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Original Article

Indicators to Evaluate Technical Offensive Elements of 3x3 11-12-Year-Old Basketball Athletes

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ABSTRACT

Introduction: Basketball today needs parameters for the assessment of technical offensive elements.

Aim: To suggest parameters for the assessment of technical offensive elements of 3x3 basketball athletes in the e11-12-year-old category, in Camagüey.

Materials and methods: The research methods used were theoretical, empirical, and statistical, which demonstrated the current shortcomings of the assessment process. The parameters were designed according to the practice, from previous experiences, showing a close interrelation to the variables and dimensions, whose universal attributes are objectivity, a systemic character, flexibility, and adaptability, and they are feasible, viable, and valid solutions.

Results: The findings of this research coincide with previous studies done by other authors, who suggest multiple assessment variables that condition player tasks and

learning one way or another, using a substantial set of pedagogical and organizational variables

Conclusions: The surveyed professionals said that the parameters suggested are a feasible, viable, and valid solutions for the development of technical offensive elements in 3X3 basketball athletes in the 11-12-year-old category, since the introduction of assessment that is based on a system's approach, integrate into the variables used for assessment, the dimensions suggested, and the way of controlling and assessing.

Keywords: Assessment, technical offensive elements, 3x3 basketball.

INTRODUCTION

Basketball is a dynamic and complex team sport that combines explosive structural movements with different technical skills, such as dribble, passing, or shooting. Its success depends on the sum of several factors, including morphological attributes, physical and technical aptitudes, or tactical actions. When basketball was invented in 1891, in Springfield, Massachusetts, the idea was to have an indoor activity to avoid harsh weather conditions.

Today, the International Basketball Federation (FIBA) enjoys a worldwide distribution, having one of the sports with the highest number of members and regular competitions. Its constant evolution has made it what it is known for today, though its evolution has not been static. Upon the constant evolution and the query for the ever-increasing number of participants, practitioners, spectators, and a potential catalyzer for the development of basketball throughout the world, 3x3 basketball appeared in the late 1970s In 1992, the first 3X3 basketball competition took place, and since then, the number of meetings and tournaments has not stopped.

Regarded as the most frequently played urban sport in the world, according to the International Olympic Committee (IOC) set out to experiment with an alternative to the sport in the 2010 Summer Youth Olympic Games, in Singapore. It was chosen for its young-looking, urban, and positive image, and the universality and limited infrastructure and equipment needed.

According to Hernández Buides, Piedra Cárdenas, and Ramírez González, (2021). It gained momentum in the Cuban 1970s, in the sports schools, usually associated with recreation and multi-sports games to develop physical capacities in other disciplines, and improve motor skills, reaching the highest popularity at the beginning of this century.

According to Rodríguez Albuja (2018), the wide variety of gestures and movements and tactical applications, and demanding conditions in which they must be performed, make it a complex and therefore selective sport. Playing the game intuitively, only based on innate physical conditions is a hard task. It requires significant gesture tuning, apparent movement control, and a large capacity for analysis and deciding the individual actions and their repercussions on the team.

The domain of basic technical 3x3 basketball elements is necessary, as they are the base for further development of offensive and defensive tactical actions leading to victory or defeat. It shows the need for the training of basketball players using certain morpho-functional characteristics and the mastery of all the aspects of the game, from the offensive, defense, and tactics. An athlete with shortcomings in any of these aspects would hinder synchronization to the team, risking victory. Hence, maintaining a constant assessment of an athlete's performance is necessary.

Recent studies conducted by Ortega, Ortín, Giménez-Egido, Gómez-Ruano (2021), Pion *et al.,* (2018), and Cañadas, Gómez, García-Rubio, Ibáñez (2018), on technical and tactical analysis of basketball actions have shown two groups: quantitative studies (game study using statistics in competitions based on performance parameters), and qualitative (game analysis, actions during the game, and team effectiveness), based on observation. Besides, the importance of assessment analysis of the technical skills lies in its relationship and performance parameters during the competition.

In Cuba, Valero Inerarity (2016), highlights the marked interest of coaches in technical preparedness. However, they lack the tools for the control and assessment of the goals set for the technical and tactical training, forcing specialists to apply general tests. It also notes that the greatest national deficiencies observed found in all-category and sex teams are given through optimizing, assessing, and controlling the technical component, thus becoming a demand of this community.

In that sense, a factual study on technical offensive development in 3x3 basketball players in the 11–12-year-old category found that assessment is made through technical tests that comprise a complex of technical elements that do not focus on their specificities; it is based on general aspects that depend on the assessor's experience and/or appreciation, also considering that the aspects for assessment are insufficient or not clearly enough, creating a misled interpretation.

The existing theoretical grounds about the topic, and the regularities found in practice reveal the problematic situation observed as shortcomings in the technical offensive assessment in the 3x3 basketball 11-12-year-old category arising from the contradiction between the current state of the process and the need to have

parameters for proper assessment of the technical offensive elements of this age category.

Accordingly, this paper aims to suggest parameters for evaluating technical offensive elements of 3x3 basketball athletes in the 11-12-year-old category, in Camagüey.

MATERIALS AND METHODS

The population for this study was selected through an intentional non-probabilistic sample of coaches, directors, and teachers of the Faculty of Physical Culture associated with basketball, with knowledge and experience in the assessment of the technical offensive elements of basketball in the 11-12-year-old category. The final population for the study was reduced to 12.

Given the significance of the assessment of the technical offensive elements of 3x3 basketball athletes, and after the identification of the practical problem, a factual study was conducted to detect possible flaws.

Then, a bibliographic review was done following theoretical methods (analytical-synthetic) to assess the quality of the object's parts, based on several different criteria on the variable, dimensions, and parameters; the method induction-deduction was used to conduct an assessment, the test, and the review of the literature about 3x3 basketball. The systemic-structural-functional method was used to establish the structure of parameters suggested, considering their objectives and logical organization.

It relied on information collection of empirical methods (survey) to state the problem and learn the opinions of coaches, directors, and/or commissionaires about the assessment process; a documentary review was performed to analyze the Comprehensive Training Program for Athletes (PIPD 2016-2020) and the curriculum.

The mathematical-statistical methods were used to characterize and represent the results achieved, and to conduct a quantitative assessment of the results.

RESULTS AND DISCUSSION

Document analysis

Basketball (the 3x3 category) is based on PPID and the curricula of traditional 5x5 basketball teaching. Every goal to be fulfilled is based on the training of a nationally designed structure, and it is only applied in provincial meetings as part of the contents of the national and provincial competitive system.

The technical elements are the same for the two. These elements can be taught and accomplished within sports pedagogy. The findings of Reina, González,

Cañadas, and Ibáñez (2018) about how sports learning has been one of the most dealt with research topics in recent years coincide with the results of this study. Most studies have almost exclusively tackled the sports setting, with very few contributions in the area of starter sports in schools.

It evidenced the need for developing athlete's skills and reach maximum performance in sports from the beginning (Cáceres-Sánchez, Escudero Tena, Fernández-Cortés, and Ibáñez, 2021).

It also demonstrated that the process of technical development assessment through technical tests is performed using complex technical elements to determine the athlete's development levels in the 11-12 category. It has general dimensions that are not enough for assessment since they do not target specific topics in any of the technical elements.

There are also deficiencies in the contents and the form of evaluation, because it does not have clarity, and cannot be easily interpreted, as their scoring is shown in general, instead of technical elements.

The test is organized through a complex of technical elements without a pause, with a total scoring to achieve. They are assessed quickly, measuring the time of execution, a parameter that affects the effectiveness of the result because the essence is lost as the correct form of executing the assessing elements.

The athletes that score their suspension shoots are rewarded; the ones that execute the technical element correctly will have low scoring, as the players will do their best to score instead of executing their test properly.

Only three technical elements are assessed (dribble, pass, free shooting). The concept of displacement can be interpreted freely, as it describes no dribble activity. Several elements like offensive posture, triple threat, offensive movements, stops, and receptions are excluded. This study coincides with Albuja (2018), who only uses dribble, pass, and basic shooting. It also justifies that about the offensive technique, the attack is reflected in itself, so is characterized by how the ball is possessed and the purpose of scoring in contrast to studies done by López-Herrero and Arias-Estero (2019) to check the 3x3 game modality compared to the 5x5 in extracurricular basketball played by 9-11-year-old children. It uses (a) ball possession, (b) the number of passes, (c) efficacy of possession, (d) enjoyment, (e) perceived competency, (f) intention of future practice, (g) positive emotions, and (h) preference of participants, making the study wider.

There are no indicators with specific values to be considered for qualification or scoring of every technical element to assess, coinciding with the findings of López-Herrero and Arias-Estero (2019), who worked on other dimensions but did not show the parameters for their assessment.

These aspects coincide with the study of Reina, González, Cañadas, and Ibáñez (2018), in which the assessment of sports learning acquired by the students and athletes has been done traditionally through closed tests or objective tests of motor skills. The author notes that the instruments measure the athlete's accuracy, execution level, and speed, but do not assess their involvement in the game, understood as the capacity of making decisions, implement them, and evaluate their efficacy.

The above permits demonstrating the impossibility of coaches to develop these tests; what is more, how to assess them to know their athlete's level of development and be able to correct the training programs in certain stages. Contrary to the instrument designed by Reina, González, Cañadas, and Ibáñez, (2018), which assesses eleven dimensions of the game, with three dimensions in every action.

Surveys

Most individuals surveyed about the technical tests (60%) did not know the application of technical tests, whereas the rest (40%) did know, and had access to them through the Provincial Commission or another coach.

Regarding the call for technical tests, six participants (60%), were unaware, whereas four (40%) considered that the assessment was the most important aspect.

In that sense, 60% said that it did not describe clearly, in general, or individually, any of its aspects, while 50% considered that the technical tests were not described.

The lack of knowledge by the coaches coincides with the flaws found by Portocarrero Ortegate and Agudelo Mesa (2016), who claimed the lack of assessment records and feedback that transcended oral communication between the coach and the athlete. Hence, it encouraged the creation of control means that help evidence and plan, depending on the coaches' daily work which is not recorded. It is an opportunity to show what is being done in the lower categories.

Scarce coach domain of technical elements and their fundamental elements to be assessed, since only 20% coincides with the announcement.

Only four individuals in the survey (40%) considered that the call for the test explained pedagogic observation, and valued education, the team's average size, and the exceptional size, but they did not master the scores assigned to each indicator.

Some suggested the inclusion of the technical assessment with their fundaments (30%) to the call for the technical tests.

Most individuals (70%) did not consider that the parameters of the announcement were sufficient, while 50% justified it since the technical elements are not completely assessed.

Overall, 70% considered the assessment of pedagogic observation as inappropriate, and 20% and 30% suggested a guide for assessment and observation of technical skills.

Most individuals (80%) did not think that the utilization of the pedagogic observation parameters for the game system was feasible; their proposals say that through the game they can observe athlete performance or that the different technical-tactical situations are assessed (20% in each case).

Six individuals (60%) used time to train their athletes for successful technical test passing, justifying their responses by saying that it offers development (40%), and the objective-based skills must assess the technical elements delivered in the period (20%).

Summary of the coach survey results

- Most individuals (60%) were unaware of the technical tests; the same number did not know the call for the tests, and assumed the assessment as the most important parameter. The study coincides with Portocarrero Ortegate and Agudelo Mesa (2016), in which only 20% of the sample claimed to have used an instrument, test, or protocol to assess the theoretical technical offensive rationale for using the ball.
- They said that the call for the test is not described clearly and that it does not describe the technical tests or the indicators that make it.
- There is little domain of the technical elements and their fundamental elements to be assessed, and the parameters for the announcement were insufficient. Portocarrero Ortegate and Agudelo Mesa (2016) found that some coaches have different parameters for assessment of the fundamentals, but they did coincide in the generality of the execution.
- There was little feasibility for the application of the pedagogical observation parameters by failing to assess all the technical elements.
- They consume time for athlete preparation to succeed through the technical tests despite their lack of knowledge.
- All were unaware of the parameters for the assessment of the technical offensive elements.

The findings of this research coincide with previous studies done by Reina, González, Cañadas, and Ibáñez (2018) who suggested multiple assessment variables that condition one way or another, player tasks and learning using a substantial set of pedagogical and organizational variables. None of the studies

done described the dimensions of the indicators for assessment of the mini-basketball players due to the divergence of coaches' opinions.

In short, this study assumes that assessment permits checking the mastery and development of athletes during a particular stage or period. The findings of Portocarrero Ortegate, and Agudelo Mesa (2016), considered it critical for coaches to take control of their processes to improve planning and the work done in the developing categories in basketball. Reina, González, Cañadas, and Ibáñez (2018) claimed that so the work of coaches is effective, it must have the necessary quality to characterize, organize, and structure tasks, and that it should at least include a series of data of the session and a substantial set of variables.

A proposal for the evaluation of technical offensive elements of 3x3 basketball athletes in the 11-12-year-old category, in Camagüey.

The proposal of indicators to assess the technical offensive elements relied on the findings of Escobar Callegas and Bilbao Ramírez, (2020), who considered the variables as abstract entities that acquire different values, including the complex variables that can be broken down into two dimensions minimum, then determine the parameters for each dimension.

To develop the proposal of parameters for the assessment of technical offensive elements, the study done by Escobar Callegas and Bilbao Ramírez (2020) was assumed. It stems from the definition of the target variable, in this case, to the technical offensive elements from which six dimensions were determined as being closely related to one another, conforming the variable as a whole where relations links are established.

It stems from the previous premise that the technical offensive elements are the target variable. A complex variable is needed for regulation, assessment, and application within the training process. Its breakdown into six dimensions (considered variables that make up the original variable, which is less complex, and facilitate the measurement process of the original variable, which are occasionally complex variables and need re-dimensioning), closely related to one another, making a variable as a whole with relations links. Simultaneously, each of these dimensions is broken down into their respective indicators (a sign or measurement unit that permits the study or qualification of a variable or its dimensions). That synergy between the parameter and the variable is just implicative or probable and will be described in the following graphic (Figure 1).

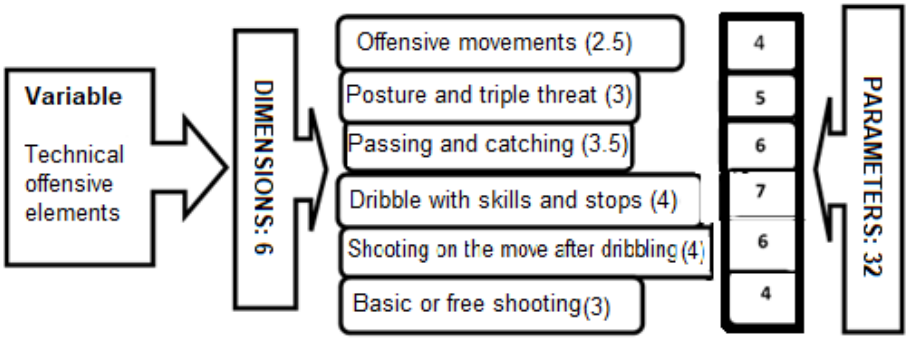

Fig. 1 Breakdown of the variable technical offensive elements, dimensions, and parameters

- Offensive movements (2.5 points): four (4) parameters,
- Posture and triple threat (3 points): five (5) parameters,
- Passing and catching (3.5 points): six (6) parameters,
- Dribble with skills and stopping (4 points): seven (7) parameters,
- Shooting on the move after dribbling (4 points): six (6) and
- Basic; or free shooting (3 points): four (4).

Below are examples of each dimension where two technical offensive elements appear with their respective parameters:

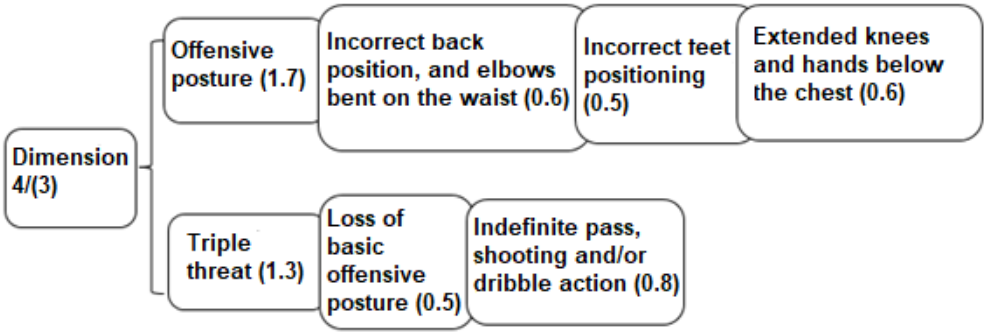

Fig. 2 Dimension 4. Offensive posture with three (3) parameters and values, and triple threat with its two (2) parameters and values

To assess the dimension, three points (3) were assigned, and it is made of two technical elements: offensive posture and triple threat; description:

The offensive posture (1.7 points) with indicators of incorrect back position and elbows bent on the waist (0.6), incorrect feet positioning in the posture (05), keeping extended knees and the hands below the chest (0.6).

Triple threat (1.3), loss of the basic offensive posture (0.5), undefined passing action, shooting, and/or dribble (0.8).

The proposal is designed with six (6) dimensions and nine technical offensive elements responding occasionally to two in a dimension, since there is a close relationship between them.

The number of parameters (32) was distributed in the six (6) dimensions and nine (9) technical offensive elements.

Effectiveness assessment of the proposal of parameters in discussion and collective construction workshops

Based on its recognition by science, the collective vision of a topic through frank and open discussion permits the mobilization of individual participation according to the collective intelligence, together with the analysis of diverse opinions from distinct groups, though associated with the workshop topic during the previous stage, akin groups were defined and established through methodological preparedness that will be discussed and constructed collectively, with the participation of ten teachers from five different areas, namely: The University of Camagüey, Faculty of Physical Culture and Sports, and the provincial INDER (Members of the provincial sports commission and coaches). Two workshops were planned, as the number of groups permits the determination of the number of workshops to be held, one in each group.

Then, each stage proposed by the previous authors was implemented, which favored the development of the process of reviewing the theoretical validity where the specialists coincided that the parameter proposal is pertinent, and stated that it is important for future sports research in the country. They acknowledged that their formal quality and structural parameters enhance the assessing manner, and player technical development in the 3x3 basketball in the early stages. They said that it is helpful because it comprises the requisites needed as an element for the assessment of the pedagogical objectives in provincial sports meetings. In the search for further optimization, they added that the test should undergo a more rigorous process of validation based on quality, reliability, and level of information.

CONCLUSIONS

The analysis of the scientific bibliography permitted the determination of the main regularities associated with the object of research, corroborating the existence of pedagogically-based criteria to conduct the assessment process of the technical offensive elements in 3X3 basketball.

A series of aspects that can provide a thorough characterization that demonstrates the current shortcomings in the evaluation of technical offensive elements of 3x3 basketball athletes in the 11-12-year-old category, in Camagüey, were selected.

The parameters were designed according to practical experience. It was organized

according to previous experiences with a methodical structure at the theoretical-practical level and the pedagogic, methodological, and didactic reflections of sports. Since their beginning, they favored a close relationship to variables and dimensions of each test, as it has the universal attributes of objectivity, systemic character, flexibility, adaptability, a participatory proceeding, a cooperative style, and a creative procedure.

The surveyed professionals said that the parameters suggested are a feasible, viable, and valid solution for the development of technical offensive elements in 3X3 basketball athletes in the 11-12-year-old category, since the introduction of assessment based on a system's approach integrate into the variables used for assessment, the dimensions suggested, and the way of controlling and assessing.

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