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Multi-scale strategies in environmental education, that pursue appreciation of the natural and rural areas of the Mediterranean mountains, in southern Spain

Ricardo Manuel Luque-Revuelto

ch1lurer@uco.es  0000-0001-6148-4043

Área de Análisis Geográfico Regional. Departamento de Ciencias Sociales, Filosofía, Geografía y Traducción e Interpretación. Facultad de Filosofía y Letras. Universidad de Córdoba.
Plaza de Cardenal Salazar, s.n. 14001 Córdoba, España.

Rafael Molero-Baltanás

ba1mobar@uco.es  0000-0002-1489-3968

Departamento de Zoología. Universidad de Córdoba.
C-1 Campus de Rabanales, 14071 Córdoba, España.

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The meridional mountains of Europe are located in Andalusia, in the south of the Iberian Peninsula. In this region, orographic and climatic factors are the main circumstances that condition the landscape and cultural peculiarities. Nowadays, its ecosystems show a high vulnerability to climate change, its traditional ways of life are in crisis and its cultural heritage is endangered by abandonment and depopulation.

This paper analyzes some of the main documents that include proposals of environmental education at European, national and regional levels from the point of view of its adaptation to the territory of the Andalusian Mediterranean mountains. Some educational actions are also evaluated in order to detect the possible existence of dysfunctionalities or deficiencies among the different educational policies and projects. Finally, a series of actions are proposed to optimize environmental education programs.

This work aims to identify and analyze the environmental education strategies that exist at European, national, and regional levels, to detect the difficulties that these strategies present and to make a proposal in order to solve, as far as possible, these shortcomings.

In our analysis, we want to know if the environmental education plans are in accordance with open and active methodologies and if they offer a differentiated treatment of specific areas such as the Mediterranean mountains. We want to detect the relationships between the objectives of conservationists and educational administrations, and if the teaching staff is involved. Other entities involved with environmental education are investigated, together with their aims. Moreover, we focus on the educational materials that are being produced, the environmental education activities that are being carried out and the existence (or absence) of monitoring systems to assess the undertaken actions.



An inductive research strategy has been followed to obtain qualitative information to understand the realities constructed by the different actors that take part in the development of educational policies in the studied region. Given the great multitude and heterogeneity of the factors that intervene in the analyzed facts, a broad approach has been used to include postulates from both the Experimental Sciences and the Social and Human Sciences. The sources of information used have been very diverse. The literature consulted focuses mainly on the protected natural areas that have been the most valued in terms of their educational potential in Andalusia. For the identification of the environmental education strategies that concur at the European, national and regional levels, bibliographic sources have mainly consulted. Field work was necessary for the analysis and detection of the difficulties, so different facilities of the Natural Parks managed by the Regional Ministry of the Environment were visited.

Although the educational and cultural dynamization in the Mediterranean mountains does not receive an individualized treatment, it is included in a set of guidelines capitalized by different national and regional organisms that have as reference the educational and environmental directives of the European Union.

At the national level, the Ministry for Ecological Transition and the Demographic Challenge of Spain's government is involved in environmental issues and promotes environmental education through CENEAM (National Center for Environmental Education).

The The Ministry of Agriculture, Livestock, Fisheries and Sustainable Development of the Andalusian government has developed since 2007, the Environmental Information Network of Andalusia (REDIAM), which aims to integrate, normalize, and disseminate all information on the Andalusian environment. Through the Andalusian Strategy for Environmental Education (EADEA), the regional government promotes recommendations to the public administration, the education system or companies and organizations. As instruments to promote these goals, it has different Environmental Education Centers, such as the Nature Classrooms and different Farm-Schools; in addition to an Environmental Volunteer Program. In the same Visitor Centers of the protected areas (ENP), the companies that tender these facilities design in their respective Management Plans their own dynamization projects.

The most important program at the regional level is the *Aldea* plan (Environmental Education for the Educational Community). It is a tool for the development of competences in the field of environmental education.

Now, relating the total of centers located in the mountain areas with those that carry out environmental activities, a high proportion of those located in the mountain is found, since approximately half of them (63 of 148) develop environmental activities. However, it should be considered that, although half of the centers offer these activities, they are a low percentage, considering that, in mountain areas, where urban areas are scarce and agrarian or forest uses predominate, education environmental should occupy a more relevant place.

After reviewing the budgets of environmental regulations, the complexity of environmental education is first noticed, where physical, human, and pedagogical elements of a different nature are interwoven and require a broad and multidisciplinary treatment.

In the first place, it is noticed that the guidelines of the public administrations are very general and from them, a list of numerous and extensive plans arises in terms of their subject matter. But, although there is similarity in the programs and projects that are promoted, there is no connection between them, or even between the institutions that promote them. The Andalusian Strategy for Environmental Education has had little development in the area of the Regional Ministry of Education, with the exception of the *Aldea* plan.

Regarding to the existence of a differentiated treatment in terms of the educational planning of specific protected areas, such as those of the Mediterranean middle mountain, it is found that there is no such spatial differentiation.

Although this study has not considered the analysis of environmental education at a scale as small as the municipal one, it can be verified that initiatives at this scale do not propose long-term programs or broad territorial development.

Considering the diverse educational materials and informative products, it can be said that they are scarcely adapted to the particularities of the spaces of the autonomous community and do not cover all the extension and the diversity of the Andalusian mountains.



The focus of activities and programs is excessively directed to naturalism and oriented towards the school population and visitors of protected areas.

Finally, environmental education programs have no continuity in the lives of people, and although they are usually effective at school age, their influence is diluted as adulthood increases the pressure of the consumerist society.

It is necessary a coordination of public resources and institutions, both from the horizontal point of view, as vertical, between different administrations, without forgetting the promotion of strategic alliances with other public and private institutions, connecting regional, national, and international planning.

Educational strategies should adhere to conceptual bases that promote:

- Permanent and open environmental education processes, which include all stages of life and areas of education, not just regulated or formal.
- Development of differentiated and specific educational plans for different areas of the Andalusian mountains, based on previous studies that consider the local problems and shortcomings of each one of them.
- Educational strategies that start from a multidisciplinary approach, considering the cognitive, procedural, and attitudinal dimensions.
- From the conceptual point of view, we must contribute to renew traditional contents, incorporating knowledge of the concepts of sustainability and the impacts of climate change.
- At the procedural level, it is necessary to promote learning through conflict resolution that allows the identification of problems, gaps or needs so that specific educational plans can be designed in different protected areas such as mountain areas.
- The transmission of knowledge is not enough; it is necessary to emphasize environmental education as an individual and collective value, thus facilitating environmental governance and the citizen's participation, seeking the assumption of agreed commitments.

Collaboration between local (public or private) entities, with regional, national, and European institutions, with universities and research centers, in common projects that allow improving the position of these spaces compared to other more dynamic territories is essential.

Regarding educational materials and informational products, it is proposed that the public and educational services of Andalusia incorporate into their facilities the necessary means to host these productions, adding to their functions to become documentation centers for the spaces they make up.

Carrying out environmental education activities, even if they are abundant and involve the transmission of information on knowledge related to the Andalusian mountains, are insufficient without the design of educational strategies that maintain a common thread that relates the activities published, offered, and disseminated with plans, projects or programs promoted by local, public, and private entities.

Among the main expected results of the proposed educational strategies must be found to have led to a social change in mountain areas that promotes the synergistic definition of development and conservation in a self-sustained way over time. It is about putting into operation new social processes, that empower the population and make it a participant and protagonist of the definition of its own future in congruence with the conservation of its environment.