

BI-UNIVOCAL RELATIONSHIP BETWEEN THE GAME MODEL AND TRAINING MODEL IN HANDBALL

CAZAN FLORIN¹, GEORGESCU ADRIAN¹

Abstract

This thesis demonstrates that there is a bi-univocal relationship between the play model's dimensions (expressed by value parameters) and the training model (objectives – contents – strategies - evaluation), relationship that must be capitalized in the benefit of the continuous growth of the players and team's performance capacity.

Purpose: Bi-univocal relationship between the model and model training game is a concept supported by many specialists, (L.Teodorescu, 1975, Colibaba, D. 2007, Bota I. 1988, Bompa T. 2001) more of theoretical and less practical standpoint. This paper proposes a very practical way of implementing this relationship. In other words, try to answer the questions: how to convert design dimensions of play in the instructional objectives of the training process and how in turn the preparation leads to the continued improvement of the capacity of team performance?

Methods: To confirm this hypothesis, we took the example of a Romanian handball team HCM Constanta. Thus the competitive year 2008/2009 we studied performance behavior in the championship game. Using all means at their disposal recording (protocols, DVDs matches records, official documents etc.) we managed to outline some general aspects and especially the main dimensions of the game provided by the team.

Conclusions: The dimensions of game design can be converted to instructional objectives, and these in turn triggers the entire axis generative methodological approach (objectives - content - strategies - evaluation) toward continued growth in capacity performance.

Keywords: game model, training model, bi-univocal relationship.

Introduction

We chose this topic because we do not have genuine information on operational strategies focused on the continuous growth of physical training as well as the lack of tools to achieve the bi-univocal relationship between the handball game exertions practiced by the best teams in the world and the training model for the training component.

The game model-Defined from the perspective of system theory, the game itself is a hypercomplex system consisting of a set of subsystems (components) between which a series of connections (internal - between them, external to the external environment) are made, which act synergistically towards performance goals. At the same time, it is remembered that each subsystem can be treated as a stand-alone system if it has, in turn, a number of its own constituent elements (constituents), among which other connections (internal and external). It is also necessary to specify that each subsystem can be represented by a model with its own determination (Colibaba, D., and Bota, I., 1998).

Starting from the official handball game, the "original", which is a hypercomplex system with a lot of interactive components, we develop an integrative game model that includes a series of models that

capture the determinants of handball performance: the model team, playing positions model, physical demand model, technical model, tactical model, psycho-theoretical model, ambience model and performance behavior model (prospective game model). Colibaba-Evulet D., and Bota, I., (1998) have strong arguments about the model of play as a dominant model, as a key necessity for a team's success. When developing the game model, the coach must take into account the qualities of the players for each playing positions, the playing systems, lines, subsystems, etc. (Bompa, T., 2003).

The team model- The team can be likened to a small social group, specially established and well-organized, such as a working group designed to carry out pretentious works or a battle group designed to undertake special military operations.

In both situations, there are specialists who are well aware of the roles they have to fulfill in order to achieve the intended purpose. Professional handball teams are generally formed by attracting the most talented players who reach their maximum performance threshold or who cope with the exigencies demanded by large-scale competitions on a regular basis. (Colibaba, D. and Bota, I., 1998).

¹Ovidius University of Constanta, Faculty of Physical Education and Sport, Constanta, ROMANIA

E-mail address: cazan10florin@yahoo.com

In order to prepare the team for the championship matches, the coach has to structure the team through the following steps:

- ✓ Structuring the work framework to create a functional, standard-level team, made up of the best available players and from whom the highest possible efficiency is expected; Anticipating how this basic structure can be modified during the game, according to the evolution of the game, score, both when you play home or away;
- ✓ Creating a team position for each player, both in attack and defense;
- ✓ This structure will have 2 to 3 variants, depending on the players' qualities and their efficiency in attack and defense;
- ✓ Establishing the selection directions of the game system and the possible combinations for both attack and defense;
- ✓ Selection of substitute gamblers or substitutes; it is good to have one backup player for each of the key posts in the team;
- ✓ Establish tactical responsibilities for each post, depending on the types of team players;
- ✓ Establishment of cooperation strategy between the players and each team compartment;
- ✓ Establishing the exigencies of the formative performance behavior.

Purpose

Bi-univocal relationship between the model and model training game is a concept supported by many specialists, (L. Teodorescu, 1975, Colibaba, D. 2007, Bota I. 1988, Bompa T. 2001) more of theoretical and less practical standpoint. This paper proposes a very practical way of implementing this relationship. In

other words, try to answer the questions: how to convert design dimensions of play in the instructional objectives of the training process and how in turn the preparation leads to the continued improvement of the capacity of team performance?

Performance competitive behavior

This is in fact a synthesis of the previously presented models. From the listed components, only those that reveal the behavioral side and the performant side of the team or individual players will be chosen (Colibaba, D., and Bota, I., 1998).

The behavioral side is given by the concrete actions that can be observed. For a team that evolves in the game we can observe the following:

- The basic structure of the team (at the beginning of the game and on the way);
 - Placement of players on the ground (attack-defense);
 - Attack and defense forms and systems used in the game;
 - Principles underpinning attack and defense systems;
 - system combinations; Game tempo, etc.
- For each player, we can predict the following aspects:
- How it looks (waist, robustness, driving characteristics, etc.);
 - Strong and weak parts;
 - Position and placement in the field;
 - What individual actions and technical elements use;
 - How it works with partners;
 - The value of the game parameters.

The performance side reveals the quantity, quality and efficiency of the behavioral sides of the team and each player.

Tab. nr.1 Performance behavior on the team and posts (after Bota 1998)

Components of models	Total	Wings-Pivot	Left, right back	Midle back
1. Attacks	65-75			
2. Throws at the gate	35-45	13-16	15-18	11-13
a) counterattack, rapid attack	13-16	6-8	5-6	4-5
- from 9m	50	10	15	5
- from 6m	70	50	10	10
b) from the action	22-24	5-6	9-11	5-6
-9m	80	15	50	15
-6m	20	5	10	5
c) throws from 7m	4-5(90)	2	1	2
3. Balls won in defense	25-35	5-8	11-14	5-8

-interception	4-5	1-2	2-3	2-3
-blocked balls	5-6	1-2	6-7	1-2
-	4-6	3-4	3-4	2-3
4. Defense balls	12-14			
5. Lost balls	13-15	1-2	2-3	3-4
- technical mistakes	4-5	1-2	1-2	1-2
- other mistakes	2-3	1	1	1
6. Passive decisions	10-12	2-3	6-7	5-6
7. Fouls	20-25	5-7	7-8	8-9
8. Scored goals	32-34	7-8	12-14	8-9
9. Received goals	24-26			

Methods:

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Methodology of realizing the biunivocal relation between the game model and the training model

In order to achieve the biunivocal relationship between the game model and the training model we used the method used by Colibaba-Evuleț D. for basketball game.

To determine the instructional objectives and the content of the training process, it is necessary to analyze each parameter individually and to make it an observable and measurable instructional objective. This

operation is done by a deductive or inductive way, from which concrete instructional goals will be achieved and their grouping on thematic chapters. We'll take the interceptions as an example.

To convert intercepts into instructional objectives, we will proceed as follows: - performance behavior in the last season 5 ± 1 , thus a prospective parameter of 6 balls ($5 \pm 1 = 6$);

- the instructional objective for the next macro will be to increase the number of interceptions with 1 ball / match;
- winning a 6 balls / match through interceptions;

Objective formulations are observable and measurable through records. However, if we want to achieve the bizarre relationship between the game parameters and the model of preparation, we issue the following reasoning:

If the prospective parameter is 6 balls / match then the key elements that help determine the content of the training process are run through the following scheme:

INTRCEPTIONS

$\bar{X} = 6$ inter./MATCH



TACTIC	TECHNIQ	PHYSICAL	PSYCHOLOGICAL	TEORETICAL
- anticipation	- Fundamental position	- Detent	- combativity	- ball trajectory
- cooperation with nearby teammates	- start	- reaction speed and execution speed	- agresiveness	- rules
- placement	- catching the balls	- coordination	- space-time perception	- level of intervention

- first plan	- devierea mingiilor	- robustness	- courage	- driving principles
- body fight	-	- body struggle	- motivation	-
-	-	- Agility	-	-

Fig.1 – The deductive way of determining the content of the training process

Of course, out of the many content identified by this analysis, the coach will choose those he thinks can contribute to achieving the goal under discussion. By going through all the performance parameters of the team, we will be able to establish the real instructional objectives of the training process, according to which we can further establish the training strategy (ie the system of exercises, methods, principles, rules) and the necessary conditions for achieving the established objectives.

The training models will, of course, harness the whole information system we have (eg the characteristics of the competition, the opponent, the group relationships, etc.). In this operation of converting game parameters into concrete instructional objectives, we must pay close attention to the following finite features characteristic of a macrocycle:

1. the speed of triggering tactical (individual and team and team) attack and defense actions;
2. accuracy in goal throws,
3. the predominant use of rapid attack, counterattack,
4. the deployment of the moving positional attack, with no special stops for settlement or the preparation of attack schemes;
5. the shortening of the period of maneuvering of the players and the formation of universal players capable of capitalizing on the individual qualities and the acquired knowledge;

6. Knowing the difficult moments of play and solving solutions against different defense systems and forms;

7. Systematic use of short, active actions, with a player holding the ball, the strong side;

8. acquisition and application of different defense systems;

9. the training and preparation of players for active contest actions, shortening the duration of participation in the game but with the intensification of the application regime;

10. Continuous improvement in the recovery of offensive and defensive balls, given the large number of balls that can be won;

11. Developing effective, concrete tactical plans against the main opponents of the right value. Preparing dynamic game combinations;

12. the systematic change of defense systems and their alternative use, the use of combined defense, alternation with other defense systems during the game and even during a single attack phase of the opponent. There is a biunivocal relationship between the game model and the training model where the pattern of training is determined by the size of the game model.

	2008-2009	2009-2010
Attacks	60,33± 5,11	64
Throw at goal / scored goals	39,90±5,67 (66,13%) /23,06±4,22	44 (68,75%) 26
Throws from 7m / goals	4,09±1,92 (6,77%) /3,09 ±1,33	5 (7,81) / 4
Counterattacks / scored goals	4,52±2,96 (7,49%) /3,32±1,86	6 (9,37) /5
Wrong catch	2,94±1,86	2
Bad passes	5,7±1,78	4
Semicircle	1,22±0,44	1
Steps	2,00±1	1
Double dribbling	1	1
Attack Fault	2,33±1,37	2
Defeat your opponent	0	1
Blocking the throw	2,5±1,54	3
Steals	2,18±1,32	3
Failures in defense	22,09±2,84	20
2min eliminations	3,71±1,61	3
Balls of Goalkeeper	13,57±2,42	15
Balls lost by the opponent	36,85±7,59	42
Goals received	24,28±5,23	24
Lost balls	31,75±5,67	27
Scored Goals	29,04±4,80	33
Percentage%	47,76±8,00	55

Tab. nr.2 Performance behavior of H.C.M. Constanța in the competitive year 2008-2009 compared to the 2009-2010 season

In order to establish the physical training objectives in general and specific in particular, the performance behavior of the team was studied. This study was based on record sheets, game protocols that featured some performance indicators for players and teams. The recorded data revealed a series of digital data which were calculated using the working tools of the mathematical statistics (weighted average and the standard deviation) as can be seen in table no.2.

The parameters of the game parameters have been converted into concrete instructional objectives (which have expressed a performance behavior). Further, the prospective parameters were calculated for the team and the players to have the prospect of higher performances. In other words, the arithmetic averages of the calculated parameters were supplemented with a value up to the size of one sigma. Thus the prospective parameters of the game were established.

Once the prospective goals have been set, the biunivocal relationship between the game model and the training model will be taken, taking each instructional objective in part and basing it on the distinct elements of the training components (physical training, technical training, tactical training). In this way the contents of the training process will be obtained, and the training strategies, ie the main exercises, methods, materials, rules, principles, organizational forms etc., all focused on the established instructional objectives will be chosen.

Conclusions

The dimensions of game design can be converted to instructional objectives, and these in turn triggers the entire axis generative methodological approach (objectives - content - strategies - evaluation) toward continued growth in capacity performance.

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