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A Systematic Observation of Youth Amateur Volleyball Coaches Behaviours

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The purpose of this study was to examine the coaching behaviours of youth amateur volleyball coaches within the practice environment, through the Arizona State University Instrument (ASUOI), making a contribution to the expanding empirical database. Moreover, we intend to compare the instructional profilesbetween youth amateur coaches and earlier research that wasdone using ASUOI, particularly with top-level professional coaches. The participants for this study were eleven Portuguese male youth volleyball coaches who coach amateur teams on the club setting from under 14 until under 18. A total of 6401 recorded behaviours were observed from eleven training sessions. The results show a predominance of instructional behaviours like pre-instruction, concurrent instruction and post instruction (35.94 %). However, it seems consistent to assume from the coaches observed, that they show a lower use of instructional and praise behaviours compared with that of top-level professional coaches as verified in earlier studies. Additionally, the findings on the use of first names, questioning and modelling, important strategies to promote active learning and meaningful affective relationships, showed a reduced use. The results highlighted the contextual and specific nature of the coaching process, which emphasized the need for a deeper analysis concerning the coaching behaviours in relation to the substantive content demonstrated by the coach as in relation to the type of practice.

key words: Coaching Behaviours, Youth Amateur Sport, Volleyball

Introduction

The coach is a central protagonist in the world of Sport, who also has high social prominence in daily society. Being that the coach's professional intervention is multifaceted and accomplished in diverse contexts of practice, it demands

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extensive knowledge and competences, adjusted to the particular conditionings of the practice involvements (Abraham & Collins, 1998; Lyle, 1993).

Coaches strongly influence the nature and quality of the sport experience within the youth sport environment. As Smith et al. (2007) emphasized, the goal priorities that the coaches promote, the attitudes and values they transmit, and the nature of their interactions with athletes can strongly influence the effects of sport participation on children and youth. And Woodman (1993) asserts that it is the application of knowledge and skill which separates the excellent practitioner from the average one. Hence, the analysis of the coaching behaviours in sport settings will provide help to recognize, in particular, how the coach facilitates learning for the athlete, a central principle of coach's instructional behaviour (More & Franks, 1996).

From a historic perspective, the studies of the instructional behaviour were firstly orientated for the school setting, namely in Physical Education lessons, during the sixties (Metzler, 2000). In the last twenty years, the research agenda has been centred on observing the instructional behaviours of coaches in the sport club setting with the objective of understanding how coaches could facilitate the learning processes.

In agreement with Cushion & Jones (2001), different observation systems have been developed to analyse the coaching behaviours, namely in the analysis of behaviour profiles (Jones et al., 1997) where, among other things, we are able to highlight the Coach Behaviour Assessment System (Smith et al., 1977) and Arizona State University Observation Instrument (ASUOI, Lacy & Darst, 1989). Knowledge in sport pedagogy has increased through the insights obtained from such systems. During approximately the last 25 years, empirical research into coaching, using the ASUOI, has been done, for instance in Tennis (Claxton, 1988), Volleyball (Lacy & Martin, 1994), Soccer (Cushion & Jones, 2001; Potrac, Jones & Armour, 2002; Potrac et al., 2007) and Basketball (Lacy & Goldston, 1990). Indeed the expansion of the data base has been a result of the widespread use of the ASUOI instrument in different team sport settings. The ASUOI includes seven categories related directly to the instructional behaviours (i.e., pre-instruction, concurrent instruction, postinstruction, questioning, physical assistance, positive modelling, negative modelling), four categories related with affective interaction (use of first name, hustles, praise, scolding) and two management behaviours (management and silence). Using the ASUOI the profile of the coach's behaviour is thought to possibly have

been modified over these years, and to identify these hypothetical changes, it is important, to understand the tendencies of coach behaviour.

Furthermore, based on an extensive review of the coaching literature, Gilbert & Trudel (2004) claim that coaching science, as in other theme fields, requires descriptive studies for the basic understanding and accumulation of knowledge. Potrac et al., (2007) added that "current theorizing into coaching has not been underpinned by enough "bottom-up" empirical work which has, in turn, stunted the subject's conceptual framework". Moreover Cushion & Jones (2001) state that the emergence and expansion of the use of descriptive analytical techniques has leaded to the start of a coaching science.

Therefore, the present study intends to contribute to the existing database by providing descriptive data pertaining to the coaching behaviours of youth amateur volleyball coaches. The results taken from other studies are examined and interpreted in reference to earlier research in which the ASUOI was applied, in order to analyse coach behaviour within the same observation instrument. As Lacy & Goldston (1990) state, a meaningful data base behaviour is built just through observational studies applied in a variety of settings. The contribution of the present study is based on the belief that it is only through thorough research to describe what coaches actually do, that theorizing about current limitations becomes possible (Abraham & Collins, 1998).

Applying systematic observation of the coaching behaviour it has been possible to identify instructional profiles namely of professional top-level coaches. Indeed early research about the behaviour of coaches like John Wooden (Tharp & Gallimore, 1976) and Frank Kush (Langsdorf, 1979), showed that the more frequent pedagogical behaviour used for both coaches was instruction confirmed recently for top-level professional soccer coaches (Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). Moreover, as Black & Weiss (1992) claim, effective coaches tend to cultivate a more positive environment for their players than their less effective counterparts. Potrac et al., (2007) verified that praise was largely applied by top-level professional coaches as an instructional strategy to enhance the self-efficacy and confidence levels of players, and is valuable in reinforcing the player behaviour desired by coaches. However, it is not yet clear which instructional profiles are prevalent among the youth amateur coaches, as the previous researches focus preferentially on expert coaches that usually coach in professional leagues, neglecting the characterization of the pedagogical behaviour of the coaches of youth

sport. The possible identification of different features within pedagogical behaviour among coaches in youth amateur sport and professional coaches will be particularly important to enhance coach education programs, namely on contents and learning strategies basis.

Therefore, the aim of the present study intends to identify coaching behaviour in youth amateur volleyball and to compare it with earlier research that was done by using ASUOI, particularly with top-level professional coaches.

Methods

Participants

The participants for this study were eleven Portuguese male youth amateur volleyball coaches. Six of the coaches had university degrees in physical education and sport and all of them were accredited coach educators for the governing body of the Portuguese Volleyball Association. All of them coached in the club setting with young teams from under 14 until under 18. The participants averaged 33.09 years of age and 9.44 years as coaches in amateur sport. The sampling was intentional, fulfilling three criteria: to belong to amateur sport; to be male and, to be coaching in a youth sport setting. The criterion for all to be male is due to the fact that the gender variable could distinguish the coaches' pedagogical behaviour, mainly referring to affective coaching behaviour (namely the use of first names) (Lacy & Goldston, 1990). The eleven coaches that belong to the present sample who agreed to take part in this study and fulfilled the three criteria.

Instrumentation

In order to describe and categorize the information transmitted by the coach, we used a system of categories named the Arizona State University Observation Instrument (ASUOI). This system, originally developed by Tharp & Gallimore for the systematic observation of coaching behaviour within the teaching/coaching settings, had 10 categories. Later et al. (1989) added 4 categories, and the final version is now comprised of 14 categories, seven of which are directly related to the instructional

process (i.e. pre-instruction, concurrent instruction, post-instruction, questioning, physical assistance, positive modelling, negative modelling) (Appendix A).

To ensure that the ASUOI was valid within the context of the present study we applied a pilot work with a sample of six male youth volleyball coaches all with certification as coach educators accredited by the governing body of the Volleyball Association. We analysed 918 pedagogical behaviours, from an audio and video-taped system, belonging to 4 concurrent training sessions of the competitive phase. From this study we concluded that no new behavioural categories needed to be added to the existing ASUOI and the Uncodable category was recorded at a 0.7 percent of occurrence, confirming the values found in the previous research. Secondly, validity was also accessed by expert validation, having six experts evaluated as to whether the categories, considered in ASUOI, represented the total possibilities. Each expert was given a list of categories and a sample of volleyball youth training sessions and were asked about their view of the procedure and asked to match all instructional units in the different categories. The percentage of agreement between experts reached 95.3%, meaning a strong consistency.

It is important to note that a subcategory was added concerning the use of the first name, at different moments of the coaches' speech at the beginning, middle or end of the sentence. This is important because the focalisation of the athletes' attention could be different according to the moment when the coach refers their first name. At the beginning of the sentence players are able to absorb all the information, but in the middle and at the end of the sentence, the players might be unable to absorb part or most of it.

Procedure

Having explained the study aims and received the coaches´ informed consent, the coaching behaviours were recorded in an audio and video register. From the eleven training seasons, (one per coach), we observed 6401 coaches' behaviours. All coaches were observed during the competitive phase of the sportive season, and the training season took place in the middle of the week, more precisely on a Wednesday or Thursday. With this criterion we intended to have similar features of all trainings seasons, so as to divulge a more representative snapshot of the pedagogical strategies utilized. To maintain existing systematic observation research, observations took place during typical practice sessions, which include predominantly group practice (working

on specific skills or strategies) (Lacy & Darst, 1985).

We observed eleven training sessions, one per coach. The total amount of time coded from each training session was 45 minutes, totalling 495 minutes of observation for all participants. The 45 minutes observed corresponded to the fundamental part of the training session, excluding the initial and final part. No conditioning segments of the training sessions were collected and each coach was observed for the same amount of time. With this procedure it was intended to analyse the pedagogical coach behaviour through the training phase where the substantive learning contents were focalized (Siedentop, 1991). The procedure used for data collection in this study was the event recording, which is a cumulative record of the number of discrete events within a specified time. The application of the system involved prior training of observation and codification. Two members of the research team were trained in the allocation of coaching behaviours to correct categories. During the training phase there was a discussion of the rules related to each category, and the coders were given brief tests in which they were to classify coach behaviours according to ASUOI categories. The same test was administrated two weeks later with no feedback being given in the interim. No significant differences were found between the first and second tests. This indicated that the coders were able to develop a reliable coding protocol. The training was supervised by an experienced observer who had already completed other studies with the instrument (Potrac et al., 1997).

Data analysis

Each behaviour category was computed into a total number of behaviours and a percentage was achieved from the total behaviours observed. Percentages and Rate per Minute (R.P.M) were calculated for each category. R.P.M was calculated by dividing the total of each category by the total of minutes observed. Exceptionally, the *use of first name* must accompany a different behaviour, whereas being analysed as an independent category decreases the values of other behaviours and the true percentage of these behaviours would be distorted (Lacy & Goldston, 1990). Therefore, to calculate the percentage of each behavioural category, the use of first name was excluded and the percentage of this category was considered separately.

Reliability

The reliability of the observations was assured by inter-observer and intra-observers' agreement, with a 30-day interval, from Bellack´s formula (1966, as cited by Van der Mars, 1989). According to the minimum value given in the literature, ten percent of the total observations was analysed for each behaviour (Tabachnick & Fidell, 1989). The minimum value found was 89% for intra-observer agreement. Cohen´s Kappa was also calculated to exclude the possibility of existing agreements by chance and the values for the agreement of two independent observers ranged from 0.82 to 1. Intra-observer consistency ranged from 0.89 to 1. Fleiss (1981) argues that scores grater than 0.75 indicate strong agreement.

Results

As illustrated in Table 1, from a total of 6401 behaviours recorded, we can observe that the highest single category observed for the coaches was *silence* (33.89% with a 4,38 R.P.M). However, the instruction related categories (*pre-instruction, concurrent instruction, post instruction, questioning, positive modelling and negative modelling*) accounted for the majority (41.7% and a 5,40 R.P.M) of the recorded behaviours. A more detailed analysis of the instructional behaviours showed that the categories of *pre-instruction* (9.72), *concurrent instruction* (9.27) and *post instruction* (16.95) represented 35.94 percent of all recorded behaviours, totalling 4.65 R.P.M. This means that *questioning* and *modelling* were strategies infrequently used, summarizing a total of 5.76 percent that means 0.75 R.P.M. No register was verified concerning the *physical assistance* which also belonged to the instructional categories.

The categories related with affective interaction between coaches and players, *praise, scold* and *hustle*, accounted for 16.54% of the totality of the behaviours recorded, with a R.P.M of 2.14. Of which *hustle* was the more emphasized behaviour (9.17%), followed by praise (5.50%) and, finally *scolding* (1.87). The data revealed a ratio of 3:1 between praise and scolding, respectively. Furthermore, management accounted for just 4.98 per cent of total behaviours and uncodable with 2.89 per cent.

Table 1. Frequency, percentage and rate per minute (R.P.M) of total coaches' behaviours as recorded by the ASUOI

Behaviour	Total behaviours	% of coded behaviours	R.P.M
Use of first name*	799	12.48	1,61
Pre-instruction	622	9.72	1,26
Concurrent instruction	593	9.27	1,20
Post instruction	1085	16.95	2,19
Questioning	217	3.39	0,44
Physical assistance	0	0	0,00
Positive modelling	84	1.31	0,17
Negative modelling	68	1.06	0,14
Hustle	587	9.17	1,19
Praise	352	5.50	0,71
Scold	120	1.87	0,24
Management	319	4.98	0,64
Silence	2169	33.89	4,38
Uncodable	185	2.89	0,37
Total	6401	100.00	14,55

In relation to the *use of the first name* category, and out of the 6401 coaching behaviours recorded, only 799 (12.48%, corresponding to 1.61 R.P.M) were accompanied by the first name. The results found for the category *use of the first name,* when broken down by its emergence at the beginning, middle or end of the sentence, presented 424, 109 and 266 uses, respectively. In percentile terms the *use of the first name* at the beginning of the sentence had larger representation accounting for 6.62%, while the *use of the first name* at the end or in the middle of the sentence accounted for 4.16% and 1.70%, respectively.

Discussion

Use of Instruction

Consistent with other observational research in different sports settings (Cushion & Jones, 2001), instruction was the most frequently utilized behaviour (41.7%) by the coaches under study. Analysing the categories related with the moment that the instructional behaviour is used (Pre-Instruction, Concurrent Instruction and the Post Instruction) we verified that the coaches spend a great part of the practice using such behaviours (35.94%). These profiles are situated in the values found in several investigations done in different sports which oscillate from 20.1% to 57.53% (Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1990; Lacy & Martin, 1994; Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). However, the studies with professional soccer coaches, not only in the youth sport (Cushion & Jones, 2001) but also dealing with top-level head soccer coaches (Potrac et al., 2002; Potrac et al., 2007), show a greater amount of the instructional categories than the profile found on the other coaches, as we verified in the present study and in several researches (Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1990; Lacy & Martin, 1994). Indeed, instruction has been considered to be the most significant aspect of the coach's role (Tinning, 1982). In particular, the study of John Wooden, considered one of the best coaches of all times reaching 10 basketball titles in 12 years, supplied interesting implications for the understanding of the coaches' role as a teacher. Tharp & Gallimore realized that, unlike other coaches who focused on functions as group facilitators, emotional managers, or even administrators, Wooden took advantage of practically all the situations to teach. Additionally they verified that 75% of Wooden's acts of teaching carried some pedagogic information. Therefore, being a teacher is one of the defining roles of a coach and it is responsible for transmitting to the athlete what to do, how to do it and, hopefully, how to do it well (Hodges & Frank, 2002).

In accordance with Jones et al. (2004) the emphasis on instructional behaviours, mainly through professional coaches, can be partly explained by role theory. Coaches, adopt behaviours which they believe to be congruent with the coaching role, which in reality, functions as a "performance image" which they desire to reach or refer to. Coakley (1994) advocated that the professional coaches endeavour

to control as many variables of the complex coaching process as possible through high levels of instruction, preferably adopting instructional behaviour. Cushion & Jones (2001) argue "The professional coach's success is determined by team performance, thus, high levels of instruction becomes a function of, and reflects, the power structure resulting in high levels of coach control".

Concerning the use of pre-instructional behaviour, the analysis of several studies in different sports (Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1990; Lacy & Martin, 1994; Cushion & Jones, 2001; Potrac et al., 2002; Potracet al., 2007) shows that the values varied from 8.89% to 13.94%, which demonstrated some consonance with the results found in our study (9.72%). This is recognition of the importance of pre-instruction, namely for being a behaviour used when transmitting to the student what to do and how to do it (Rink, 1994). As pre-instruction is the behaviour that precedes the practice, the amount of information provided is dependent, partially, on its nature and the aims of the season training. Hence, in the future it will be important to make a more detailed analysis of the information related with the constraints of the specific training situation. As Cushion & Jones (2001) claim, for the instruction to be effective, a judicious use of instructional behaviour is proclaimed, rather than a rigid application of generic teaching skills. Namely, task explicitness has fundamental importance when it allows students to understand, and retain the information provided by teachers (Rink & Werner, 1987, 1989; Silverman et al., 1998). Indeed, when the task ambiguity is reduced by using greater explicitness, task completion and adherence will be increased, athletes will receive more practice and in this way learning will also increase (Silverman et al., 1995).

The percentage of the behaviours of *Concurrent Instruction* and Post Instruction for the totality of coaches was 9.27% and 16.95%, respectively, higher than previous studies in different sports (Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1994) but less than found in professional top-level soccer coaches (Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). This can be explained because they are different sports with different particularities, being that the practice levels are also decisive. However some reasons could explain the great amplitude of the values found. On one hand, the values have been rising from the 80s to the present moment, which shows the largest importance verified by coaches in accordance with attendance of the athletes' activities with more instruction provided not only during the execution but also after. As several authors' claim,

feedback is a central requisite to coaching effectiveness (Horn, 1992; Solomon et al., 1996). On the other hand, higher level soccer coaches provided more concurrent instruction, which supports the contention that successful coaches give instruction when the performer is free from the immediate attention demands of performance (Markland & Martinek, 1988).

Use of Questioning

Being considered as a valid teaching strategy (Claxton, 1988) with the intention of making an active role for the athletes possible in the learning process, the questioning provides procedural freedom in the interpretation of the learning situations for athletes (Cross, 2000). According to Chambers & Vickers, (2006) "Athletes who received constant, external input regarding their performance, grew to rely solely on that information. However, those who receive less extrinsic feedback were required to mobilize cognitive processes for detecting sources of performance information."

The present study showed that the use of Questioning by the coaches, obtained reduced values. From the totality of categorical behaviours (6401), only 217 (3.39%) were classified as *Questioning*. The values found are similar to the ones found by Claxton (1988) in high school tennis coaches who have less success. Notwithstanding, the coaches present larger use of questioning when compared with professional top-level soccer coaches (Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). Coakley (1994) advocates, that this approach can be justified by the need of elite coaches to avoid the possibility of being considered as irresolute and lacking knowledge. This approach is confirmed in the study with top-level Canadian basketball coaches (Bloom et al., 1999) which revealed that the coaches turn more often to instructional strategies centred on outcome. These results, as well as the ones from the present study, suggest that the coaches mainly prefer to emit prescriptive information. Although, questioning is an instructional strategy that encourages athletes to explore different solutions while at the same time providing a degree of constraining information (Matatic & Pomplun, 1998). Furthermore, contemporary views emphasize the idea that "skill is highly cognitive" (Lee et al., 1994) and the questioning methods may have power to affect positive advances in

performance, athlete-coach relationships and overall development of athletes of all levels (Chambers & Vickers, 2006).

Use of silence

Silence was the highest single category observed by the coaches with almost 34% of the total behaviours used. This result is greater than the one found with high school tennis coaches (Claxton, 1988) and similar to collegiate head volleyball coaches (Lacy & Martin, 1994). However, it is lower than the results found by Rupert & Buschner (1989), from instructional behaviours of educators who were involved in the dual role of teaching high school physical education and coaching baseball. Due to the fact that these coaches are simultaneously teachers of physical education, they particularly attend to the importance of monitoring student behaviour to see if the student performance is congruent with tasks assigned (Siedentop, 1991).

Indeed coaches do not need to be constantly involved in active behaviours during the practice (Miller, 1992). Rupert & Buschner (1989) proposed the notion of silent monitoring as a training strategy, where the coaches observe and contemplate on the appropriate interventions. According to Van Lingen (1997) a detailed observation is an important and vital behaviour for the success of coaching as confirmed by the Cushion & Jones (2001) study. This strategy can then facilitate the learning process by making the involvement in procedures of solution searching possible for the athletes, predicate of discovery learning (Davids, 1998). Furthermore, if feedback is provided on every attempt, "information overload," the athlete's lack of ability to retain the main information, can occur (Williams & Hodge, 2005).

However, it is necessary to identify what the coaches are thinking when they are silent and relate this to the athletes' activity. In future research it will be important to analyse the activity developed by the players during the coach's silence and ask the coach after the silence what he was thinking or observing.

Use of Modelling

The sparse use of modelling has been verified in other researchers (e.g. Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1990; Potrac et al., 2007) and,

in fact, our results confirm, once again, such verification.

Williams & Hodges (2005) refer to the demonstration as a helpful method used by the coaches to transmit information to the athletes. However, the present study found only 84 (1.31%) and 68 records (1.06%) for the Positive Modelling and Negative modelling, respectively, among all of the codified behaviours. Moreover, positive modelling was less used for youth amateur volleyball coaches in other studies when compared with high school tennis coaches (Claxton, 1988) and professional top-level soccer coaches (Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007).

Positive modelling is usually applied in the presentation of new techniques (Rink, 1994) and positive and/or negative modelling is commonly used in the correction of technical errors (Magill, 1993; Kwak, 2005). Different studies (McCullagh et al., 1990; Weiss et al., 1992; Freedman, 2000) showed that the student's recall of the process characteristics of motor skills is dependent on the quality of visual demonstrations, rehearsal strategies and use of appropriate cues among other things. However, as Williams & Hodge (2005) comment "When the goal is to help the learner to achieve a particular outcome that is not directly dependent on the replication of a specific technique, a demonstration may be no more effective than verbal instruction". The lower values found in the present study can be explained by the fact that, as an instructional strategy, the demonstration may not be more effective than verbal instruction (Williams & Hodges, 2005), and, in fact, may require the aid of verbal strategies (Weiss & Klint, 1987). Although, to confirm the appropriateness of modelling (positive and negative) it is necessary in future studies to investigate in which learning situations those instructional strategies are more used, with underpinning in a deeper and contextual analysis.

Use of Praise and Scolding

The results found by several authors concerning the use of *Praise* and *Scolding*, denounce a great oscillation of use when analysed in relation to the ratio. However, from earlier studies it is clear that the ratio between both behaviours favours the use of praise in relation to scolding (Tharp & Gallimore; 1976, Lacy & Darst, 1985, Claxton, 1988; Rupert & Buschner, 1989; Lacy & Goldston, 1990; Lacy & Martin 1994) until recent studies (Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). The reason appointed by Thorpe & Gallimore for the low use of praise by

Lacy & Martin, 1994; Cushion & Jones, 2001; Potrac et al., 2002; Potrac et al., 2007). However, the athletes' level can influence the frequency of first name use. As Cushion & Jones (2001) verified, the coaches of the premiership employed to a greater extent the "team" practices, involving specific mistakes, and therefore used the first name more when transmitting information to the players than the National wide Leagues coaches who applied more "group" practices, often containing generic mistakes affecting all players.

Splitting the use of first name in three moments, this study showed that the coaches used the first name, firstly at the beginning (6.62%), secondly in the middle (4.16%) and finally at the end of the sentence (1.70%). However this behaviour was used relatively frequently (5.86%) in the middle and end of the sentence. Probably, the focalisation of the player's attention is increased when the coach refers to the player's name at the beginning of the sentence. Indeed, when the coaches begin the instruction without reference to who it is directed to, there is a chance that the athlete will only hear the information from the moment when their name is pronounced. Moreover, the reference of the name at the end of the sentence can be more compromising, because the focalisation of the athlete's attention can be concretised after all information is emitted. Studies that were done in the field of motor learning show that the individuals have limited ability to store and use information in short term memory (Magill, 1993). In this way, the use of the first name at the beginning of the sentence can attune the athlete's attention and consequently increase the level of athletes' information retention.

Conclusion

Despite some criticism, in recent years, in favour of more qualitative approaches to investigate coaching behaviours, systematic observation still has a very important role to play in developing representative evidence-based guidelines to good practice (Potrac et al., 2007). From the utilization of the ASUOI, this study endeavoured to compare and contrast the instructional profiles of youth amateur volleyball coaches and earlier researches that were done by using the same instrument of observation, particularly with top-level professional coaches provided, these ones, from more recent studies.

Findings showed that youth amateur volleyball coaches exhibited a predominance of instructional behaviours like *pre-instruction, concurrent instruction* and *post instruction* consistent with earlier research. However it seems consistent to assume, that they show a lower use of instructional and praise behaviours compared with Top-level professional Soccer Coaches, which was verified in other recent studies. Additionally, the findings about the use of the first name, questioning and modelling, important strategies to promote active learning and meaningful affective relationships, showed a reduced use. These findings showed that the pedagogical behaviours of the youth amateur volleyball coaches analysed in the present study revealed some weaknesses, namely the low usage of instructional strategies that are currently known in literature as being promoters of good coaching practice, particularly in youth sport training. So, these findings can have a valuable contribution to coach education where it is important to promote innovation of new approaches based on the research emerging from real practice contexts of youth sport training.

However, once "the effective coaching behaviour could be a specific situation "(Jones, 1997), it will be appropriate and necessary to attend in the future research to the contextual and specific nature of the coaching process. Indeed, results highlighted the ecological nature of the coaching process, which emphasize the need for a deeper analysis concerning the coaching behaviours so much in relation to the substantive content emitted by the coach as in relation to the type of practice. Moreover, since the nature of the information being displayed depends, largely, on the type of skill being learned, on the learning phase in which the athlete is, and on the complexity or difficulty of the task, it will be important to integrate these kinds of variables in future researches.

Furthermore, seeing that the major part of the previous work has been carried out in the United States of America and in England, little is currently known about coach behaviour in other countries with different cultures. We suggest that in the future, coach behaviours must be studied across sports, levels of competition, coach philosophy and personal coaching models as well across cultural differences. For this analysis it seems important in future surveys to apply complementary qualitative analysis of beliefs, knowledge, and reasons for coaches' behaviours, in particular coaching settings, so as to obtain a more critical understanding of the coaching process.

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Appendix A: The Arizona State University Observation Instrument (Lacy & Darst, 1989)

1. *Use of the first name*: Using the first name or nickname when speaking directly to a player, for example, 'Nice smash, Michael' or 'Paul, that was a good service'.
2. *Pre-instruction*: Initial information given to player(s) preceding the desired action to be executed. It explains how to execute a skill, play, strategy and so forth associated with the sport.
3. *Concurrent instruction*: Cues or reminders given during the actual execution of the skill or play.
4. *Post instruction*: Correction, re-explanation, or instructional feedback given after the execution of the skill or play.

5. *Questioning*: Any question to player(s) concerning strategies, techniques, assignments, and so forth associated with the sport, for example, "'How do you do the overhead pass ?'
6. *Physical assistance*: Physically moving the player's body to the proper position or through the correct range of a motion of a skill, for example, guiding the player's hand through the movement of a block in Volleyball.
7. *Positive modelling*: A demonstration of the correct performance of a skill or playing technique.
8. *Negative modelling:* A demonstration of the incorrect performance of a skill or playing technique.
9. *Hustle*: Verbal statements intended to intensify the efforts of the player(s), for example, 'Push yourself, push yourself'.
10. *Praise:* Verbal or non-verbal compliments, statements, or signs of acceptance, for example, 'Great pass '".
11. *Scold*: Verbal or non-verbal behaviours of displeasure, for example, "You're doing everything wrong".
12. *Management*: Verbal or non-verbal behaviours related to the organizational details of practice sessions not referring to strategies or fundamentals of the sport, for example, "Get into groups of four"
13. *Uncodable:* Any behaviour that cannot be seen or heard, or does not fit into the above categories, for example, being absent from the practice setting, checking injuries, joking with players or talking with bystanders.
14. *Silence*: Always when the coach is not talking, for example, when listening to a player, or monitoring activities.