

Metodología para la toma de decisiones en el equipo de béisbol

Methodology for decision-making in the baseball team

Eduardo Pavó Suarez¹**Eudis Milán Leyva¹****Juan Reinaldo Pérez Pardo²**¹Universidad de Guantánamo. Cuba²Universidad de Camagüey. Cuba**ORCID:** <https://orcid.org/0009-0008-2918-9317><https://orcid.org/0000-0002-8905-4923><https://orcid.org/0000-0003-2131-7165>**Correo electrónico(s):**

eduardops@cug.co.cu

eudisml@cug.co.cu

Recibido: 15/05/2025

Aceptado: 28/06/2025

Publicado: 22/12/2025

RESUMEN: La dirección de equipo es un tema de mucha recurrencia investigativa, sin embargo, en la actualidad se presta una atención diferenciada y de prioridad por la importancia de la misma para alcanzar resultados competitivos. Al aplicar un diagnóstico en el equipo de primera categoría de Guantánamo se constata insuficiencias prácticas en el proceso de dirección de equipo; así como carencias desde lo teórico para establecer vías y procedimientos para la toma de decisiones acertada. Por lo que en este estudio se propone como objetivo: elaborar una metodología para la toma de decisiones en el equipo de Béisbol. La modelación y el método sistémico estructural-funcional permitieron estructurar la metodología. Además, el criterio de expertos y el pre-experimento permitió hallar diferencias significativas, se demostró la pertinencia y factibilidad.

Palabras clave: Metodología; Toma de decisiones; Beisbol; Capacitación

ABSTRACT: Team management is a recurring topic of research, but currently it is receiving differentiated attention and priority due to its importance in achieving competitive results. An assessment of the top-level team in Guantánamo revealed practical shortcomings in the team management process, as well as theoretical deficiencies in establishing channels and procedures for sound decision-making. Therefore, this study proposes the following objective: to develop a methodology for decision-making in the baseball team. Modeling and the structural-functional systemic method allowed the methodology to be structured. In addition, expert criteria and the pre-experiment allowed significant differences to be found, demonstrating the relevance and feasibility of the methodology.

Keywords: Methodology; Decision-making; Baseball; Training

Introduction

Team management has become increasingly important worldwide due to its significance and the sustained development of science, technology, and innovation. It is constantly changing according to the needs of each process. Specifically, in contemporary baseball, it is aimed at meeting the challenge of optimizing decision-making to achieve better results in the sporting arena.

This goal requires scientific work aimed at training physical culture professionals, specifically in the management of high-performance teams in their different areas of activity, capable of managing new knowledge.

The issue of management is both very complex and controversial, given the events that occur at the level at which your organization or entity develops in the political, economic, and social spheres. Therefore, it is necessary to give it your full attention and invest time and resources in training your staff.

At the international level, the following stand out: Maxcy, Fort, and Krautmann (2002); Hirotsu and Wright (2004); Beane (2007) and Davis (2011), who provide an analysis of the background and evolution of the management process, offer proposals for the selection and acquisition of players, for managing the bullpen, and use models and matrices for decision-making, applicable to a specific context.

In this vein, authors such as Hazme and Paulas (2003) refer to the complexity of managing sports teams and the need for in-depth knowledge to organize and manage training and competition. They agree that baseball teams, in particular, perform in an unpredictable environment, given the large number of variations in the game. Their results depend on the manager's decisions, the actions of their own and opposing players, refereeing, regulations, and chance.

Despite these efforts, it should be noted that in Cuba there are still limitations in the management of baseball teams. In this regard, Reynaldo (2011) considers that among the selected managers, there is a predominance of colleagues who face the responsibility based on their own experiences as athletes or coaches and do not have the necessary tools to take on the management role.

In Guantánamo in particular, there is insufficient optimization in decision-making for integrative performance in the areas of high-performance baseball players in different game situations. There are also limitations in the methods and procedures for doing so.

These investigations are considered to establish postulates of great significance; however, it is clear that their studies present shortcomings in the use of the laws of didactics for the actions of the management team of high-performance baseball teams regarding channels and procedures for decision-making with a management process involving scientific work that favors productive, anticipatory, metacognitive, and integrative performance.

For all the above reasons, the scientific problem is stated as follows: How can we contribute to the improvement of decision-making in different game situations in high-performance baseball teams?

Therefore, the main objective of this article is to develop a methodology for decision-making in baseball teams.

Development

Data for this study was obtained through observation of training sessions and games, which facilitated the assessment of the scientific and methodological preparation of management teams for decision-making in high-performance baseball teams.

In addition, a survey was conducted among players in the high-performance baseball team, which allowed for the determination of their knowledge about decision-making during their performance as a reflection of what they had learned.

The interview with players made it possible to verify their knowledge about decision-making during their performance in the baseball team.

It is important to note that the methodology goes through stages that take as a reference those assumed by De Armas (2011), with a cognitive theoretical apparatus and another instrumental one, contextualized and transformed in the present research, which presents a set of actions and activities that reflect decision-making in the high-performance baseball team with an integrative approach:

The cognitive theoretical framework proposes a legal and a categorical body, where the former assumes the laws of didactics, the principles of sports training, and the rules of the game, and the latter sets out the definitions of the categories worked on.

As part of the instrumental framework, the following stages are established:

- Stage 1: involvement and awareness for a managerial projection
- Stage 2: Characterization for an integrative managerial articulation
- Stage 3: Implementation of an articulated managerial concretion
- Stage 4: Evaluation of the impacts and correction of decision-making in the high-performance baseball team.

The following methodological recommendations are essential:

The creation of a favorable, motivational climate of suggestions, invitation, and commitment, considering the needs for help, personal and professional growth. It is suggested that before applying the corrective management method, all of this in order to ensure the successes and failures of the manager, taking into account the procedures and teaching resources to be used to achieve consensus in decision-making in the high-performance baseball team.

As for the bibliography, guidance should be provided on which aspects of these books should be studied to enable decision-making in the high-performance baseball team, and each task should be contextualized with the bibliographies to be used.

As part of the work to be carried out and with the implementation of the corrective management method, the manager and players will identify and correct mistakes made in decision-making within the high-performance baseball team through a process of constant feedback at each stage of the methodology.

In the case of managers, they must assess the guidance given to players, the levels of help, motivation, and interest achieved with decision-making in the high-performance baseball team. What elements could have affected the quality of their performance (delimiting what concerns their performance as managers or what is specific to the players), the level of integration to achieve decision-making in the high-performance baseball team with this approach. In general, the method allows you to evaluate the variables (those proposed in the research and others) that may hinder or ensure quality decision-making in the high-performance baseball team with an integrative approach.

Forms of control and evaluation.

The manager must guide the different forms of evaluation that will be used to control its effectiveness. Among those that can be used are:

Each player's participation will be evaluated according to their responses in solving the task at hand. Co-evaluation, hetero-evaluation, and self-evaluation will be applied. Team and individual discussion with the application of participatory techniques such as: agreeing or disagreeing, brainstorming, among others.

The expert criteria method was used based on the Delphi methodology, facilitating opinion on the structure of the methodology presented, in order to evaluate its theoretical and methodological relevance.

The categorical body defines managerial projection as a process that aims to establish the scope and objectives pursued through decision-making with an integrative approach. It specifies, adjusts, and combines in a systemic, flexible, and dynamic manner the procedures that enable managers to think collegially in order to execute decision-making with an integrative approach.

Managerial projection is an important step for management teams to reach a consensus on their role in professional performance, that is, it allows them to project with a vision of the future the aspects that must be coordinated for decision-making with an integrative approach of the players in order to achieve constant improvement in their sports results.

It is an expression of the projection made by managers so that decision-making is carried out with an integrative approach and is reflected in the performance of the players during simplified game actions, based on the use of methods and procedures from an integrative teaching approach. It manifests itself in different areas of the team.

It works by organizing teaching tools that help managers plan training sessions, allowing them to identify possible game situations in any area of the team.

For the development of integrative management for decision-making in the high-performance baseball team, the individual characteristics of the members of the management group must be taken into account. This occurs on the basis of interactions and interrelationships between team areas, between managers and players, and is adjusted to the dynamics of team management work, always with a view to scientific and professional growth.

Integrative management coordination allows for the reinforcement and provision of the tools, channels, procedures, actions, and recommendations that managers need to make the necessary adjustments, which guarantee a procedure for the implementation of decision-making with an integrative approach, determining the points of agreement of the most favorable criteria that guarantee success in performance in the different simplified game situations from their formation and the prior arrangement for their implementation.

For the successful implementation of decision-making with an integrative approach during training units and in the game, it is necessary to proceed in a way that enables and projects adequate prior guidance as a guarantee of integrative management, the implementation of which

ensures its design and execution as an expression of its materialization. In this process, the appropriate support and encouragement required by the management team is necessary in order to always promote the success of the actions performed by the player during the different simplified actions and never the segregation of their attention.

Integrative managerial articulation is the component that specifies managerial projection after the management teams are convinced of the scope and purposes of their approach to decision-making in the baseball team with an integrative focus, where the cognitive elements they need for the players to execute it successfully are specified. These are manifested in the stages of the methodology with specific actions that promote better applicability.

Structure of the decision-making methodology in the high-performance baseball team.

The main objective is to train the managers of the high-performance baseball team, providing them with conceptual, procedural, and behavioral tools that contribute to improving the decision-making process in team management.

The author of this research defines the decision-making methodology in high-performance baseball teams as:

...a system of ideas and information that facilitates the optimization of decision-making through an integrative approach, based on the application of specific methods and procedures by managers, which directly impacts the performance of high-level baseball players in different game situations. (Pavó, 2023)

To achieve greater precision in the activities of the methodology, three stages are proposed for its implementation: first stage, involvement and characterization for cooperative management planning; second stage, implementation and specification of integrated management actions; and third stage, evaluation of the impacts on decision-making. These stages maintain a dialectical and interdependent relationship, thus complying with the principles of systems.

Stage 1. Involvement and characterization for cooperative management planning

Objective: Ensure the identification and diagnosis of each manager according to their active, cooperative, and conscious participation, as well as their needs in educational activities, to facilitate decision-making in the high-performance baseball team with an integrative approach.

This stage represents the starting point for the implementation of the methodology. It involves managers in the methodological changes necessary to successfully apply the proposal, as well as

obtaining an accurate diagnosis of their real training needs, which are crucial for proper decision-making in the high-performance baseball team with an integrative approach.

Stage 2: Implementation and realization of integrated management action.

Objective: To plan and execute the methodological actions proposed in the research, through coherent managerial coordination that facilitates decision-making in the high-performance baseball team, with an integrative approach.

The previous stage will be continued by planning educational actions aimed at managers in relation to decision-making for the high-performance baseball team with an integrative approach. These actions were refined through the application of the corrective management method, which allows for the effective integration of the components proposed for the implementation of methodological activities. This integration facilitates, guides, and optimizes the use of conceptual resources, methods, means, and teaching procedures in specific conditions, among other aspects. The work to be carried out guarantees the execution of these planned solutions, strengthening group work, its dynamics, and the levels of support required by each manager. This is done based on the results of the diagnosis, with the purpose of consolidating the conceptual, procedural, and behavioral components of management for decision-making in the high-performance baseball team with an integrative approach.

To this end, a multidisciplinary group will be formed to:

- Publicize the objectives of the research, the procedures to be followed, and their main characteristics.
- Apply the diagnosis and tabulate its results, determining individual and collective needs.
- Systematically inform the technical committee and team management about the positive and negative aspects of the development of the tasks under investigation.
- Carrying out a theoretical-practical assessment of the tasks to be performed, without interfering with the activities scheduled in the high-performance baseball team's planning for the period, ensuring that the tasks designed are geared towards the practical application of the proposals.
- Evaluating, together with the team's management, the activities to be implemented.

3rd Stage: Evaluation of the Impacts on Decision-Making in the High-Performance Baseball Team

The third and final stage of the evaluation will be carried out considering the impacts and effectiveness of the methodology for optimizing decision-making in the high-performance baseball team. This evaluation will be manifested in the simplified actions of the game, analyzed both qualitatively and quantitatively, based on the following aspects:

- The preparation of the managers for the conception and implementation of the actions designed in the methodology for decision-making in the high-performance baseball team.
- The flexibility to introduce changes in the methodology's activities, according to the results of the initial diagnosis, evaluating and redesigning the methodology based on its evolution.
- The comparison of the results obtained with the application of the methodology and the managerial corrective method.

In general terms, it can be stated that the stages of the methodology energize and favor the **Integrative Managerial Management** for decision-making in the Baseball team. It proposes the ways and procedures to integrate the managerial projection component, with a conception of **Integrative and Cooperated Managerial Articulation**.

As a result of the relationships established between the stages of the methodology, which make explicit actions for the Managerial Projection and the Integrative Managerial Articulation, a new component is obtained: **Managerial Cooperated Integration**, a process that allows for the systemic and gradual integration of the conceptual, behavioral, and attitudinal aspects related to decision-making from a theoretical perspective linked to the procedures for enriching the performance of the team managers. This is achieved by contributing to decision-making with an integrative focus, whether during training units or as part of the game or competition itself.

The Delphi variant of the expert judgment method was applied. After the first round, as a result of the suggestions made by the experts, it was necessary to restructure some elements of the model, as well as to consider others not previously included. Furthermore, the survey itself underwent modifications, as too many questions were included in the first round, and the possibility of

offering other aspects that should be part of the model was suggested. Among the most frequent elements that allowed for its refinement are:

- Enriching the methodological guidelines for putting decision-making into practice in high-performance settings.
- Deepening the foundations aimed at the didactic-methodological procedures included in the model.
- Reflecting on some actions proposed in the model so that they respond with greater emphasis to the managers' specific characteristics.

Once the previous elements were corrected, the second round was carried out, and the evaluative results derived from the application of the method were processed. The results of the processing of the first applied survey were presented, the discrepancies in opinions among the experts were analyzed, and the refined proposal—based on the recommendations and suggestions given—was submitted for their consideration.

In conducting the W significance test, the null hypothesis (H_0) was considered to be the assertion that there is no concordance among the experts, and the alternative hypothesis (H_a) was the existence of concordance. Given that the significance level is 0.5, it is declared that the methodology has a **95% effectiveness**.

Example for Training Managers in Decision-Making within the High-Performance Baseball Team

Activity 7.1. Practical Demonstration Workshop.

Objective: To show different game situations and how decision-making is applied in a high-performance baseball team through an example based on a National Series game, using an integrative approach derived from the methodology proposed in the research.

It is fundamental to describe in detail each planned activity, along with its corresponding methodological instrumentation. For this purpose, the following procedures are suggested:

Procedures:

- Engage in dialogue from an orienting, projective, mobilizing, transformative, and contextual perspective, addressing topics according to different circumstances and contexts.
- Generalize the procedures adopted to favor a managerial contextualization in decision-making in the high-performance baseball team.
- Analyze the participatory techniques to be used in the workshops and the forms of professional development that allow for the adoption and consolidation of positions, to argue them and offer evaluations based on the application of the managerial corrective method.

Topic: Team Management and Its Contemporary Demands in High-Performance Baseball.

Objective: To analyze the current demands in high-performance baseball related to the team management process.

Methodological Orientation:

1. **First Moment:** The activity to be developed is explained, including its topic, the motivation for carrying it out, the affective-cognitive link, and the integrative approach to the content. During this stage, an exchange between managers and players is generated.
2. **Second Moment:** Reflection and the search for solutions to the task posed are promoted.
3. **Third Moment:** The solutions found are evaluated, and new questions are raised, leading to a repetition of the three moments.

To facilitate the evaluative analysis, it is suggested to rely on the following questions, designed to stimulate curiosity, interest, and motivation:

- Does the management of baseball teams answer a question that science has not yet resolved? Why does this happen?
- In decision-making, is a boundary delimited between the known and the unknown? In relation to this issue, why is it essential to integrate both aspects into the managerial process?
- Point out the difficulties that arise in high-performance baseball in the face of contemporary demands, considering the following aspects:

- The problems to be solved according to the team's areas.
- The establishment of collegiate criteria.
- The manifestation of integration in decision-making.

Methodological Recommendations:

- It is recommended to create a favorable and motivating climate, based on suggestion, invitation, and commitment, which considers the needs for support, as well as personal and professional growth. This should be done before applying the managerial corrective method, with the purpose of addressing both the successes and errors that the manager may commit when managing procedures and didactic resources. In this way, effective decision-making within the high-performance baseball team will be facilitated.
- Regarding the bibliography, it is important to guide the members on what specific aspects of these texts they should study. The objective is for this documentation to allow them to improve decision-making, always contextualized and supplemented with the use of digital or virtual platforms.
- As part of the process of applying the managerial corrective method, participants will identify and correct errors committed during decision-making in the high-performance baseball team, through a process of constant feedback at each stage of the methodology.
- For their part, managers must evaluate the guidance provided to the players, the levels of support required, as well as the motivation and interest generated during decision-making. Furthermore, it is essential to consider the aspects that may have affected the quality of performance, whether from the manager's role or attributable to the players, and to evaluate the degree of integration achieved to ensure effective decision-making in the high-performance baseball team under this approach.
- In general terms, the method allows for the evaluation of variables—both those proposed in the research and external ones—that may hinder or favor the quality of decision-making within the high-performance baseball team with an integrative focus.

Conclusions

This research detects deficiencies related to decision-making in the first-category Baseball team in the province of Guantánamo, as well as theoretical deficiencies that negatively impact practice.

Using the systemic-structural functional method, a methodology is proposed that promotes new relationships between stages, contextualized to the proposal of decision-making in different situations, and includes methodological guidelines for its application.

Bibliographic References

- Hazme y Paulas** (2003). Dirección de equipos deportivos I. Arrancada. *Revista Científica de la Cultura Física del INDER*, (6).
- Reynaldo** (2011). *Modelo de entrenamiento de significación táctica para deportes de equipo: Béisbol*. Editorial Deportes.
- De Armas, N. y Valle Lima, A. (2011). *Resultados científicos de la investigación educativa*. (Curso 51). Trabajo presentado en el Congreso Internacional Pedagogía 2011, La Habana.
- Maxcy, O. G., Fort, R., & Krautmann, A. (2002). The Effectiveness of Incentive Mechanisms in Major League Baseball. *Journal of Sports Economics*, 3(3), 246-255.
- Hirotsu, N., & Wright, M. (2004). Modeling a Baseball Game to Optimize Pitcher Substitution Strategies using Dynamic Programming. *Research Gate*.
<https://www.researchgate.net/publication/267664034>
- Davis**, (2011). Markov Analysis of APBA, a Baseball Simulation Game. *Journal of Quantitative Analysis in Sports*, 7(5).