

# A DESCRIPTION OF THE TEACHING-LEARNING PROCESSES IN BASKETBALL AND THEIR EFFECTS ON PROCEDURAL TACTICAL KNOWLEDGE

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KEY WORDS: Basketball, teaching-learning, procedural tactical knowledge

ABSTRACT: The aim of this study was to observe and describe the teaching-learning processes of technical and tactical abilities in basketball for players aged 10-12 years, by identifying the methodologies applied by the teachers and analyzing their influence on the acquisition of procedural tactical knowledge (PTK). The results confirmed an emphasis on the use of the situational-global method (SG) in group A training sessions. The use of the situational and mixed methods (SM) predominated in group B, while in group C the analytical method (AM) was the most utilized. Concerning the PTK performance, it was confirmed that the SG method provided improvements in the tactical parameters convergent “offer and orientate yourself (OO)” ( $z=-5,65$ ,  $p=0,00$ ), divergent OO ( $z=-5,89$ ,  $p=0,00$ ), convergent “identification of gaps (IG)” ( $z=-5,24$ ,  $p=0,00$ ) and divergent IG ( $z=-5,00$ ,  $p=0,00$ )

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## Introduction

Basketball, as one of the most popular team sport games, requires teaching-learning strategies adapted to its own characteristics. This particular sport presents a great variability in situations, demanding the players the ability to process highly variable information within short periods of time. It also requires the execution of technical and tactical actions based on the decision making ability (Rodrigues, 2001).

Past studies in the area of team sport games pedagogy (Collet et al., 2007; Graça and Mesquita, 2002; Harrison et al., 2004) have focused on the description and comparison between different teaching-learning strategies, centered either on technical skills (traditional methodology) or tactical development (new methodologies). Such studies tried to explain the effects of these methods on the acquisition of technical and tactical abilities and on declarative and procedural tactical knowledge.

Therefore, the planning and organization of the training activities and the content distribution play an important and special role in the teaching-learning process in basketball. They constitute one of the most important means for the improvement of player's performance in its different manifestations (Morales and Greco, 2007).

The purpose of this study was to observe and describe the teaching-learning processes of technical and tactical skills in basketball for players aged 10-12 years, by identifying the methodologies applied by the teachers and analyzing their influence on the acquisition of procedural tactical knowledge.

## Method

The present study has been approved by the Ethical Research Committee (COEP)

through the report number ETIC499/O5, issued on April 26th 2006. Forty pupils ( $11,14 \pm 0,8$  years), all male, have participated of the experiment. The participants were divided into three groups according to the teaching-learning strategies applied by the teachers in each one of the groups. The analysis and classification of the training activities were conducted according to the parameters established in the protocol presented by Morales and Greco (2007).

Group A ( $n=18$ ) showed a teaching-learning approach with emphasis on situational and global methods (SG). Group B ( $n=11$ ) presented a teaching-learning strategy supported by the situational and mixed methods (SM). Finally, in Group C training sessions was employed a methodology based on the analytical method (AM).

The KORA tests (Memmert, 2002) were conducted in order to assess the procedural tactical knowledge of the players. The tests are composed by game situations in which it is possible to evaluate two parameters inherent to tactical abilities: "offer and orientate yourself" and "identification of gaps" (Kröger and Roth, 2002). The scores of the KORA tests were appointed through a numeric scale from 0 to 10, according to the concepts validated by the experts (internal consistency of 0,98 in the validation of the test).

As the scores did not obey to a normal distribution (Shapiro-Wilk test  $p=0,04$ ), non-parametric Wilcoxon test was employed in order to verify the existence of significant differences between the results of the pre-test and pos-test in each group.

There was no comparisons between groups because the pre-test scores did not reach variance homogeneity in the tactical parameters divergent OO ( $p=0,009$ ) and divergent IG ( $p=0,040$ ). Kruskal Wallis test confirmed significant differences between groups in the beginning of the experiment (pre-test) in the

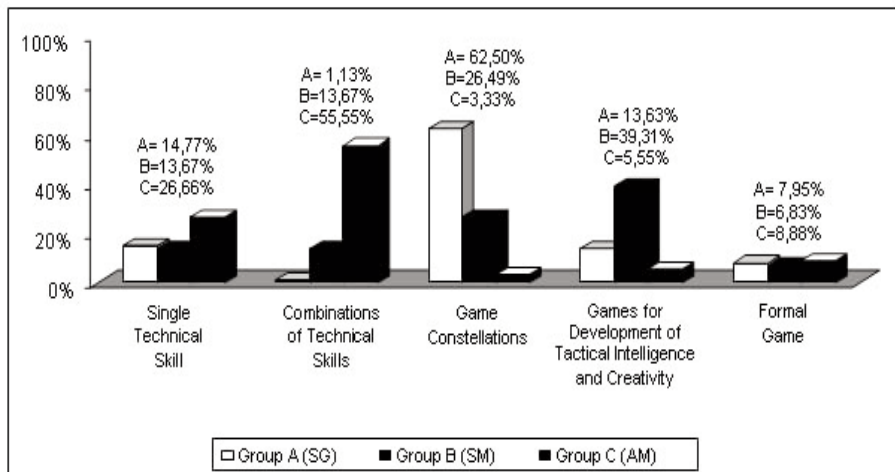


Figure 1 - Comparison between the distribution of activities employed on groups A, B and C according to the conditions of the task.

tactical parameters divergent OO ( $p=0,000$ ) and divergent IG ( $p=0,021$ ).

The Conbrach's Alpha coefficient was calculated to determine the internal consistency of the PTK assessment by the experts, achieving the values of 0,92 for group A, 0,91 for Group B and 0,88 for Group C. Intra-evaluator ( $p=0,000$ ) and inter-evaluators ( $p=0,014$ ) Kappa index appointed significantly statistic concordance (reliability) on the training sessions observations. The data obtained by systematic observation of the training sessions was analyzed through descriptive statistics, appointing the frequency and percentage of use of the activities regarding the conditions of the task: single technical skill, combinations of technical skills, game constellations (1x1, 2x1, 2x2), games for development of tactical intelligence and creativity, and formal game. By calculating the chi-square it was possible to recognize significant differences between groups. In all cases significance level adopted was  $p<0,05$ .

## Results

Group A (SG) dedicated a total of 1006,29 minutes in training. From this time, 591,61 min (58,79%) were orientated to technical and tactical activities, and 72,3 min (7,19%) only to technical training. Group B (SM) employed 1261,15 minutes, from which 639,93 min (50,74%) were used in technical and tactical training and 228,31 min (18,10%) in technical training. Group C (AM) presented a total time of 1261,15 minutes, divided in 484,14 min (36,80%) devoted to technical training and 272,08 min (20,68%) to technical and tactical exercises.

From the graphic in Figure 1 it is possible to observe that in Group A the use of game constellations has occurred more frequently (62,50%), followed by games for development of tactical intelligence and creativity (13,63%) and formal game (7,95%). These results suggest the predominant use of the situational and global methods in the group. On the other hand, Group B (SM) presented a more

frequent use of games for development of tactical intelligence and creativity (39,31%), with game constellations (26,49%), combinations of technical skills (13,67%) and single technical skills (13,67%) coming just after, which indicate the employing of the situational and mixed methods. In group C (AM) there were clear evidences of the application of the analytical method, as combinations of technical skills (55,55%) and single technical skills (26,66%) represented the majority of activities used by the teachers.

The calculation of chi-square ( $X^2$ ) identified significant differences between groups A (SG), B (SM) and C (AM), concerning the following parameters: single technical skills ( $X^2=14,48$   $p<0,05$ ), combinations of technical skills ( $X^2=56,51$   $p<0,05$ ), game constellations ( $X^2=45,75$   $p<0,05$ ) and games for development of tactical intelligence and creativity ( $X^2=45,8$   $p<0,05$ ).

Concerning the level of PTK, non-parametric Wilcoxon test confirmed significant differences from pre-test to post-test scores in the abilities convergent OO ( $z=-5,65$ ,  $p=0,00$ ) and divergent OO ( $z=-5,89$ ,  $p=0,00$ ). Statistic differences were also found in the abilities convergent IG ( $z=-5,24$ ,  $p=0,00$ ) and divergent IG ( $z=-5,00$ ,  $p=0,00$ ).

Group B (SM) showed significant differences in the scores of pre-test compared to post-test in the tactical abilities convergent OO ( $z=-2,82$ ,  $p=0,00$ ) and divergent OO ( $z=-2,25$ ,  $p=0,02$ ). Regarding the parameters convergent IG ( $z=-0,99$ ,  $p=0,318$ ) and divergent IG ( $z=-0,66$ ,  $p=0,508$ ) no significant differences

were confirmed.

Finally, Group C showed the same behavior as Group B, confirming significant differences from pre-test to post-test scores only in the abilities convergent OO ( $z=-1,99$ ,  $p=0,04$ ) and divergent OO ( $z=-2,47$ ,  $p=0,01$ ). No differences were detected in relation to the convergent IG ( $z=-1,85$ ,  $p=0,063$ ) and divergent IG ( $z=-0,38$ ,  $p=0,382$ ) tactical abilities.

## Discussion

The present study shows that there is an important variation in the teachers knowledge about the different methodologies applied in the teaching of sports games, specifically basketball.

Such variation was also evidenced in past studies (Collet et al., 2007; Corrêa, Silva and Paroli, 2004), in which the existence of different teaching-learning approaches used in sports initiation was verified.

Concerning the procedural tactical knowledge, although the groups have presented different teaching-learning methods, effects were confirmed on the learning of tactical ability "offer and orientate yourself" in both convergent (intelligence) and divergent (creativity) manifestations of thoughts. These results are similar to what Mcpherson and French (1991), and Harrison et al. (2004) obtained, in which there were improvements from pre to post-test in the variables declarative and procedural tactical knowledge in all groups evaluated (traditional method, TGFU or teaching games for understanding method, and combined method).

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