

Original article

## Environmental education program for the Accounting and Finance career



### Programa de educación ambiental para la carrera Contabilidad y Finanzas

### Programa de educação ambiental para o curso de Contabilidade e Finanças

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## ABSTRACT

Environmental education plays a fundamental role in the training of professionals capable of performing their duties in complete harmony and respect for the environment. At the same time, they should serve as an example to their social environment by developing their activities with minimal impact. The objective was to design an environmental education program for the Accounting and Finance program at the Hermanos Saíz Montes de Oca University of Pinar del Río. A diagnosis of the current situation in the program was conducted, and empirical methods of observation and measurement were used, applying the following techniques: interviews, surveys, and document review. This study revealed limited commitment, both individually and collectively, to minimizing environmental problems based on the practices of their profession. The result was an environmental education program for the Accounting and Finance program, taking into account non-personal

didactic components and managing them through a subject called Environmental Management. This program contributes to achieving sustainable development through environmental protection and conservation within the current economic, political, and social context.

**Keywords:** environmental education; environment; accounting and finance.

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## RESUMEN

La educación ambiental juega un papel fundamental en la formación de profesionales capaces de realizar sus funciones en plena armonía y respeto por el Medio Ambiente y, a la vez, debe constituir un ejemplo para su entorno social al desarrollar sus actividades generando el menor impacto. El objetivo estuvo dirigido a diseñar un programa de educación ambiental para la carrera Contabilidad y Finanzas de la Universidad de Pinar del Río "Hermanos Saíz Montes de Oca". Se realizó un diagnóstico de la situación actual existente en la carrera y se utilizaron los métodos empíricos de observación y medición, con la aplicación de las técnicas: entrevistas, encuestas y revisión documental; donde se constató limitado compromiso, desde el plano individual y colectivo para minimizar los problemas ambientales, en función de los modos de actuación de su profesión. Como resultado se obtuvo un programa de educación ambiental para la carrera Contabilidad y Finanzas, teniendo en cuenta los componentes didácticos no personales, que se gestionan mediante una asignatura denominada Gestión ambiental, contribuyendo a alcanzar un desarrollo sostenible mediante la protección y conservación del Medio Ambiente dentro del contexto económico, político y social existente.

**Palabras clave:** educación ambiental; medio ambiente; contabilidad y finanzas.

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## RESUMO

A educação ambiental tem papel fundamental na formação de profissionais capazes de exercer suas funções em plena harmonia e respeito ao meio ambiente. Ao mesmo tempo, eles devem servir de exemplo para seu ambiente social, realizando suas atividades com o mínimo de impacto. O objetivo era elaborar um programa de educação ambiental para o curso de Contabilidade e Finanças da Universidade de Pinar del Río. Foi realizado um diagnóstico da situação atual da carreira e utilizados métodos empíricos de observação e mensuração, com aplicação das técnicas: entrevistas,

questionários e revisão documental; onde se constatou um comprometimento limitado, tanto individual quanto coletivo, na minimização dos problemas ambientais, com base nos métodos de ação de sua profissão. O resultado foi um programa de educação ambiental para o curso de Contabilidade e Finanças, considerando componentes didáticos não presenciais, que são geridos por meio de uma disciplina denominada "Gestão Ambiental", contribuindo para o alcance do desenvolvimento sustentável por meio da proteção e conservação ambiental dentro do contexto econômico, político e social vigente.

**Palavras-chave:** educação ambiental; meio ambiente; contabilidade e finanças.

## INTRODUCTION

The analysis of the interrelationship between society and the environment has long been a topic of study and discussion, even in international forums. Its relevance is attributed to a group of problems affecting humanity and contributing greatly to the destruction and deterioration of nature. This situation is largely caused by the lack of appropriate attitudes and social commitment toward the management and care of humankind's natural resources. These attitudes have worsened over the years due to the lack of environmental awareness and education, and consequently, of an environmental culture, among significant sectors of the population.

This environmental crisis constitutes a threat to human existence, significantly impacting the deterioration of the quality of life and consequently making it one of humanity's main concerns. To reverse this situation, it is necessary to have capable, motivated, and eager professionals who, above all, possess the knowledge to find solutions to current problems and prevent future ones.

Cuba's environmental problems are conditioned by a difficult economic situation, characterized by insufficient environmental awareness among economic and social actors; and by the implementation of a policy that, in practice, fails to integrate the environmental dimension into development processes. Rational management is required, based on a balance between the conservation of social gains achieved and the sustainable protection of natural resources. This requires a trained population that consciously incorporates the environmental dimension into its daily life.

The Cuban Ministry of Science, Technology, and Environment has implemented a State Plan to combat climate change, known as Task of Life (Tarea Vida). Its actions are aimed at addressing the

main environmental impacts and reducing existing problems in coastal areas, industries, and society as a whole. The implementation of this regulation strengthens environmental awareness and influences knowledge on environmental issues.

According to Vento *et al.* (2018), irresponsible human activity accelerates the process of environmental deterioration as a result of accumulated ignorance and lack of environmental knowledge. This deficiency is largely a consequence of the still insufficient development of environmental education, which contributes to human action having a greater impact on the environment around it.

In this regard, Jiménez (2023) believes that training professionals capable of managing knowledge and innovation, based on environmental care and protection, is the responsibility of Cuban universities. Hence, these institutions are developing initiatives aimed at developing students' environmental education.

Furthermore, it is suggested that achieving this goal requires planning, organization, and development of methodological work from the institution and the programs to the teacher and the student themselves, which is still insufficient. Therefore, it is necessary to explore new tactics that provide future teachers, responsible for educating the next generation, with the necessary tools to systematically influence their students' environmental education (Sierra *et al.*, 2016).

The points of agreement among the aforementioned authors analyzed lie in the need to consider environmental education as a necessary tool to be used during the educational process. Only in this way will they be able to develop in future professionals a system of knowledge, skills, attitudes, and values that will encourage them to care for and protect their surroundings; a criterion with which the authors of this research agree.

Environmental education is a continuous and ongoing process that constitutes a dimension of the comprehensive education of all citizens, oriented toward sustainable development. Its purpose is to develop knowledge, skills, attitudes, and values related to environmental protection and improving the quality of life of the population.

Therefore, Blanco *et al.* (2024) consider that this is a social aspiration and necessity, since the sustainable conservation of the Environment depends on the balance of nature and life on the planet, particularly of the human species.

Cruz Visa (2022) believes that environmental education should be transversal and should be developed based on projects and programs. Numerous programs have been generated in the country to carry out environmental education by different institutions and organizations, which have been primarily aimed at formal education channels, essentially in primary and secondary education; and at the same time, they have been developed in communities that are located within protected areas.

In response to this need, the Cuban education system has taken on the task of training well-rounded professionals with strong ecological convictions and capable of fostering the essential human potential of each individual. Therefore, environmental education has recently been viewed as a cross-cutting theme to be addressed sporadically in all curriculum subjects and in each of the education subsystems.

And the university is, without a doubt, one of the institutions that face the challenge of educating for the environment. It must work to foster individual and collective awareness based on the acquisition of knowledge, changes in attitude, and the formation of values in professionals. This will enable them to perform their work in a way that allows them to understand and control the environmental impacts of their future professional activities. They must also be aware of the environmental aspects arising from their activities in order to set an example and guarantee the sustainability of Higher Education.

This is where the need arises to work toward education for sustainable development, applying methods and procedures that allow it to raise the quality of its various processes. For this reason, the decision-making process constitutes an important aspect in achieving a shift in awareness, attitudes, values, and modes of action, in order to work toward the goals imposed by sustainable development.

For this reason, it is necessary to train professionals who are capable of identifying environmental problems and can prevent and mitigate those that arise in each of their jobs, given the role they play in modifying the environment through their actions and decisions. Therefore, it is essential to provide students with the knowledge, skills, values, methods of action, and a commitment to the environment.

Despite this, the first curriculum for the Bachelor's Degree in Accounting and Finance (BA) program fails to address environmental education sufficiently; therefore, addressing this issue will contribute to the development of Cuban professionals who are increasingly better prepared, through their training, in the theoretical foundations of environmental economic thought and its implications for

economic policy, enabling them to contribute to environmental protection and the sustainable development to which the country aspires.

The introduction of environmental education to the Accounting and Finance program, through an elective course, will enable future accountants to receive environmentally responsible training, effectively impacting the resolution of professional problems that arise in the organizations where they work.

It is undeniable that decision-making is a complex and dynamic process that requires extremely detailed execution. Therefore, and in order to move forward in this direction, theoretical and practical proposals are needed to help university decision-makers understand these processes and acquire concepts, attitudes, practices, and methods of action to incorporate into the decision-making process. Therefore, the following scientific question arises: how can it be contributed to the environmental education of students in the Accounting and Finance program at the Hermanos Saíz Montes de Oca University of Pinar del Río?

Considering the problems expressed, the general objective of the research is to design an environmental education program for the Accounting and Finance program at the University of Pinar del Río "Hermanos Saíz Montes de Oca".

## **MATERIALS AND METHODS**

To diagnose the current situation of environmental education for the Accounting and Finance program, dialectical materialism was used as the main method, which allowed us to explain its behavior, as well as the historical and cultural analysis of said object.

Theoretical and empirical methods were employed in the research. The theoretical methods included the historical-logical method and the analysis-synthesis method. The historical-logical method was used to study, understand, and determine the regularities of environmental education in the Accounting and Finance program. The analysis-synthesis made it possible to break down the phenomenon investigated into the components and their multiple relationships, in a way that enabled them to perform their functions better and to arrive at synthesized reasoning about the current behavior of environmental education in the career.

The empirical methods used were observation and measurement, applying the following techniques: interviews, surveys, and document review, to determine the extent and manner in which environmental training is carried out, in line with its modes of action.

Direct observation was conducted on the organizational forms of the teaching-learning process in the various courses of the Accounting and Finance program. Interviews were conducted with 26 professors from diverse disciplines within the program. Surveys were conducted with 114 students in the program to assess their knowledge of environmental education, in line with their role models as future professionals. The document review included: professional model, curricula, course programs, and the program's environmental strategy, the results of which demonstrated the scientific problem posed.

## RESULTS

As a result of the application of the instruments, and from the analysis and synthesis carried out on the previous documents, the following list of problems was made:

- Deficiencies in didactic and methodological preparation, reflected in lesson plans, actions, and activities designed to help students develop skills and learn to identify environmental problems, propose countermeasures, and evaluate their impact.
- Poor planning, starting with the design of the class, that encourages active, regulated, reflective, and conscious participation of students to minimize environmental problems in the economic entity.
- Low recognition by students regarding the socioeconomic and cultural component of neither the Environment, nor the most affected in the economic entity.
- Deficiencies in the treatment of environmental issues in the subjects taught by teachers.
- Low knowledge of the causes of the environmental impact generated by the economic sector.
- Lack of awareness of environmental laws in Cuba and the economic sector.
- The connection between class content and the environmental education curriculum strategy is limited.
- Few environmental education methods used in the classroom, corresponding to the content.
- Students' reflection and commitment to minimizing environmental problems in the economic entity are not always encouraged.

Considering the aforementioned regularities, it was concluded that students in the Accounting and Finance program experienced difficulties in implementing environmental education initiatives in economic entities where they link economic and financial activity, as a result of the training they receive. Therefore, it was considered that their commitment, both individually and collectively, to minimizing environmental problems is limited, based on the practices of future professionals.

Based on the above, an environmental education program was designed for the Accounting and Finance program, taking into account the non-personal teaching components (eight). These are managed through a course called Environmental Management, taught in the fourth year, seventh semester, for a total of 60 hours.

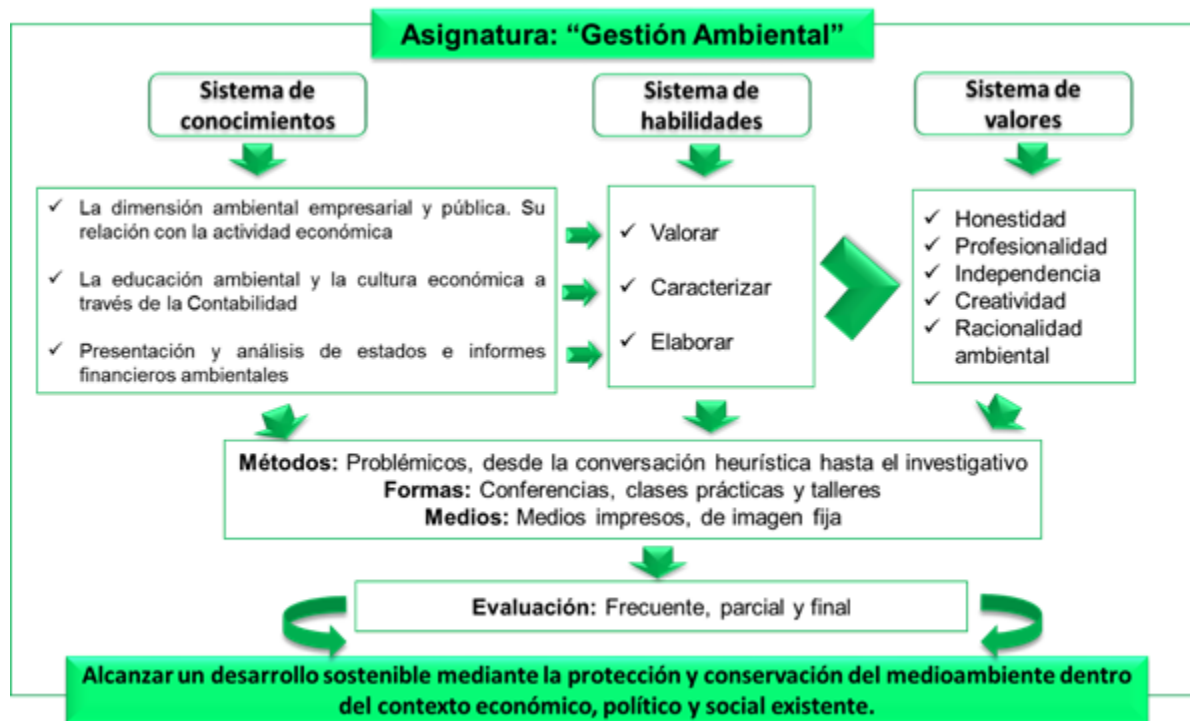
The problem is stated as the need to evaluate the impact of economic operations on the environment, as well as the financial statements and reports that impact business and public economic activity, in order to generate environmental education and economic literacy among university graduates.

As an object of study, the process of the impacts of economic operations on the Environment.

The objective is to evaluate the impact of economic operations on the environment, and the financial statements and reports affecting business and public economic activity to generate environmental education and economic literacy among university graduates. This is achieved through the study of materials, recording operations, and preparing financial statements, strengthening responsibility, professionalism, and environmental rationality, enabling sustainable development through environmental protection and conservation within the current economic, political, and social context.

To achieve this objective, the program is structured into three (3) teaching units. Figure 1 shows the content system (knowledge and skills) for each unit, as well as the values to be fostered in each unit. The program also includes the methods, means, forms, and evaluation of the subject (Figure 1).





**Figure 1.** Environmental education program for the Accounting and Finance degree

The knowledge system shows in detail what corresponds to each of the units:

- Legislative regulations and other current international and national standards related to business and public economic activity regarding environmental protection, with a critical and objective assessment of the environment that characterizes the direction of the Cuban economy and the country's economic order.
- The economic operations of the business and public system related to the environmental dimension, in accordance with established accounting regulations, with a critical and objective assessment of the environment, which characterizes the direction of the Cuban economy and the country's economic order.
- Economic reports related to environmental protection and decision-making.

The system of skills that is conceived (to assess, characterize and elaborate), which will lead to a broader skill: evaluating the impacts of economic operations on the environment.

The system of values to be fostered during the development of the subject is related to those that should characterize the future accountant: honesty, professionalism, independence, creativity and environmental rationality.

- Honesty: teaching the correct recording, presentation, and control of environmental assets and resources held by entities and their importance for proper decision-making.
- Professionalism: the quality of the work performed, enabling the future accountant to act in accordance with the standards of excellence, efficiency, and effectiveness required of him or her.
- Independence: the training of professionals capable of making decisions not influenced by personal criteria, but rather based on the economic and financial situation and results of the entities to which they belong.
- Creativity: develop innovative and creative solutions to the environmental problems that future graduates will have to face.
- Environmental rationality: involves the constant problematization and transformation of knowledge, and combines new ethics and productive principles with a thinking of complexity that problematizes existing sciences to incorporate environmental knowledge.

This environmental rationality is considered a new, definitively identified added value, in which feelings and standards of conduct guarantee respect for the environment. This rationality goes through the following stages: indifference (it is not identified as such), non-indifference (environmental issues begin to be perceived in the economy), recognition (environmental issues begin to acquire a certain significance), and concern (for environmental issues today).

Throughout the course, teaching methods will be used, combining problem-based methods from heuristic conversation to investigative methods. Taking into account activity theory, active and creative learning methods, problem-based teaching, and investigative methods are of great importance in teaching. These methods allow students to solve problems related to the environment (integrating economic, ecological, and social aspects) and prepare reports. Similarly, the "debate" method will be used, which enhances students' ability to discuss reports and facilitate decision-making aimed at continuous improvement.

The teaching aids are going to use: print media; a course guide; journals and articles on management, accounting, costing, finance, and auditing, all of which deal with environmental issues; as well as exercises and case studies taken from real life or prepared in a similar manner.

Still image: power point with slides from the conferences (Table 1).

**Table 1.** The forms the teaching elements will be: lectures, practical classes and workshops

Teaching unit	Conferences	Practical classes	Workshops	Total
The corporate and public environmental dimension. Its relationship with economic activity	4	4	6	16
Environmental education and economic culture through accounting	4	6	8	18
Presentation and analysis of environmental financial statements and reports	4	8	16	28
<b>Total of the subject</b>	<b>12</b>	<b>18</b>	<b>30</b>	<b>60</b>

To conduct the workshops, it is important to connect students with local organizations.

The general evaluation system for the subject was structured as: frequent, partial and final.

- Frequent: systematic control questions, written and oral evaluations.
- Partial: partial exam corresponding to teaching unit 1.
- Final: The Final Integrative Workshop, which will take place at the end of teaching unit three, will be guided from the first day. However, each workshop will assess the results of the tasks completed during the course. This, combined with the presentation, discussion, and defense of the final project, will constitute the final assessment grade.

The final grade of the course will take into account the work done by the student during the course.

To impart methodological guidelines, educators must use active methods to achieve the general objectives, fostering economic literacy and environmental awareness in students, as well as ensuring timely recording of accounting and financial transactions related to environmental issues.

The bibliography oriented are magazines and articles on management, accounting, cost, finance and auditing, all of them on environmental topics.

## DISCUSSION

The introduction of the environmental education program for the Accounting and Finance program enabled the comprehensive preparation of future professionals; raised environmental awareness and economic literacy; developed skills in the timely recording of environmental accounting entries; acquired knowledge of environmental accounting and damage prevention; employed learning strategies in the training process on environmental care; promoted values and new attitudes toward the rational use of resources; and prepared reports related to the solution of environmental problems identified in both the business and government systems. All of this enabled decision-making aimed at the continuous improvement of these organizations.

In this sense, the incorporation of accounting into environmental matters fills a need related to the way of quantifying, recording and reporting the damage caused to the Environment and the preventive or corrective actions necessary to avoid them (Fuentes, 2020).

Furthermore, the accounting data summarized in the financial statements allows for the preparation of economic reports related to environmental protection, the performance of corresponding analyses, and decision-making aimed at continuous improvement.

Professionals from the economic and financial sciences play a very important role in the application of sustainable accounting and financial practices, in the issuance of relevant information for administrative decision-making, promoting greater awareness of sustainability among companies and investors, including non-financial information, such as the environmental and social impact of organizations, as expressed by Gutiérrez and Delgado (2023).

Furthermore, environmental education has evolved significantly in recent decades, becoming an essential component of academic training at various educational levels. This transformation has been

supported by a growing body of scientific research that highlights the importance of integrating sustainability into educational programs.

A recent analysis of scientific production on environmental education, conducted by Sánchez *et al.* (2024), reveals an upward trend in the number of publications and a diversification in the approaches and methodologies employed. This study highlights international collaboration as a key factor in the advancement of research in this field, highlighting the need for interdisciplinary and collaborative approaches to address global environmental challenges. These findings suggest that environmental education is not only a pedagogical tool but also a robust field of research that contributes to the development of innovative and sustainable solutions to contemporary environmental problems.

Environmental education has emerged as an essential component of academic training, especially in Latin America, where ecological challenges are increasingly evident. Various studies have analyzed its implementation in educational institutions in the region. For example, the analysis of scientific production on environmental education carried out by Sánchez *et al.* (2024) reveals a growing trend in the publication of research in this area during the period 2013-2023. This study highlights the importance of international collaboration and interdisciplinarity in environmental education research.

On the other hand, Gutiérrez and Paredes (2020) conducted a systematic review focused on environmental management in educational institutions in Latin America. Their research identified a poor integration of environmental education into school curricula and a lack of institutional policies promoting sustainable practices. These findings underscore the urgent need to strengthen teacher training in environmental competencies and implement educational strategies that foster an ecological culture among students. The effective incorporation of environmental education in educational institutions is crucial for developing citizens committed to sustainability and capable of facing the ecological challenges of the 21st century. In summary, since the program's introduction, systematic monitoring has been conducted, focusing on evaluative criteria, environmental diagnostics, and the identification of environmental educational potential in the selected economic entities. This served as a methodological basis for the design, improvement, monitoring, and evaluation of the environmental education program. This allowed for the identification of the needs and general conditions for its implementation.

Among the main results obtained from the introduction of the program are:

- Environmental education for graduates of the Accounting and Finance program.

- Introduction of scientific research into the teaching-educational process.
- Presentation of six research projects at the Provincial Patriotic Military Conference, with two projects receiving the status of relevant and four outstanding.
- Teaching four postgraduate courses in companies to promote environmental education and economic culture

In conclusion, it can be stated that as a result of this research, an environmental education program was obtained for the Accounting and Finance degree, taking into account the non-personal didactic components, which are managed through a subject called Environmental Management, which contribute to achieving sustainable development through the protection and conservation of the Environment within the existing economic, political and social context.

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### Conflict of interest

Authors declare no conflict of interests.

### Authors' contribution

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.



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