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Volleyball coaches behavior assessment through systematic observation

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ABSTRACT

Zetou E, Amprasi E, Michalopoulou M, Aggelousis N. Volleyball coaches behavior assessment through systematic observation. *J. Hum. Sport Exerc.* Vol. 6, No. 4, pp. 585-593, 2011. The purpose of this study was to record and evaluate the practice behaviors of 12 Greek Volleyball National Division coaches, mean age 47.36 (SD=6.1) through feedback that they provided to their athletes throughout the 2010-11 seasons. Verbal and non verbal behaviors were video recorded during four practices, of each coach. A total of 13.400 behaviors were observed and were coded using the Revised Coaching Behavior Recording Form which corresponded to the 12 categories of the instrument. The analyses of videotaped behaviors were made by two trained observers who were checked in the internal and external reliability. Results indicated that there were 279.11 coded coaching behaviors in each training session. A large proportion of reported coaching behaviors 17.38% (n=48.34) were about "Tactical Instruction", followed by "General Instruction" 15.92% (n=44.45) and "Technical Instruction" 12.42% (n=34.68). "Encouragement" and "Motivation" were 10.76% and 10.73% respectively. "Other Comments" (8.67%) and "Demonstration" (8.26%) were in lower rate. ANOVA revealed that there were not differences between 1st and 2nd division coaching behavior, instead of "Criticism" ($p<0.05$) with 2nd division coaches have more comments and "Non verbal reward" ($p<0.05$) which 1st division coaches were used more often. **Key words:** CBAS, FEEDBACK, COACHING BEHAVIOR, SYSTEMATIC OBSERVATION, VOLLEYBALL.

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INTRODUCTION

Coaching is a complicating and interacting experience involving the coach, the athlete and the environment (Harrison et al., 1999). Coaches are reference models for youth athletes and have a high degree of influence over them (Smoll & Smith, 2006). As the practice of competitive sport requires the player to spend many hours with his or her coach, this could contribute to an increase in stress, anxiety, or negative attitudes by the player toward sport (Sousa et al., 2006). During training, coaches and athletes attempt new technical and tactical plans, whereas the result of their efforts can be seen in the game, which forms an integral part of the process of competitive sport. That is why the training is planned according to the upcoming game.

Coaches, at any level, are a central figure in the athletic environment (Cushion & Jones, 2001; Mesquita et al., 2008), assuming responsibility for the quality and direction of each individual's sporting experience, also, through their words and actions, coaches influence both the athletes' performances and their social and emotional well being, so as they are expected to have similar declarative knowledge about the specifics of their sport: tactics, training techniques as well as similar procedural knowledge regarding the pedagogical process. They inspire their athletes' desire, courage and push them to fulfill their sport dreams. Regardless of the athletes' age or sport-level, coaches should possess the necessary technical and tactical background of the sport, demonstrate educational adequacy in how to structure the training session and provide feedback, while in the same time they should create the suitable climate that would not only aim to maximize performance, but also to develop the psychological characteristics to athletes that will be useful both in the narrow frame of team and in the general social frame (Duda & Ballaguer, 2007). They should focus on the development of athletes' self-confidence, as well as to control the stress, especially in high level (Chen et al., 2010). Furthermore, coaches may be involved in a myriad of distinct tasks but the basic role is to develop and improve the performance of teams and individuals (Nash & Collins, 2006). Moreover, in order to have a successful training, coaches' behavior should be the desired one by the athletes. Only then the coaching procedure could have a positive effect (Duda, 2001; Laughlin & Laughlin, 1994). Certainly a repressive factor is that coaches usually do not know the frequency of their behaviors as well as if and how their behaviors influence their athletes (Smith et al., 1978; Smith & Smoll, 1990).

In recent years more and more researchers focus their concern on observation/assessment of coach and the term "coaching efficacy" occurs very often. Researchers conclude that "coaching behavior has a significant impact not only on athletes' performance and sport behavior but also on their health and psychological, emotional condition" (Horn, 2008). Coaching behaviors assume a crucial role as significant others, affecting young athletes' attitudes, self-esteem, psychosocial development (Smoll et al., 1993), their perceived ability (Vallerand & Reid, 1988; Reinboth et al., 2004), their intrinsic motivation in order to do an activity for their pleasure (Mageau & Vallerand, 2003), the enjoyment and amusement that young athletes acquire from their participation in sport and can have either positive or negative effect on the athlete (Smoll & Smith, 2006). Furthermore, most of the coaching behaviors are associated with giving instructions and correcting mistakes, while coaches try to guide their athletes by creating the appropriate motivational climate, so as to promote the innate desire to learn and improve (Duda & Ballaguer, 2007). The investigations concluded that the coaching behavior is perhaps the most important factor to determine the quality of involvement with sport (Malina & Clark, 2003; Smoll & Smith, 2002; Weiss, 2004).

The importance of direct observation in coaching research has been recognized many times (Erickson, 2009). A number of systematic observation instruments have been developed and put to use within the field. Some examples of coaching observation instruments are: Coaching Behavior Recording Form (CBRF; Tharp & Gallimore, 1976), Coaching Behavioral Assessment System (CBAS; Smith et al., 1977), Arizona State University Observational Instrument (ASUOI; Lacy & Darst, 1984, 1985; Lacy &

Goldston, 1990) and Coaching Analysis Instrument (CAI; More & Franks, 1996). The CBAS (Smith et al., 1977) and the ASUOI (Lacy & Darst, 1984) were the most commonly used coaching observation instruments, with the CBAS being highly employed in the study of youth sport coaches (Erickson, 2009).

In this study the «Revised Coaching Behavior Recording Form» (RCBRF; Tharp & Gallimore, 1976) was used, which was developed in order to record through the direct observation the coaching behavior in training.

The development of coaching behaviors' categories came from the analysis of a large number of verbal and non instructions during training sessions and races and the approach of measurements, as well as some of the 12 behavior categories of instrument approach social and behavioral theories. These categories include behaviors that are found to affect both underage and adult athletes of different sports (Smith & Smoll, 1990).

In Greece, attempts to record and code coaching behaviors were made in basketball and handball at young ages (Tzioumakis et al., 2009) while in volleyball nothing like that has ever happened. The results of this research could be served as a guide for intervention and improvement of coaching behaviors and furthermore for sport performance in volleyball, in sport conditions that prevail in Greece.

The purpose of this study was to record and assess the coaching behavior of 12 Greek Volleyball 1st National Division coaches, through feedback that they provided and that correspond to 12 categories of the instrument.

MATERIAL AND METHODS

Participants

The participants were 12 coaches of A1 and A2 National Division Volleyball men, who participated in this study voluntarily. Coaches came from Thrace, Macedonia and Attica. In this study, coaches of national division were chosen to be evaluated, as most experienced and effective coaches.

Data collection instrument

Coding and analysis of coaching behaviors has been made using the RCBRF (Bloom et al., 1999; Côté et al., 1995; Durand-Bush, 1996). Bloom et al. (1999) made four alterations to Tharp and Gallimore's original set of categories. All categories of RCBRF are: 1. Technical instructions, 2. Tactical instructions, 3. General instructions, 4. Hustles, 5. Praise/ Encouragement, 6. Scolds, 7. Non-verbal punishment, 8. Criticism/ Reinstruction, 9. Modeling, 10. Non-verbal rewards, 11. Humor, and 12. Non coding behavior. This instrument was used by Bloom et al. (1999) in order to assess and study the teaching behaviors and verbal cues of basketball coach Jerry Tarkanian, head basketball coach of a Division 1 men's program. Horton et al. (2005) also used the same instrument to determine the central elements of five Canadian National coaches' practice environment.

Recording procedure

Trainings were videotaped using a digital video camera (Sony DCR-HC40E) while the coach was wearing a wireless microphone (Sound of Heaven, WR-601), and later, the researcher recorded and coded the data. The videotaping of each training started when the athletes were assembled in order to start the training (eg. instructions and inform about the target of the current training) and ended when athletes were then released by coach. During the recording the focus was on image capture, so as verbal and nonverbal communication between coach and athletes to be recorded (body language, gestures, grimacing). In addition, test shots were made in order that coaches and athletes become familiar with the process of videotaping and eliminate the possibility of altering their behaviors. To

maximize the viewing perspective, the video camera was positioned in the bleachers (approximately 25-50 rows up from the floor) at midcourt. This allowed us to track the coach as he was moving in the court. During all of the recorded sessions, coaches were wearing a wireless microphone to ensure that all of their verbal communications were captured. The use of hearings during the detailed analysis of recorded sessions were necessary, as well as the scenes playback as often as deemed necessary to the most correct recording, categorization and analysis of coaching behaviors. Also, coaches who took part in this study, were informed that their coaching behaviors would be the main object of the study without giving them additional explanations about the behavioral categories of instrument, or which of their behaviors are desirable or not.

Assessment of the instrument's reliability

Two trained researchers investigated the instrument's reliability as a mean of recording and coding coaching behaviors. Researchers were selected due to their knowledge of the specifics of volleyball, so as to be able to recognize technical mistakes during the data analysis. In order to become familiar with the instrument, the two researchers preceded pretest and training about the instrument's categories (Bloom et al., 1999), detailed instructions about the recording of the behaviors and practice. The purpose of this procedure was to ensure that two observers will observe and interpret coaches' behaviors with the same way. For this reason, assessed the agreement in recording and coding between two observers (inter-observer reliability), in first four trainings, as well as the agreement between each individual observer (intra-observer reliability).

Assessment of coaches' behaviors

Having been ensured the reliability of the instrument, followed the assessment of coaches' behaviors. Each coaching behavior was recorded in 48 sessions (12 coaches X 4 times each) and allocated to one of the twelve instrument's categories. According to the process of continuous coding, behaviors were recorded by the time they were appeared (Van der Mars, 1989). Thus, initially the 48 sessions recorded and then followed systematic observation and analysis of coaching behavior along with the instrument (RCBRF). Finally, when the data recorded all the comments were added and divided via four, to estimate the number of comments of each coach in each session. In the end, the means of frequency and the rates of appearance of each behavior category were calculated.

Statistical analysis

Concerning the reliability of the instrument, both for the analysis of the agreement between two observers (inter-observer reliability), and for each individual observer (intra-observer reliability), the statistical indicator k (*kappa*) was used (Cohen, 1960), as the most suitable in observation processes (Watkins & Pacheco, 2001), which has been widely used to check the reliability of observations in researchers about the systematic observation in sport (Trudel et al., 1996; Hastie, 1999; Pereira et al., 2009). For dependent variables that were instrument's categories, statistical descriptive analysis of frequencies, percentages and means carried out. To compare the type of comments between coaches of two national categories, the analysis of variance was used (ANOVA). The statistical analysis was conducted using the statistical package SPSS 17.0.

RESULTS

Reliability of observers

In 48 sessions that were recorded and analyzed, reliability was within acceptable levels not only between observers (inter-observer reliability) but also in each individual observer (intra-observer reliability). The values of statistical index between observes was $k=0.74$ and for each observer $k=0.81$ and $k=0.93$ corresponding.

Reliability of instrument

Followed an internal consistency analysis of 12 variables of recorded comments that expresses the reliability of the instrument. The analysis showed high correlation (Cronbach's Alpha =0.909).

Coaching behavior evaluation

The second part of results concerns the evaluation of recorded and coded behaviors according to evaluation instrument (RCBRF). In accordance with Van der Mars (1989), in process of systematic observation where the data are received via continuous coding, any behavior allocated in the appropriate category, just once it appears. During 48 trainings, observers recorded 13.400 behaviors in 4 trainings of each coach, on average per coach (M=279.11). Table 1 shows the appearance rates of behaviors.

Table 1. Frequencies of coaching behavior.

Categories of coaching behavior	Frequency of behavior/training	%
<i>Technical instructions</i>	34.68	12.42
<i>Tactical instructions</i>	48.34	17.38
<i>General instructions</i>	44.45	15.92
<i>Motivation</i>	29.97	10.73
<i>Reward/Encouragment</i>	30.06	10.76
<i>Comments</i>	24.25	8.67
<i>Non verbal punishment</i>	4.27	1.53
<i>Criticism</i>	15.35	5.5
<i>Demonstration</i>	23.1	8.26
<i>Non verbal reward</i>	8.45	3.1
<i>Humor</i>	8.95	3.21
<i>Non coding behavior</i>	7.04	2.52
Total	279.11	100

As illustrated from the results, coaches provided 279.11 comments in each training and 59.55% (M=166.15 behaviors \ training) from them was responses to athletes' stimuli. The most frequent occurring variable was tactical instruction, representing 17.38% (48.34) of the coded behaviors. The next most frequent behaviors were General Instruction with proportion 15.92% (44.45) and Technical Instruction 12.42%, which represents 34.68 behaviors of each training. Followed in frequency of appearance Praise/Encouragement 10.96%, and Motivation 10.73%, then Comments 8.67% and Modeling 8.26%, Criticism 5.5% and Humor 3.21%. With lower rates appeared Non verbal reward 3.1%, Uncodable behavior 2.52% and Nonverbal punishment 1.53%.

Differences between 1st and 2nd division coaching behavior

Analysis of Variance (ANOVA) was used to investigate if there were differences in the kind of comments between 1st and 2nd division volleyball coaches. Results showed that there were no significant differences in the coaching behaviors, as expressed by their comments to their athletes, except of «criticism» » ($F_{(1,46)}=7.70$, $p<0.05$) which coaches of 2nd division use more often and «non verbal reward» ($F_{(1,46)}=3.990$, $p<0.05$) which coaches of 1st division use more.

DISCUSSION AND CONCLUSIONS

The aim of the present study was to record and evaluate the coaching behavior of 12 Greek Volleyball National Division coaches through the feedback that they provided to their athletes.

The results of checking observers' reliability (inter-observer and intra-observer reliability) on the instrument «RCBRF», showed that the range of reliability was within acceptable levels. According to Fleiss (1981) and Cicchetti (1994), values higher than 0.60 are sufficient to export reliable conclusions. It is concluded, therefore, that observers, with the appropriate education, can recognize, record and code coaches' behaviors in volleyball trainings using «RCBRF» with acceptable rates of reliability.

The results of coaching behavior evaluation who participated in this study showed that tactical instructions was the most frequently occurring variable, a finding that agrees with the results of previous studies that used RCBRF (Bloom et al., 1999; Horton et al., 2005). Especially Bloom et al. (1999) found that expert coach Tarkanian, whom behavior studied, gave very importance on tactical instructions and this behavior was 13% higher than the second highest variable, hustles. Similarly Horton, Baker & Deakin (2005) confirmed that instruction constituted the majority of coaching behaviors and more importantly, tactical instruction was found to be the dominant form of instruction, then general and finally technical instructions. This agrees with the present study as presented a large proportion in these categories.

Findings of this study about the least occurred categories agree with the findings of Horton and colleagues study (2005). In both studies categories «Praise/Encouragement» and «Hustles» seldom used, while below 10% appear categories «Scolds», «Modeling», «Criticism» and «Humor». In our study with even lower rates appear Non verbal reward, «Uncodable behavior» and «Non verbal punishment». Which is in accordance with previous studies (Bloom et al., 1999; Tharp & Gallimore, 1976).

Remarkable is the fact that «Tactical instructions» were the most frequently occurring behaviors. Perhaps expert coaches expect their athletes to have already a sound fundamental basis of the necessary skills when the athletes reach at the elite level. Thus, more time was spent during team practice trying to outthink or outsmart opponents. For this reason findings of this study do not agree with findings of Tzioumakis and colleagues (2009) study, in which the largest part of recorded behaviors were «Mistake-contingent technical instruction», «Encouragement» and «Reinforcement». Probably because the above researchers studied the behaviors of coaches whose athletes were in beginner or intermediate level and they were most concerned with teaching fundamental skills. Similar are the results of other studies that used CBAS in beginner or intermediate level (Smith et al., 1990; Nicaise et al., 2007). Smith et al. (1978) who also studied younger athletes' coaches found that they praised and encouraged their athletes whilst they used «Mistake-contingent technical instruction» in order to correct their technique. Likewise were the findings of Lacy and associates (Lacy & Darst, 1985; Lacy & Goldson, 1990) who analyzed successful high school basketball and football coaches and found that technical instructions represented almost half of the coaches' behaviors, with forms of encouragement the next highest behavior. Coaches demonstrate different behavior depending on the level that they were training (Cushion & Jones, 2001).

Results did not show significant differences in the kind of comments among the coaches of A1 and A2 league, except of «criticism» that coaches of A2 used more often and «non verbal reward» that coaches of A1 used more. The results were expected as, usually, athletes of A1 league are older and more expert, and so coaches do not have to use critical comments and verbal praise.

In conclusion, the results of the present study show how expert volleyball coaches of A1 and A2 National Division behave during the championship season. The results indicate that coaches in these categories use a significant number of comments during the training and especially when they teach tactic. They aim in tactic and provide tactical comments about the upcoming game and provide fewer technical comments, while punishment, verbal or nor, are not used often. Future research in this area would record athletes' expectations by their coaches and compare them with their coaches' comments.

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