

Vigilancia Tecnológica para la selección de principios en la planificación del entrenamiento del sambista cubano

Technological Surveillance for the selection of principles in the planning of Cuban sambista training

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Recibido: 24 de junio de 2024

Revisado: 13 de julio de 2024

Aceptado: 02 de septiembre de 2024

RESUMEN: En la actualidad el Sambo deportivo cubano no posee un documento rector que oriente el proceso de preparación, ni sambokas iniciados. Sus competidores y entrenadores provienen del judo y la lucha. Es importante determinar cuáles son las leyes relacionadas entre sí que van a fundamentar el entrenamiento deportivo de este deporte. Se realizó la revisión documental de autores que abordaron sobre estos aspectos desde los precursores hasta la actualidad. Obteniendo nueve principios que permiten organizar el proceso de preparación del sambista. Estos escritores retoman, renombran y modifican el contenido de las leyes y las organizan en diferentes grupos.

Palabras clave: Vigilancia tecnológica; Entrenamiento; Planificación; Principios

ABSTRACT: At present, Cuban Sambo sport does not have a guiding document that orients the preparation process, nor a guide to initiated sambokas. Its competitors and coaches come from judo and wrestling. It is important to determine which are the laws related to each other that are going to be the basis of the sports training of this sport. A documentary review of authors who dealt with these aspects, from the precursors to the present was carried out. Obtaining nine principles that allow organizing the preparation process of the sambista. These writers retake, rename and modify the content of the laws and organize them in different groups.

Keywords: Technological surveillance; Training; Planning; Principles

Introduction

Technological surveillance (TV) consists of a set of techniques that seek to systematically organize the collection, analysis and dissemination of the exploitation of technical information useful for the maintenance and growth of companies. It specializes in preventing and alerting the subjects of any change, novelty or innovation, whether technical or scientific. Bearing in mind that it can change the panorama or make gain or lose an economic advantage. This criterion is similar for dissimilar

authors such as: (Jakobiak, 1992; Rouach, 1996; Ashton & Klavans, 1997; Wheelwright & Makridakis, 1998; Palop & Vicente J, 1999; The AENOR standard UNE 166000 (2018) EX. Gestión de la I+D+I, 2006; Porter, 2006; Muñoz *et al.*, 2006; Rey, 2009 and Arango *et al.*, 2012) among others.

In unison with technology watch, other similar criteria for the processing and analysis of information, such as competitive intelligence (CI), were also discussed with similarity or union of criteria among the authors: It is a process of obtaining, analyzing, interpreting and disseminating information from competitors, aimed at decision making (Gibbons & Prescott, 1996; The AENOR UNE 166006 (2018) EX. R&D&I Management:, 2011 and Pérez & Guagliano Cri, 2011) and develop a prospective planning that in turn allows anticipating the changes given in the environment (Sakona, 2019 and Manjarrés & Vanegas, 2020).

There is a need for productive systems to have integrated procedures that provide not only the best information, both internal and external, but also allow them to make decisions and formulate strategies with a certain level of certainty, so that they can maintain or generate competitive advantages Authors such as (Ashton & Klavans, 1997), (Rodríguez, 1999), as well as (Vargas & Castellanos, 2005), among others, detail the processes and activities involved in technology watch (Table 1).

The Ashton & Klavans (1997) model is based on a feedback process that starts again once the subject defines a new information need. On the other hand, Rodriguez (1999) establishes a sequential process that goes from planning (identification of needs) to knowledge generation. Finally, Vargas and Castellanos (2005) propose a VT process focused on the analysis of documentary sources such as databases, and transfer it to a space in which the design of strategies necessarily leads to generating impacts in different areas of technological development.

Table 1.

Phases of technology watch processes

	Ashton and Klavans (1997)	Rodríguez (1999)	Vargas and Castellanos (2005)
FASE I Planning and identification of necessities ↓	Necessities Planning of activities Fuentes and Methods	Planning	Previous information Planning
FASE II Identification, search and reception of information ↓	Gathering of sources of information	Selection of the sources of information and Storing	Search preparation Search in databases
FASE III Organization, purification and analysis of the information ↓	Analysis of Data	Analysis	Purification and authentication of registrations Prosecution of Registrations Analysis and interpretation of the results
FASE IV Communication processes and taking of Decisions /Use of results	Delivery of Information Evaluation of results Use of results	Diffusion of results Processes of decision Actions	Design of strategies and impacts

Source: (MAURICIO *et al.*, 2006 mentioned for Rey (2009) (Revisar)

For this research, the steps proposed by Rodríguez (1999) will be taken into account, since they start with the planning, selection and analysis of information for the subsequent dissemination of content and decision making through actions.

Technological surveillance or competitive intelligence is a process that allows the study of competition, competitors and competitive scenarios in order to anticipate in order to face better adapted to the demands of the confrontation. In Cuba there are research works that use this tool, with satisfactory results: based on the competition as a guiding source of the process, they extract the aspects or contents that will be planned in the preparation, but as this undergoes systematic changes in order to maintain the sporting spectacularity, it was the driving force that motivated the following authors to conduct a prospective study where they proposed possible future scenarios where to direct the preparation, among them were highlighted combat sports: (Gutiérrez *et al.*, 2010; Sánchez, 2010; Paz, 2010 and Gavilán, 2016) among others.

Taking into account that Cuban combat athletes represent a world power due to the results achieved in international arenas, followed by the past performances of the first Cuban exponents in top level Sambo competitions, in addition to the fact that currently coaches guide the process empirically only supported by the training provided by the association, since they do not have a guiding document that focuses them, it is necessary to have the precise theoretical orientations of the preparation with a view to overcome and maintain the results obtained.

The objective of this research is the selection of the principles of sports training to guide the planning of the preparation process of Sambo competitors.

Development

If in Cuba the sambokas who represent us have experience and results coming from judo and wrestling that differ in their preparation and also there is no methodology in Sambo to guide teachers in the planning of training that also come from the same disciplines as the athletes, it is then essential to study the principles of sports training that allow us to guide the activity.

Next, the most significant authors who comment on the principles of sports training were listed and it was found that they agree that: they are laws that are closely related to each other and govern or guide the preparation process (Tsvetan, 2001; Weineck 2005; Ibáñez, 2005; Cañadas & García, 2005; Foran, 2007), among others.

In addition, new principles have appeared that reflect the particularities of the physical education process, including that of sports training (Ozolin, 2012) while other authors such as (Hadfield, 2004 and Bompa, 2016) propose a series of specific principles to develop physical fitness.

Table 2

List of principles according to different authors

Matveev 1965, Forteza y Ranzola 1988	Ozolin (1970)
<i>General principles</i>	1- Principle of specialization
1- Principle of the unity of general and specific preparation	2- Principle of multilateralism
2- Principle of continuity of the training process	3- Principle of consciousness
3- Principle of progressive and maximum increase of the loads	4- Principle of the gradual
4- Principle of the undulatory change of the training loads	5- Principle of repetition
5- Principle of the cyclic character of the training process	6- Principle of the evident
6- Principle of the direction level with a view to higher achievements	7- Principle of individualization
Harre (1973)	Hahn (1987)
1- Principle of increasing the physical load	1- Principle of long-term training structuring
2- Principle of the load during the whole year	2- Principle of training for a full year
3- Principle of Periodization and cyclic organization of the load	3- Principle of Periodization
4- Principle of the conscious	4- Principle of the progressive increase of the loads
5- Principle of systematization	5- Principle of specific training
6- Principle of the sensoperceptual	6- Principle of individualization
7- Principle of accessibility	7- Principle of adaptation to age and evolution
8- Principle of stability	Volkov y Menshikov (1990)
Grosser (1992)	<i>Biological principles</i>
1- Principle of effective stimulation of the loads	1- Principle of specificity
2- Principle of the progressive increase of the load. Continuously. Discontinuously	2- Principle of reversibility of action
3- Principle of variation of training loads	3- Principle of positive interaction
4- Principle of optimal design of load and recovery	4- Principle of successive adaptation
5- Principle of specificity	5- Principle of cyclic variation
6- Principle of the reversibility of the action.	Alvares (1993)
7- Principle of positive interaction	1- Principle of functional unity
8- Principle of successive adaptation	2- Principle of multilaterality or mutual actions of the motor characteristics
9- Principle of cyclic variation Principle of specificity	3- Principle of continuity
10- Principle of reversibility of action	4- Principle of the gradual increase of effort
11- Principle of positive interaction	5- Principle of overload
12- Principle of successive adaptation	6- Principle of transfer
13- Principle of cyclic variation	7- Principle of specificity
Levesque (1993)	8- Principle of voluntary stimulation
1- Principle of specificity	9- Principle of effectiveness
2- Principle of overload	10- Principle of individualization
3- Principle of individuality	Weineck (1990)
4- Adaptation principle	<i>General principles</i>
5- Recovery principle	<i>Proportionalization principles</i>
Godik y Popov (1993)	1- Principle of the optimal relationship between the components of performance

1- Principle of unity of general/non-specific and specific preparation 2- Principle of unity of competitive and training processes 3- Principle of setting a high goal as an objective 4- Principle of the continuity of the training process 5- Principle of the varied change of the training loads 6- Principle of individualization of the training process 7- Principle of cyclicity of the training process	during its development. 2- Principle of the optimal relationship between general and specific preparation. 3- Principle of load specialization 4- Principle of load appropriate to age 5- Principle of periodic regeneration 6- Principle of load periodization 7- Principle of continuous load
Manno (1994) <u>Principles for the organization of the load</u> 1- Training principle 2- Principle of load progression 3- Principle of multilateralism and polyvalence of cyclic alternation or periodization 4- Principle of individualization 5- Principle of organic unity between general load and special load <u>Pedagogical principles</u> 1- Principle of self-knowledge 2- Principle of evidence 3- Principle of accessibility and resolution 4- Principle of systematics	<u>Specialization principles</u> 1- Principle of the optimal relationship between load and recovery 2- Principle of load alteration 3- Principle of varied load <u>Principles of cyclic organization</u> 1- Principle of the correct succession of loads 2- Principle of increasing load <u>Principle of load specialization</u> 1- Principle of individualized load 2- Principle of effective training stimulus 3- Principle of the optimal relationship between load and recovery 4- Supercompensation
(Sharkey, 1997) cited by Martens (2002) <u>Biological principles</u> 1- Preparedness 2- Individual response 3- Adaptation 4- Overload 5- Progression 6- Specificity 7- Variation 8- Warm-up and cool-down 9- Long-term training 11- Reversibility	García et al. (1996) <u>Biological principles</u> 1- Principle of functional unity 2- Principle of multilateralism 3- Principle of specificity 4- Principle of overload 5- Principle of supercompensation 6- Principle of continuity 7- Principle of progression 8- Principle of returns in decrease 9- Principle of recovery 10- Principle of individuality <u>Principle pedagogics</u> 1- Principle the active and conscious participation in the sport training
(Hadfield, 2004) cited by Bernal et al. (2014) 1- Principle of active and conscious participation in training 2- Principle of multilateral development 3- Principle of specialization 4- Principle of individualization 5- Principle of variety 6- Principle of model of the process of training 7- Principle progressive increase of the load 8- Unit principle among the general and special preparation 9- Principle the continuity of the process of the training 10- Principle the variations waves of the loads	2- Principle the transfer of the training 3- Principle the Periodizy 4- Principle the accessibility Platonov (2001) <u>Principle specifics</u> 1- Orientation to the maximum achievements 2- Deep specialization 3- Continuity of the process of training 4- Increase gradual of the loads and the tendency to maximum loads 5- Variable and undulant character of the loads 6- Recurrent character of the preparation 7- Interrelation of the structure of the competition activity and the structure of the preparation <u>Principle dynamics</u> 1- Principle of accessibility and difficulty stimulant 2- Principle of the teaching individualized inside the community 3- Principle of the empiric unit rational and intuitive scientist
Bompa (2022) 1- Specialization 2- individualization 3- Variety 4- Modelation 5- Principle of progression of the load	

Source: Self elaboration

When carrying out the technological watch of the authors by year, it was found that there are principles with different wording and equal content.

Some examples of some of them:

1. Principle of the level of direction with a view to higher achievements (Matviet, 1967) and the periodization by (Manno, 1994).
2. Cyclical character of the training process. By (Matviet, 1967) or periodicity of training loads (Weineck, 1994).
3. Multilaterality (Ozolin, 1970) and Transfer (García et al., 1996) or Principle of organic unity between general load and special load (Manno, 1994).
4. Progressive and maximum increase of the loads (Matveev, 1967) Principle of progressive increase of the loads (Hanh, 1987), Principle of the effectiveness of the stimulus of the training load, Weineck (1994), Orientation to the maximum efforts (Platonov, 2001) or Overload (Brian J. Sharkey cited by Martens, 2002), Progressive increase of the load (Bompa, 2021).

5. Wave-like change of training loads (Matveev, 1967) or Successive adaptation (Menshikov & Volkov, 1990).
6. Reversibility of action (Menshikov & Volkov, 1990) and recovery (García *et al.*, 1996).

Results

The bibliographic review of the authors previously analyzed on this topic allows selecting the following group of principles to guide the planning process of Cuban sambokas.

Selection of principles for the planning of the Sambo training process

- 1- Continuity of the training process** the training process runs throughout the year and for many years in a row, maintains the orientation to the improvement in the chosen sport. The influence of each subsequent cycle materializes on the basis of the traces of the previous one of the sport preparation is a multi-year and uninterrupted process in which all the links are interrelated, mutually conditioned and subject to the objective that pursues the achievement of the maximum possible results. The action of each session, microcycle, stage, etc., is based on the results of the previous ones, strengthening and developing them (Platonov, 2001).
- 2- Periodization** This principle imposes the structuring of the training process as a system of load cyclicity, alternated and modified in periodic cycles (changes in training content are a necessary condition to reach a new and higher step in the development of athletes (Manno, 1994).
- 3- Variety** Nowadays, training demands many hours of work from athletes. The volume and intensity of training increases every year and exercises are constantly repeated. Therefore, coaches must keep in mind to progress from movements with a large joint amplitude towards exercises with a sport-specific amplitude, vary the selection of exercises prioritizing those of unilateral execution and with dumbbells in periods of anatomical adaptation, change the type and speed of muscle contractions and modify the method, moving from exercises with body weight, machines and dumbbells in the phases of anatomical adaptation and hypertrophy to mainly barbell exercises in phases of maximum strength, conversion to specific strength and maintenance (Bompa, 2016)
- 4- Individualization:** It requires that the physical exercises, their form, their character, intensity and duration, the methods of realization and many other aspects of the preparation to be performed by the athlete, are selected in correspondence with the sex and age of the

practitioners, of the level of their functional possibilities, in sports preparation and their state of health, taking into account their peculiarities of character, psychic qualities to achieve a high sporting proficiency. (Bompa & Buzzichelli, 2022)

- 5- **Successive adaptation:** It is manifested from the different biochemical effects (immediate, delayed and cumulative) provoked in the organism because of the training (Menshikov & Volkov, 1990).
- 6- **Super compensation:** The choice of the right load with the result of the right volume and intensity. The guarantee of the recovery phase (García *et al.*, 1996).
- 7- **Effectiveness of the training load stimulus:** It is understood that the training load must exceed a certain threshold for there to be an increase in performance capacity, a threshold that depends on the level of training of the athlete (Weineck, 1994).
- 8- **Orientation to maximum efforts:** The regularities of sport expressed in its competitive principle, the aspiration to reach maximum achievements determines to a considerable degree all aspects of sports training: its aim and objectives, content of means and methods, structure of the different formations of the training process (Platonov, 2001).
- 9- **Recovery:** indicates that people need a period of rest between stimuli to give the body time to recover its balance so that the muscles can rest, adapt and obtain the maximum possible benefits from physical training (García *et al.*, 1996).

Contributions

The principles to guide the preparation process of Cuban Sambo competitors (sambokas).

Conclusions

Through technological surveillance it was possible to verify how some authors take up already created principles, and rename them, modify their content without evading the main meaning, to cover a certain and determined need, and even implement new principles to obtain as a result a wide range of them.

The principles are classified by the investigated authors in different groups:

- 1- General principles:
 - Proportionalization principles.
 - Specialization principles
 - Cyclic organization principles

- Principle of load specialization
 - Principle of the optimal relationship between load and recovery.
- 2- Principles for the organization of the load.
 - 3- Biological principles
 - 4- Pedagogical principles
 - 5- Specific principles
 - 6- Didactic principles

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