

Methodology to strengthen the environmental education in athletics

Metodología para fortalecer la educación ambiental en el atletismo

Metodologia para fortalecer a educação ambiental no atletismo

Edelberto Rafael Redondo Reynoso^{1*}  <https://orcid.org/0000-0001-6351-7283>

Faidis Calle Osorio¹  <https://orcid.org/0000-0002-6955-4760>

Alexander Ricardo Coronel Verdecia¹  <https://orcid.org/0000-0003-1579-3704>

Fernando Emilio Valladares Fuente²  <https://orcid.org/0000-0003-4952-1846>

¹Universidad de La Guajira. Colombia.

²Universidad Pinar del Río " Hermanos Saíz Montes de Oca" Pinar del Río, Cuba.

*Corresponding author: lic.edelrey@gmail.com

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ABSTRACT

The practice of sports is closely related to the environment, especially in the case of athletics. The teaching of this sport has focused on technical aspects such as training for competition, underestimating its potential to strengthen the environmental education. The objective of this research is to propose a methodology to encourage the respect and responsibility towards the environmental elements related to this sport in the practitioners of athletics. For the development of this research, coaches and athletes from the League of Athletics in "La Guajira", Colombia are taken as a sample and for this purpose; methods are applied at an empirical level: scientific observation, survey, interview and documentary review. This work contributes to the integral formation of the trainers of League of Athletics in "La Guajira", and complies with the indicators required by the Olympic Agenda for sustainable development. The results have been satisfactory for the development of sport and its involvement in the interaction of these athletes with the school and the community.

Keywords: athletics; environmental education; "La Guajira" athletic League.



RESUMEN

La práctica de los deportes guarda una estrecha relación con el medio ambiente, sobre todo en el caso del atletismo. La enseñanza de esta modalidad deportiva se ha centrado en aspectos técnicos como el entrenamiento para la competencia subestimando las potencialidades que esta tiene para fortalecer la educación ambiental. El objetivo de esta investigación es proponer una metodología para incentivar en los practicantes del atletismo el respeto y la responsabilidad hacia los elementos ambientales que se relacionan con este deporte. Se toman como muestra entrenadores y atletas de la liga de atletismo en "La Guajira" en Colombia. Se aplican los métodos a nivel empírico como la observación científica, encuesta, entrevista y la revisión documental. Este trabajo tributa a la formación integral de los entrenadores de la liga de atletismo de "La Guajira". Cumple con los indicadores que exige la agenda olímpica para el desarrollo sostenible. Los resultados han sido satisfactorios para el desarrollo del deporte y su implicación en la interacción de estos atletas con la escuela y la comunidad.

Palabras clave: atletismo; educación ambiental; Liga de atletismo de "La Guajira".

RESUMO

A prática do desporto está intimamente relacionada com o meio ambiente, especialmente no caso do atletismo. O ensino desta modalidade esportiva tem se concentrado em aspectos técnicos como o treinamento para competição, subestimando suas potencialidades para fortalecer a educação ambiental. O objetivo desta pesquisa é propor uma metodologia para incentivar os praticantes de atletismo a respeitar e assumir a responsabilidade pelos elementos ambientais relacionados a este esporte. Treinadores e atletas da liga de atletismo em "La Guajira", na Colômbia, são recolhidos como amostras. Os métodos são aplicados a nível empírico, tais como observação científica, pesquisa, entrevista e revisão de documentos. Este trabalho presta o seu contributo para a formação integral dos treinadores da liga de atletismo "La Guajira". Está em conformidade com os indicadores exigidos pela agenda olímpica para o desenvolvimento sustentável. Os resultados têm sido satisfatórios para o desenvolvimento do esporte e seu envolvimento na interação destes atletas com a escola e a comunidade.

Palavras-chave: atletismo; educação ambiental; Liga de atletismo de Guajira.

INTRODUCTION

Sport and the environment have a close relationship, especially if this relationship is analyzed from the different dimensions that the integrated environment brings together. Approaches such as those of Verdejo, (2015) suggest that the actions developed by the Olympic movement should be carried out with due respect for the environment, and in the aim of sustainable development, should promote environmental education and allow specific activities to help preserve it; the involvement of sporting activities is unquestionable, and large sporting events that attract crowds are not always friendly to the environment.

Many people throw away hundreds of pieces of solid waste as packaging of practically non-degradable material. The proportion of light needed for night-time events usually demands a significant waste of electrical energy. The supply of water to ensure hygiene and the cooking of food products requires water availability that is not



sufficiently regulated. Noise emissions in urban areas increase with every eventuality. Moving to distant places requires fuel which, interpreted differently, means more time for the exploitation of fossil hydrocarbons in our mother earth.

But it is not necessary to wait for major events to notice the environmental effects that can be caused by improper sports practice. The sun's rays have a more negative impact directly on human skin and many diseases have grown due to this increase, which runs parallel to global warming. It is important to consider that a great part of sports are performed outdoors and, therefore, it is essential that this effect is recognized because the health of the athlete is at stake. The availability and quality of water is also a fact that every day threatens the world and in particular Colombia. Countries that have coasts from time to time lose more sections of their ecosystem. The fresh water is gradually salinizing and as a result the athlete and the practice of water sports are logically affected.

The availability of fresh water is also an environmental problem that comes to the fore in matters of sport. Drinking water at various latitudes of the world is basically a precious resource and must be rationed. With this global warming and imbalance in the planet, there are places where rainfall is scarce and water resources do not have the available water to supply the community; due to this phenomenon the institutions that promote sport in the community.

Some researchers in the field of sport have focused on the impact of the environment and environmental education on the training of sport professionals. In general, works by authors who research from the same sports practices have been consulted, as is the case of [Lugones C. J. L. S., & Sánchez \(2010\)](#) who address environmental education in high performance sport. They use the concept of fair play and training methods with respect to the health of the athlete and his or her relationship with the environment. Another outstanding research on this subject is "Environmental education from the disciplinary approach of biological sciences applied to Physical Education and Sport" by [Carvajal, M. F. et al., \(2009\)](#) from the International School of Physical Education and Sport, in an innovative initiative to take advantage of interdisciplinary for environmental education. Sport and the environment "The disjunctive of decision makers is an exploration of environmental knowledge and perception in decision makers in the sector" by the author [León Martínez. S. R \(2013\)](#) from The University of Physical Culture and Sports Sciences "Manuel Fajardo", whose works make up, among other research, a rich arsenal of practical contributions that strengthen the theory of environmental education in Physical Culture and Sports.

It is scientifically described that environmental factors such as wind and altitude can favor athletes' records, as corroborated by an experiment conducted by Dr Steve Hollings of Auckland University of Technology in New Zealand. The scientist based this study on an experiment he applied to Usain Bolt, the famous Jamaican athlete, who won his last laurels taking advantage of the environmental conditions that occurred in his competitions ([Hollings, S. C., 2011](#)).

However, in sports as directly related to the environment as athletics, no works have been found with significant contributions that value the environment from the integration of the natural and built environment and ethical social education. The research works around the environmental issue that have been most approached in the consulted literature have referred to several aspects related to the environment. [Sánchez, J. S. \(2012\)](#) in his work, makes an analysis of the psychosocial influence on the performance of athletic practitioners. In Gómez-Gómez's proposal, [O. M., et al., \(2014\)](#), approaches are introduced to strengthen environmental values from the



axiological training treatment of athletes. In subsequent studies, the harmful effects of contaminating agents during physical activity and the practice of sports are determined (Avendaño, C., & Rodrigo, E. 2019; Mascarenhas, G., & de Oliveira, L. D., 2018); these authors analyze the incidence of sports activity after the effects of a social, economic and environmental crisis.

A more current research on the subject is developed by Vigário, P., Teixeira, A., & Mendes, F. (2020), whose work is dedicated to the analysis of psychosocial and environmental factors in the trainer-athlete relationship and the athlete's performance in his sport. All these studies have served as a basis to state that there is still a lot of ground to be covered in the environmental issue of sports, since, as stated in the most important events and documents that have been carried out in the world, the environment in sports must be analyzed from the integration of biological, chemical, but also ethical and social factors, and to estimate the built environment as part of this environmental focus that everyone must influence. Therefore, the objective of this work is to propose a methodology to encourage the practitioners of athletics to respect and be responsible towards the environmental elements that are related to this sport from the naturalistic and social ethical point of view and towards the built environment.

In order to clarify the definitions assumed by the author on these edges, it is added that the naturalistic environment refers to the physical-chemical aspects and to the flora and fauna Calixto Flores, R., (2008); Mora, O. V., et al., (2017). On the other hand, social-ethical environmental education focuses on the formation of subjects, not only through the academy and formal events, but from an extensive space of knowledge, whose process leads to the formation of critical beings, willing to understand the world and society in order to modify it González-Escobar, C. H. (2017). The term built environment is linked to the spaces modified by human beings that provide the stage for daily activities; these are materialized in buildings, parks or green areas, neighborhoods, social and institutional centers and cities Cárdenas, L. A., (2000); Brusa, J. et al., (2016); Hermida, A. G., (2018).

MATERIAL AND METHODS

To develop this research, the Colombian Athletic League was selected, made up of a coach with eight years of experience, a trainer with six years of experience; both are graduates in Physical Education, Sports and Recreation.

As athletes are involved in the study 30 athletes from nine years onwards. Of these, 100, 200 and 400-meter sprinters, 800 and 1500-meter semi-finalists and four directors of the sports complex. The athletics league of "La Guajira" has the field for the practice of javelin, discus and bullet. Regarding the state of the track it is declared that it is made of asphalt and without synthetic material. The athletic team has participated in national games, classifying games and "Get over yourself with the sport.

The empirical methods used in the research will be explained below:

The scientific observation is used to have a perception of the external manifestations that are evidenced in the training sessions through the dimensions: naturalistic, towards the built environment and from the social ethical approach of environmental education. Through this method, the following indicators are observed:



- Constructive physical state of the sports facilities where athletics are practiced.
- Hygienic sanitary conditions that support the development of training practices.
- Hydration conditions of the athlete.
- Consideration of the characteristics of the climate for the planning and execution of training exercises (during warm-up and in competitions).
- Ethical social relationship between athletes.
- Ethical social relationship between the coach and the athletes.
- Behavioral manifestation of the athletes and the environment in which they live (home-school-community).
- Manifestation of attitudes towards the natural and built environment.

The survey is applied to verify the level of knowledge that athletes have regarding environmental education that they must have in order to maintain an adequate, disciplined and organized behavior. This stable behavior will allow these athletes to live fully in harmony with their environment and achieve favorable results in their sports performance, since physical, spiritual and cultural factors are closely related. The cognitive indicators that will comprise the survey are the following:

- Knowledge about environmental education (naturalistic, social ethical and towards the built environment).
- Knowledge about the actions that athletes should take to maintain a sustainable and balanced environment (from the three aspects mentioned above)
- Knowledge about the elements with environmental vulnerability that make up the environment where they live.
- Knowledge about the environmental problems facing the world, the country and the locality where they coexist.

The interview is addressed to the coaches and managers of the athletics league of "La Guajira" in order to assess the level of knowledge and opinion that these sports trainers have about the importance of educating from training about the environmental values that these current times demand.

The indicators of the interview are shown below:

- Knowledge about environmental education (naturalistic, social ethical and towards the built environment).
- Opinion on the importance of educating from the instruction on environmental values such as respect, responsibility, solidarity, sense of belonging, combativeness in the face of what has been done wrong.
- Knowledge about the measures that should be taken to guarantee the proper hydration of the athlete, the dosage of exercises to be performed according to the climate or the season, protection from the sun's rays in physical sports activity.

The documentary review should be focused on assessing how environmental education is conceived in the athlete's training plans in the "La Guajira" Athletic League, either consciously or empirically, that is, from the behavioral manifestations in the training process. The indicators of this review should monitor the following data:

- Presence of environmental elements in the planning.



- Existence of actions designed to demonstrate a respectful and responsible attitude towards the naturalistic environment, the built environment and from an ethical social environmental education.
- Potential of the treatment of thematic units for the development of environmental education.
- Presence of activities that promote the unity, cohesion and enthusiasm of the group for collective activities.

RESULTS

Regarding the applied observation, it is corroborated that the practice space is in good condition, unlike the track that is built in asphalt that, most of the times, the wrappings of the products consumed by the athletes and people who visit the place are abundant.

As regards hygienic conditions, there are no toilets, sinks or showers for personal hygiene after each practice. Drinking water must be carried by each of them because there are no filters, dispensers or spaces where there is water for human consumption.

Weather conditions are adverse for heating and competition. Because it is a region with a hot dry climate, they are forced to practice sports in the early morning hours and after 4:00 pm including at night.

Interpersonal relationships are favorable since they handle assertive communication where no conflicts are evident that may prevent the good performance of the athletes in the practices and competitions. The coach is seen as the leader and the hierarchy between the two is maintained, which allows for a good job and adequate management of the athlete-coach relationship.

The behavioral manifestations between athletes and the environment in which they live show good hygienic habits and positive waste management.

With regard to the survey, it is evident that according to the opinion of the athletes:

- The 25 % of the athletes propose that the naturalistic environmental education has to do with the pedagogy of the protection of the environment, in the same way, they declare that the ethical social behavior is linked to the moral values that people have towards the environment. By way of interpretation, the athletes come closer to the real definition of social ethical education, not being naturalistic environmental education that refers more to the biological, physical and chemical components of this environment.
- The 80 % of athletes associate naturalistic environmental education and social ethics with ensuring that the sports space is clean. The answer has positive elements and at the same time, but limited because environmental education does not only go to the cleaning of the environment but to the values and attitudes that allow athletes to be responsible and active regarding the environmental problems that surround them.
- The 30 % of the respondents identify naturalistic environmental education with activities such as product recycling, resource and waste management. The response has positive elements, but in general the response is insufficient because naturalistic environmental education implies adopting an awareness and sensitivity to the components of biodiversity. This education requires



knowledge, but also behavior and, above all, a level of commitment between the social development of the athletes and the community and the physical space where they work.

- Regarding the built environment and the impact of social ethical environmental education, only 35 % declare that this relationship implies maintaining a healthy environment, having an affective socialization with peers and with the facilities to improve the constructive and ethical environment.
- Taking into account the elements with environmental vulnerability, different criteria are collected from the athletes, among them the amount of waste, empty piles, shovels, garbage cans in bad hygienic conditions, high temperature, garbage in the streets, water shortage, uncontrolled garbage burning, water shortage in the communities, beaches, rivers and deserts, plus the animals that live in "La Guajira".
- Regarding the environmental problems that the world, the country and the locality face, 60 % of the athletes say that these have been caused by the large industries that send toxic waste into the atmosphere, the incorrect location and distribution of the garbage, the massive deforestation, the irrational hunting of animals in their natural habitat, the contamination by chemical waste from different companies due to the excess of cars that consume oil and the unlimited exploitation of the multinationals.
- Only 10 % assume that the most worrying environmental problems are those caused by pollution from nuclear plants, power plants that supply themselves with pure water, the consumption of animals in danger of extinction, the demographic advance in cities and the waste of drinking water.

Analyzing the results of the interview, it was possible to confirm that both coaches and managers have a low opinion of the environmental education expected of the sports trainer in this new century. In short, they attribute this concept of environmental education to the cleanliness of the work site, to the clothing for training, in very specific cases, to the training or knowledge that should be possessed about the values and responsibilities about caring for the environment.

As measures for planning the athlete's hydration, the dosage of exercises according to the climate or the season of the year, 80 % of the interviewees responded that:

- Training should be done in the afternoon when the sun is already down at 4:30 pm.
- Everyone brings their own hydration because the facilities do not provide these free hydration services for athletes.
- There is no control on the use of sunscreen for athletes.
- Training is done under a plan corresponding to the competitions.
- The training sessions are carried out at appropriate times, where the temperatures are not so high and do not affect athletes.

In the documentary review, it was found that within the planning, environmental elements are not conceived, it only occurs in the dynamics of the practice if there are elements that impede the good development of it.

The care of the environment and the contributions that as people who are part of a guild they must assimilate and put into practice inside and outside the space where they develop their sport practice is taught. No thematic units are planned that include an education that leads to a respectful and responsible attitude towards the environment.



Within the exercise, teamwork is promoted where collective actions are encouraged to improve the practice spaces. The environment is seen in the orientation plans as external factors, the practice field, and the climate indicators as part of the information that must be mastered for planning, but not as a fundamental element in the distribution of the exercises.

The results of the diagnosis indicated the need to establish a methodology to strengthen environmental education with the integration of naturalistic, ethical and social elements from the built environment. With this strengthening, a better cohesion of the team with the environmental elements is expected, and, consequently, a more understanding and tolerant attitude in the environments in which it is developed, facilitating an optimal sport performance and better conditions to achieve the victory in the competitions.

Methodology to strengthen environmental education in athletics

When analyzing the weaknesses shown in this diagnosis, the group of authors agreed that the main causes of these insufficiencies revolve around an inadequate or limited use of teaching methods. That is why, it is proposed the instrumentation of a methodology which is directed to solve these problems of environmental education. To correspond to this proposal, the work of *De Armas Ramírez, N., et al., (2003)* is taken as a reference. In that work, the fundamental parts of a methodology are presented as a scientific product, they are:

- I. The objective to be achieved.
- II. The rationale.
- III. The elements involved in its structure.
- IV. The methodology as a process, steps and description of the application of methods, procedures, techniques and means. The process may include phases (preparatory, implementation, communication and validation)

The essential characteristics of this methodology will be mentioned below, according to the organization of its parts.

- I. The objective to be achieved is to strengthen environmental education in the athletes of the Athletic League of "La Guajira" from the most contemporary and humanist tendencies of this educational process.
- II. In this part of the methodology, the concepts assumed from the theoretical references related to environmental education, physical culture, sports, as well as the integration of ethical social and naturalistic environmental education and from the built environment in the light of athletics in "La Guajira", Colombia, are shown.
- III and IV. The elements that intervene in its structure are the cognitive ones (categorical body and legal body), the structural apparatus (phases and stages). The categories include environmental education from its three integrated prisms, sports training in athletics, and the interdisciplinary nature of the training processes linked to this sport.

As a legal body, the most contemporary principles and theories on environmental education and its relationship with sports practice are included.

As part of the phases and stages, there is a transition from the instruction stage: training of coaches and managers, the training of athletes. The execution phase that involves the space and the moment in which the theoretical and practical activities are developed to strengthen this environmental education that is aspired to (such



activities are broken down into educational talks, hygienization and recycling sessions, planting of ornamental plants around the sports areas, distribution of warm-up exercises according to the existing climatic conditions, among others. The control phase regulates the evaluation processes as a result of the application of this methodology and as a process, which allows for proper feedback regarding the elements that can be improved or eliminated in the application of the proposal.

As a conclusion, a methodology based on a diagnosis applied to athletes, coaches and directors of the Colombian Athletic League of "La Guajira" is presented, which presents shortcomings in terms of integrated environmental education. This process, which is expected from sports training in this new century, should interweave naturalistic, ethical and social elements with the built environment.

The methodology brings together the cognitive and structural elements that allow its viability in its contextualization in the "La Guajira" athletic league in order to promote in the athletes of this sport a more comprehensive and tolerant attitude both in academic, sports and experiential environments, contributing to optimal sports performance and raising the potential for victory in future sports events.

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Conflict of interests:

The authors declare not to have any interest conflicts.

Authors' contribution:

The authors have participated in the writing of the work and analysis of the documents.



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