focuses) in the viewing of a closed technical gesture than the group of amateur coaches, hence providing more specific knowledge of the task in hand.

The influence and importance of the coach's interactions on the players, during the management of the team in competition, has been considered in a number of recent studies such as those of Patriksson & Eriksson (1990) and Garrett (1999). They concentrated on examining the influence of the positive and negative action of volleyball coaches. Taking into account that the characteristics of the type of sport and its regulations condition the intervention possibilities of the coach, studies carried out on various team sports show a predominance of certain behaviour patterns on the part of the coach. These are instruction/feedback (Mendes, 1998; Smith, Zane, Smoll & Coppel, 1983; Smoll, Smith, Curtis & Hunt, 1978), and silent observation (Lombardo, Faraone & Pothier, 1982; Mendes, 1998; Trudel, Coté & Bernard, 1996). Affective behaviour of various kinds, which contributes towards the creation of a positive atmosphere, is also frequent (Lombardo et al. 1982; Mendes, 1998; Smith et al. 1983; Smith, Smoll & Curtis, 1979; Smoll et al. 1978).

In keeping with this, authors such as Cox (1994), Martens (1987), and Orlick (1986) attach great importance to the influence of the coach during team management in competition, recognising the value of the information transmitted by the coach to his/her players. Interactions from coach to players can focus on tactical-technical issues, as well as encouragment or criticisms. Gilbert, Gilbert & Trudel (2001a, 2001b) in a study concentrating on the analysis of strategies used by the coaches of young sportsmen/women and on their application and efficacy, include the communication of the coach among the personal characteristics of coaches and athletes that may affect his/her efficacy.

Coach interactions with players during competitions are no doubt influenced by a number of factors which define the specific nature of the competition. These include the level of the players (Mancini & Wuest, 1987; Saborowski, Alfermann & Würth, 1999); whether an individual or team sport is involved (Saborowski et al. 1999); what the coach expects from his/her players (Sinclair & Vealey, 1989; Solomon, Golden, Ciapponi & Martin, 1998), ethnic aspects of team composition, and the homogeneity/heterogeneousness of the groups (Solomon, 1999). Aspects deriving from the characteristics of sporting competition itself can also be included. These might include the relative importance of the competition, the point in the season, the position of the team in the league, the game situation, and other such factors (Moreno, 2001).

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In the present study we indicate the efficacy criteria of the verbal communication of volleyball coaches, considering the opinion of experts on volleyball. In order to establish the different analysis dimensions, we have considered the four components of the pedagogical content of the coach communications indicated by Gilbert, Trudel, Gaumond & Larocque (1999) and used in the SAPCI (Systematic Analysis of Pedagogical Content Interventions) created by these authors. These are: *"what is the content", "when is this transmitted", "how is it transmitted",* and *"who are the receivers".* The categories of analysis used in our study differ from those indicated by the above-mentioned authors, as we have tried to adapt them to the characteristics of volleyball, and adapt them to the methodology chosen for this study. Consideration of the *moment when the information is transmitted* was the fundamental variable we considered for the organisation of our research. Pina & Rodrigues (1997), in a study carried out on volleyball, showed that coaches supplied their players with different information depending on the situation (before the game; in the intervals between sets; during time out). In our study we have differentiated between the following moments when the coach provides information: before the game; in the intervals between sets; during time out, during the game.

2. METHODOLOGY
2.1. SAMPLE

In order to build an efficacy model of verbal behaviour, we turned to volleyball experts. The group of experts for possible questioning was established in accordance with the following requirements: participants had to be volleyball teachers from Higher University Centres of Sport Science or volleyball coaches with an experience of at least two years as main coach of a top-level national team, whether of men or women.

The final sample was made up of a total of 25 volleyball experts, selected by means of a non-random sample procedure based on *expert or opinion selection.* This sampling selection procedure is frequently used in research into social orientation (Anguera et al., 1998; Arnal, Del Rincón & Latorre, 1992; Särndal, Swensson & Wretman, 1992). One application of this sampling selection procedure, in terms of physical activity and sports, can be consulted in Swain & Jones (1994).

2.2. VARIABLES
Our research has two study variables:
- The moment the information is given.

- The content of the information.

1) Within the *"moment the information is given"* variable we have differentiated four moments in all:

- *Before the match:* a 3-minute period from when the players finish their greeting until the first referee whistles to indicate the start of the game and invites the players to take up their corresponding positions on the court.

- *Intervals between sets:* a 3-minute period from when the first referee indicates the end of the previous set until when he/she whistles again for play to resume, once the teams have changed ends and the team formations have been set up.

- *Time out:* 30-second breaks that may be requested by the coaches of both teams during each of the sets.

- *During the match:* the time between the start and the end of the game, excluding interruptions in play (time out and player substitutions) and the regulation stops established during it (intervals between sets). During this time the coach may give instructions whether he/she is stationary or moving about, without disturbing or delaying the game.

2) Within the *"information content"* variable we have used a category system composed of six category dimensions and nineteen categories.

- *Team the information refers to: one's own; opponents; others* (considering only the period *before the game*).

- *Orientation of the information: positive; negative.*

- *Recipients of the information (quantity): group; individual.*

- *Type of information: tactical; technical/tactical; strategic; psychological.*

- *Recipients of the information (game function): main setter; auxiliary setter; main attacker; wing attacker; special auxiliary attacker.*

- *Recipients of the information (social function and representativeness): captain; leader; others.*

2.3. RESEARCH PROCEDURE

The data collection technique used for this research was a questionnaire given to a group of 25 volleyball experts.

The questionnaire was composed of closed questions that required the coach to make an assessment of each of the study categories. The questionnaire has four pages in all, corresponding to each of the moments when information is supplied that has been differentiated in the research: *before the game; intervals between sets; time out; during the game.*

As in previous studies (Del Villar et al., 2004; McPherson, 1999; Nielsen & McPherson, 2001), researchers who were experts on the matter took part in the instrument validation process, in our case specialists in volleyball and in research methodology, thus ensuring the validity of the questionnaire contents (Latiesa, 1996).

The validation procedure of the questionnaire, is structured in two stages:

- Revision of the contents by a group of 5 experts specialising in volleyball and research methodology.

- Pilot test carried out on 10 subjects of similar characteristics to the sample under study (volleyball coaches holding the highest certificate in their field and team sport teachers from Sport Science Faculties).

Finally, and as to the application process of the questionnaire, we decided to send the questionnaire by post. We used the aspects indicated by Fowler as a starting point (1993). The percentage of answered questionnaires in this study was 92.6%.

3. RESULTS

Tables 1, 2 and 3 show the values indicated by the volleyball experts for each category, in relation to each of the moments when the coach can contribute verbal information to his/her players during competition team management.

Table 1 shows the mean and the standard deviations of the percentage values allocated by the experts to the categories included in the following dimensions: *team the information refers to, orientation of the information, intention of the information.*

Table 2 includes the mean split of the hierarchical values allocated by the experts. In the "*type of information*" category dimension*,* the first column differentiated at each of the *moments* shows the average of the hierarchical value (1 to 4) allocated to each category when the information refers to one's own team.

Table 3 shows the mean and the standard deviations of the percentages corresponding to the categories included in the dimensions "*recipients of the information (function in play)*" and "*recipients of the information (social function and representativeness)*". Each of these category dimensions refers to 100% *individual* information.

Table 1. Means and standard deviations of the values indicated by the experts in the dimensions: *team the information refers to, orientation and receivers of the information*

Categories	BEFORE		INTERVAL		TIME OUT		DURING	
	M*	SD	M	SD	M	SD	M	SD
Dimension: Team the information refers to								
Own	40.00	14.53	52.37	13.61	45.29	9.15	49.00	14.11
Opponents	55.00	14.04	47.63	13.61	54.71	9.15	51.00	14.11
Dimension: Orientation of the information								
Positive	-**	-	75.24	15.31	80.00	11.55	76.67	13.92
Negative	-	-	24.76	15.31	20.00	11.55	23.33	13.92
Dimension: Recipients of the information (quantity)								
Group	62.86	13.50	60.95	13.33	54.05	20.21	36.90	18.93
Individual	37.14	13.50	39.05	13.33	45.95	20.21	63.10	18.93

The 5% remaining was allocated by the experts to the category "others" (ball, light, referee, ...) before the match.

**Categories on which the experts were not interrogated in certain moments of the game.*

Table 2. Mean split of the hierarchical values, in ordinal sequence, indicated by the experts on the dimensions *type of information and act of play the information concerns.*

Categories	BEFORE		INTERVAL		TIME OUT		DURING		SUSBTITU.		AFTER	
	m		m		m		m		m		m	
	Ow*	Op**	Ow	Op	Ow	Op	Ow	Op	Ow	Op	Ow	Op
Type of information												
Tactical	2	1	1	1	1.5	1	2	1	1	1.5	1	1.5
Technico-tac.	3	2	3.5	3	3	3	3	3	3	3	3	3
Strategic	2	2	2	1.5	2	1	2	1	2	1.5	3	2
Psychological	2	3	2	4	2	4	3	4	3	4	3.5	4

*The 5% remaining was allocated by the experts to the category "others" (ball, light, referee, ...) before the match.

**Categories on which the experts were not interrogated in certain moments of the game.

Table 3. Means and standard deviations of the values indicated by the experts in the different sublevels of the dimension *recipients of the information*

	BEFORE		INTERVAL		TIME OUT		DURING	
	M	SD	M	SD	M	SD	M	SD
RECIPIENTS OF THE INFORMATION (GAME FUNCTION)								
Main setter	44.19	18.48	39.00	11.97	37.68	10.55	44.75	10.05
Auxiliary setter	11.62	7.62	7.95	8.24	7.23	9.16	9.50	7.95
Main attacker	17.57	8.42	21.79	7.35	22.42	5.51	22.50	8.08
Wing attacker	13.71	7.38	17.15	5.96	18.05	5.24	13.60	5.98
Special auxiliary	12.91	6.38	14.11	5.78	14.62	5.24	9.65	5.13
Recipients of the information (social function and representativeness)								
Captain	28.48	14.28	25.21	11.6	22.53	10.94	29.58	14.95
Leader	29.19	13.18	36.00	12.57	33.68	14.13	32.26	13.88
Others	42.33	24.05	38.79	20.00	43.79	22.34	38.16	21.26

Note: The values indicated in each of the sublevels of the dimension receivers of the information suppose 100 % of individual information

4. DISCUSSION

The data obtained from the questionnaire have allowed us to draw up a verbal behaviour efficacy model that we present below. In it the six moments for contributing verbal information used in this study are differentiated.

Moments of play stoppage: before the game; intervals between sets; and time out:

When there is a play stoppage it is advisable for the coach to refer to both the *opposing team* and to his/her *own* team. This will help the information contributed by the coach to be set in a context and help to interrelate the performance of his/her *own* team and that of the *opponents*. *Before the game* and during *time out* slightly more information must be given on the *opposing* team than on his/her *own* team. The proportion levels out during the *intervals between sets*.

Díaz (1992) refers to this aspect, recommending that the indications of the coach referring to the game plan, changes, and the action of the players should be interrelated and that the characteristics and action of the *opponents* should be taken into account. This importance attached to information on the *opponents* is also apparent in the results of the study of Rodrigues & Pina (1999). They found that information on the rival team predominates in the *intervals between sets*.

Information on the *opposing* team must be essentially *tactical before the game*, during *intervals between sets* and *time out*. When the information refers to one's *own* team it is advisable for this to be mainly *tactical,* and to a lesser extent

strategic and *psychological*. During the three *moments of play stoppage* considered, *technical/tactical* information on *both* teams and *psychological* information on the *opponents* are clearly the least appropriate information categories.

Without differentiating the team to which the information refers, the work of Bloom, Durand-Bush & Salmela (1997), and Dias, Sarmento & Rodrigues (1994) shows an essential predominance of *tactical information before the game*. The study of Dias et al. (1994) also refers to the importance attached to *psychological* information.

During the *intervals between sets*, Beal (1989) mentions the relevance of the *tactical* information provided by the coach. Rodrigues & Pina (1999), for their part, obtained a predominance of *tactical* and *psychological* information on the part of the coach.

During *time out*, in the research carried out by Cloes, Delhaes & Piéron (1993), a predominance of *tactical* and *psychological* information on the part of the coach was obtained. Drauchke, Kröger, Schulz & Utz (1994) mention the fundamental importance of both kinds of information. In the study of Pina & Rodrigues (1993), however, *tactical* information during *time out* was clearly predominant.

When there is a play stoppage all the players can listen to the information given by the coach. Because of this, most of the information contributed by the coach must be *collective*. This is also confirmed by the study of Rodrigues & Pina (1999) referring to the *intervals between sets* and *time out*. Despite this, and although this is not the most frequent information to be contributed during any play stoppage, Beal (1989), Cloes et al. (1993), and Ker (1996) indicate the importance of *individual* information on certain occasions during *time out*.

It is advisable for the verbal behaviour of the volleyball coach to have a mainly *positive* orientation (a ratio of 3:1 between *positive* and *negative* information, during the *intervals between sets*, and 4:1 during *time out*). In agreement with this, Cunha (1998), Díaz (1988), Drauchke et al. (1994), and Kohl (2000) mention the importance of a *positive* atmosphere during *time out*, insisting that the words used should be constructive and not destructive (Drauchke et al. 1994; Kohl, 2000); and should avoid discussion between the players (Díaz 1988).

As to the amount of information that should be contributed at the different moments of the game, during the *intervals between sets* and *time out*, this should not exceed three pieces of information as saturating the players with information should be avoided.

This need to monitor the amount of information contributed by the coach at the different moments of the game is an aspect which has also been mentioned by

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numerous authors (Beal, 1989; Cunha, 1998; Drauchke et al. 1994; Ker, 1996). Their comments in this respect confirm the data obtained in the present study; exceeding three pieces of information is not recommended on any occasion.

During the game:

   During the game the information contributed by the coach should refer in similar percentages to his/her *own* team and the *opponents*, thus contributing to set the information in a context and interrelate the performance of both teams. Despite the fact that in the study of Cloes et al. (1993) the references to the opposing team by the coaches analysed were few, the authors of this study indicate that the most efficient coaches supplied more information on the *opponent* than their less efficient counterparts.

   Whether the information refers to one's *own* team or to the *opponents*, it must be essentially *tactical* and *strategic*. The experts indicated this priority more clearly when the information referred to the *opposing* team. The great importance of both kinds of information at this moment of the game is also confirmed by Beal (1989).

   Technical/tactical information on one's *own* team and on the *opponents* should not predominate *during a game*. The results obtained in the research of Cloes et al. (1993), in which the information designed to motivate, encourage, praise and give psychological support was predominant, seemed to show, according to the authors, the coaches' tendency *during the game* to seek a suitable atmosphere rather than influence the play; the motivation and encouragement might simply reflect the nervousness of the coach himself/herself.

   In accordance with the characteristics of this moment of the game, most of the information issued will be *individual.* This same tendency was found in the study of Cloes et al. (1993).

   During the match the orientation of the information must be mainly *positive*; the data obtained from the questionnaire show a ratio between *positive* and *negative* information of almost 3:1. Mesquita (1997) also mentions the positive orientation of the information at this point of the game.

Other aspects of verbal behaviour

   Finally, we will comment generally on other aspects of the verbal behaviour of the coach at the different *points* of the game.

   Taking into account the *game function* of the different players in the team and considering only the *individual* information supplied by the coach, the priority recipients of this information (during the four *points* considered) should be the most relevant or important players in the team, essentially the *main setter and the main*

attacker. Beal (1989) adds to these two the main blocker and attaches great importance to the providing of information to this player.

The *social function* of the players or their *representativeness* in the team is not shown to be a determinant factor for the contribution of *individual* information by the coach. In this way, among the categories *leader*, *captain*, and others*, the highest percentage is allocated to *other* players of the team at the four points of the game under consideration.

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