

La educación ambiental en la preparación del docente en la escuela primaria multigrado

Environmental education in teacher preparation in multigrade elementary schools

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RESUMEN: El artículo que se presenta es resultado del proyecto Un enfoque Paisajístico para conservar ecosistemas montañosos amenazados. Tiene como objetivo ofrecer algunas reflexiones sobre la educación ambiental en la preparación del maestro en la escuela primaria multigrado. Entre los métodos aplicados para su elaboración estuvieron el análisis de documentos, la observación participante, el análisis del producto de la actividad, y el criterio de expertos. Se arriba a la conclusión que las reflexiones ofrecidas contribuyen al perfeccionamiento del proceso de enseñanza aprendizaje, dadas las complejidades que se presentan en este tipo de centro educacional.

Palabras clave: Educación ambiental; Preparación; Desarrollo; Escuela primaria; Multigrado

ABSTRACT: The article presented here is the result of the project A Landscape Approach to Conserve Threatened Mountain Ecosystems. Its objective is to offer some reflections on environmental education in the preparation of the teacher in the multigrade elementary school. Among the methods applied for its elaboration were the analysis of documents, participant observation, analysis of the product of the activity, and the criteria of experts. It is concluded that the reflections offered contribute to the improvement of the teaching-learning process, given the complexities that arise in this type of educational center.

Keywords: Environmental education; Preparation; Development; Primary school; Multigrade

Introduction

At the World Conference on Human Environment, in Stockholm in 1972, the need for actions to strengthen environmental education was emphasized, which has been materialized by multiple researchers, among them, Valdés (1996), Mc Pherson (2005) and Márquez (2015).

It is important to highlight that these events have had their continuity to the present day and that in each of them the importance of continuing to offer solutions to the different problems that arise

in this area is emphasized. Hence, it is considered that the proposals offered do not fully satisfy the social need that arises.

The research carried out provides as a scientific result: models, strategies, systems of actions, alternatives, aimed at the teaching staff of multigrade primary education (in mountain conditions of 5th and 6th grade), however, it is considered that they can be enriched from the characteristics and particularities of each territory, which constitutes a social demand to continue their training process with the required quality, in correspondence with the demands posed to this type of education and in correspondence with the III Educational Improvement.

Multigrade schools are different from regular elementary schools because of the simultaneous attention that teachers in the same classroom and several different grades must offer to boys and girls of different grades and subjects; for this reason, specialized forms of work with differentiated treatment are required, so that the objectives of education can be fulfilled. They are created in order to guarantee the attention to the inhabitants of the most intricate regions of Cuba; the special conditions and characteristics that these communities have, it is considered that it is the most adequate way to be able to take the education of all the children to these corners of the country.

The research was carried out in the multigrade elementary school *Ciro Frías Cabrera* of the municipality of Yateras in which an intentional sample of 14 multigrade elementary teachers was taken, 9 of them from the *Frank País García* school of the same territorial zone, a territorial director, a cycle head and a methodologist.

The article synthesizes the regularities of the analysis carried out, which constitute pedagogical reflections that, although they are not unique, can provide a guide for the preparation of teachers of this type of teaching and in these conditions. For this reason, the objective is to offer some reflections on environmental education in the preparation of the multigrade elementary school teacher. It is concluded that the reflections offered contribute to the preparation of the teacher and in fact to the improvement of the teaching-learning process, given the complexities that arise in this type of educational center.

Development

Approach to the current state of teacher preparation in multigrade elementary school environmental education.

For the characterization of the general situation regarding the preparation of environmental education of the teachers of the multigrade elementary school, different methods and research techniques were applied, among these: analysis of documents, interviews, surveys and observation, 14 teachers of the multigrade grade (primary teachers), 1 territorial director, 1 head of cycle and 1 methodologist were taken as an intentional sample.

The research started from the knowledge and professional and research experiences in Primary Education, taking as a reference the experiences accumulated by the teaching staff of the *Ciro Frías Cabrera* elementary school located in the municipality of Yateras. The other multigrade schools of the popular council of Arroyo del Medio were included in the work itself.

In a second moment, the operationalization of the variable (level of preparation of the teacher in environmental education in the multigrade elementary school) with its dimensions (cognitive, procedural and valuational) as well as the indicators and the respective parameterization was carried out, so that the study could be undertaken with a systemic approach.

By means of the document study method (consultation of bibliography, literature, programs, textbooks and methodological guidelines for 5th-6th multigrade grades), it was possible to appreciate that the contents of environmental education in the multigrade elementary school do not reflect the expectations required by the current times, when an accelerated climate change is manifesting itself.

The objective of the classroom observation was to know the behavior of the teachers towards environmental education from the methodological work in the teaching-learning process in the subject of Natural Sciences. Fifteen classes were visited, eight of them from the basic curriculum, four from their own curriculum, and three from the optional curriculum; six of the seven teachers visited were evaluated as low and one as medium. With respect to the indicators referring to skills, 8 classes were visited, 6 were evaluated as low and 2 obtained the category of medium.

In the indicators of dimension III, the values of information, practical application, training and unit value in the subject of Natural Sciences linked to environmental education, of the 9 classes observed, 100% were evaluated as low.

In the implementation of methodological actions for the preparation of teachers in environmental education, several elements have an impact, such as: insufficient knowledge on the subject, teachers refer to the inadequate determination of the time, place and moment for their

implementation. The consideration of these barriers by teachers and directors is positive, as they are aware of them.

Seven teachers were interviewed about their preparation on the subject under analysis, 6 of them stated that they were not trained in environmental contents, and 1 teacher had it, but emphasized that he did not use it in his classes because he did not know how to do it. The above analysis leads to the determination of the following:

- Insufficient theoretical-methodological preparation of the multigrade teachers in the treatment of the knowledge of the subject Natural Science in correspondence with the existing situation of the environment in the environment of the community where the school is located.
- Poor mastery of the guiding documents of environmental education of the third moment of multigrade school development.

The diagnosis carried out shows the need to prepare teachers as promoters of Environmental Education by using the different ways of methodological work, as a task of order in the educational system, in order to achieve the objective of the scientific novelty of the research.

Environmental education. Some considerations:

Nowadays, the difficult problems that affect the environment are recognized, they are increasing day by day, causing great concerns all over the world, for this reason, the government, and all the organisms and institutions of the state, are getting ready to search for alternatives that contribute to the decrease of these problems, for the permanence of life on earth.

There is a growing and constant concern in the world for the conservation of the environment; scientific advances, industries, chemical products, and the same hand of man threaten the life of man.

Climate change and its devastating impact on the life of man mark a pause, aimed at reducing all aggressions towards the environment, nature has taken an advantageous position with respect to man, because in the face of such aggression, it offers a response as an indication of defense, it then attacks the life of man.

It is up to the teacher to have a deep preparation in environmental education, as well as to understand and interpret the systemic interaction man-nature-society, so that real processes of change are achieved, which are oriented towards a system of more harmonious relations between

them, nature and the environment that surrounds them, to facilitate the transition to sustainable and sustainable levels of development and provide them with a decent and equitable quality of life. This task requires an environmentally well-prepared teacher.

In the literature consulted, many research experiences related to environmental problems have been found, among which are the works of Leff (1992), Torres (1996), Novo (1996), McPherson (2005), Valdés (2000) and Roque (2000).

Valdés (2010), states that Environmental Education is the social awareness of environmental problems, in which the school, the family, the community and, in general, the whole social environment must intervene, which implies the personal responsibility of man and his collective participation, an aspect that the author of this paper considers and assumes, since it reflects the role of man as an essential protagonist in this whole process of preservation of the planet.

These researchers, in one way or another, emphasize the relationship between cognitive, affective and behavioral aspects in the development of a correct environmental attitude, which finds correspondence with the interests of this thesis. The need for a deep environmental education of teachers is considered, so that they have the necessary environmental and methodological knowledge to be able to train their students, thus revealing the law of the double formation proposed by Vygotsky (1999).

Many works approach the treatment of important aspects related to the environment from a curricular conception and others deal with it in different contexts with the educational intention, such is the case of the community environmental by educational institutions and others, while McPherson approached the environmental dimension in pedagogical careers.

In Guantánamo, there are also multiple works related to environmental issues such as, for example, methodology for the formation of environmental attitudes in protected areas, community environmental education from a pedagogical strategy, acoustic environmental education, and environmental education in the collective of the year, just to mention a few examples.

An approach to environmental education in the multigrade school is made by Valdés (1996), with his proposal Environmental education in the educational teaching process in the mountains of Cuba, which, according to the author, is the first study and research carried out in the country; He proposes a methodological strategy that although it is aimed at the preparation of the teaching staff of this education, at the present time it requires contextualization, given the demands of the

Life Task that is carried out in Cuba, as well as pedagogical actions that make possible its concretion, given the particularities of teaching in this context.

Nature is considered as man's environment and not only as a means to be used by him, which means that it is necessary to change his attitude towards it. This means that the idea of undertaking studies on the environment to contribute to the education of the individual is of great value, however, we cannot lose sight of the fact that this education is fundamental, if we take into account that we work in different ways, in the environment, for the environment and from the environment, where the three fulfill different purposes.

The aforementioned shows once again the need to educate the students of the third stage of development of the multigrade elementary school, through the subjects of Natural Sciences, of an environmental education based on the conditions and characteristics of the area where they are formed, of course, without failing to analyze their behavior in the world and in the country. It is necessary then to take advantage of all the educational potentialities of the content of the subjects and in particular, those of the object of analysis in this particular to be able to satisfy such a need.

According to Rodriguez (2004), he considers that:

(...) more than a style of education, environmental education is a process of educational character, aimed at forming attitudes, values, modes of action and behaviors in favor of the Environment, so to achieve an environmental approach in accordance with current trends it is necessary to transform attitudes and acquire new knowledge from the existing ones. (p. 10)

It is considered that this definition contains very valuable elements for the interests of this work, so it is assumed in order to guarantee such purpose in the teachers of the multigrade elementary school, so that the students can appropriate such important knowledge.

From what has been systematized so far, the authors of this article believe that it is evident the need for an education with an integrating approach, which has little observance with the methodological work in whose conception environmental education has a considerable incidence, as a formative process of norms and attitudes as categories of objectives of this, which prepares the new generation from the first grades so that they become aware of their incidence in the sustainable development of the context where they are or reside.

On the basis of the conceptions defended in this research, environmental education is a dimension of education and therefore of Pedagogy, which should be developed in all educational subsystems, due to the social task conferred to it in the preparation of children, adolescents and young people, without leaving out the university, which constitutes a political, economic and social purpose, therefore, even when it is not the only task of the teacher, he/she should be and be prepared to educate environmentally.

The above reveals the relationship between environmental education and the training process, which has been addressed by different authors among which Valdés (2008) and Mateo (2014) stand out. We assume the one offered by Valdés (2008), who states that:

Environmental education is very closely linked to environmental training. It is defined as a process of academic training and psycho-social formation of professionals in the social, natural or interdisciplinary sciences, in their basic or applied areas for the detection and solution of international, regional, national, provincial and, most especially, municipal and local environmental problems (p. 5)

For this reason, it is necessary for the multigrade elementary school teacher to have the necessary preparation to carry out quality environmental education, linked to the context where the school is located, in close relation to the content of the Natural Sciences subject program, particularly, for the purposes of this work, those of natural sciences in the second stage of school development.

Preparation of the primary multigrade teacher in environmental education:

Education is a social process that facilitates the acquisition of knowledge, skills or abilities of the individual, through learning or the construction of knowledge, as well as virtues, beliefs, habits, or other characteristics, and at the same time it is developed in a context of significance for the social subject in different educational and social institutions.

From the study carried out on teacher preparation, it was found that there is often a tendency to confuse the concepts of education, training and improvement with the concept of preparation. Even in some works aimed at the use of one of these categories, in the explanations that are made, other than those referred to here are used.

Numerous authors have made important contributions to the training category, both in the field of pedagogy and in the science of education. In these studies, authors such as: Alvarez (1999), Pernas (2004), Paz (2005), Fuentes (2009, 2011), cited by Oropesa (2018), stand out, who consider training as a category of pedagogical sciences aimed at creating a human being with

certain ideals, objectives and social purposes, in addition to considering it a process, whose objective is the development of the individual's potentialities.

The authors believe that training is the substantive process that provides us with knowledge, but also with social skills (such as proactivity, empathy, commitment, self-criticism, tolerance...), enabling us to interact with our environment with a more positive attitude.

A developmental formative process contemplates in an integrated way a set of social, historical-cultural influences and, of course, a systematized learning through the theory-practice link in an intentional way, which means that its contextualization is essential.

The model provided is divided into two branches, the first, academic training, which includes master's degrees, doctorates and specialties, and the second, non-academic training, which includes professional teacher training, training and professionalization.

The legal institutionalization of postgraduate education is recognized through the Postgraduate Regulations, which means that it is necessary to organize a preparation process, so that it is consistent with the new demands placed on education.

Teacher preparation is conceived as a permanent process of acquisition, structuring and restructuring of knowledge, skills and values to adequately perform the assigned functions. In order to reach higher levels, continuous education is required for those who manage the teaching-learning process, aimed at knowledge and preparation for professional performance. Like any other activity, teacher preparation must change and be perfected in correspondence with the development of society because it is constantly changing.

Preparation is closely related to training and the proposed activities should be built on a theoretical-practical basis that facilitates independence, innovative, responsible and human creativity with the integrality and efficiency required by the professional according to his field of action.

The term preparation, from the pedagogical point of view, has been addressed by multiple foreign and Cuban authors, among which are, Añorga (2014), Alvarez (1999); among others. All of them have generally agreed on the importance of training and that it enables the acquisition, expansion and improvement of knowledge and skills for professional performance and in its theory-practice link, it must be developed in close relation to the socio-historical context in which the training institution is located.

The author of this paper agrees with and assumes the definition of Añorga and Cols (2010, p. 10), of teacher preparation (professional) “as the system of actions duly organized, through a process of systematic improvement of their professionalism in conditions of socialization, which allows decision making and problem solving in order to meet the social demands of education”.

The definition assumed leads to the culture of transformation, to professionalism. The function of knowledge, a decisive factor in the economic, social, cultural and political life of the country through the teacher's performance in the local environment as a socializing entity in community work, is emphasized.

It is the author's criterion that teacher preparation (professional) is seen as a system of actions, organized, coherent, and systematic in conditions of socialization, which allows decision making and problem solving in the institutions to meet the social demands of the educational model.

Taking into account the systematization made by different authors and the aforementioned definition of professional preparation, it is considered that it serves as a premise to elaborate in a conceptual way, the preparation of the multigrade school teacher as a system of actions planned and structured in a coherent way that allows the appropriation of knowledge, skills and values for their professional performance, which enables the application of different methodological variants to effectively address the complexities of the teaching-learning process.

It is necessary to update, complement and deepen the knowledge, to appreciate a permanent evolution in order to be in accordance with the current model and demands, so it must be in accordance with scientific advances, the social responsibility that corresponds to the teacher (professional) of these times, this will be possible through the methodological work that is developed in the multigrade elementary school.

Methodological work and environmental education in the multigrade elementary school. Some theoretical considerations.

Methodological work is the work that, supported by Didactics, is carried out by the subjects involved in the educational teaching process, with the purpose of achieving optimal results in this process, hierarchizing the educational work from the instruction, to fully satisfy the objectives formulated in the curricula, according to R/M 145/2014 that modifies Resolution No. 210/07. In the author's opinion, the methodological work cannot be hierarchized, nor the educational work only from instruction, does it constitute a barrier for its better development.

The main functions of methodological work are planning, organization, regulation and control of the educational teaching process. Of great value in the methodological work is the self-preparation of teachers in the scientific-technical, didactic, philosophical, political-ideological and informatics aspects, essential for the performance of their teaching work in society.

The following are identified as its fundamental forms: teaching-methodological and scientific-methodological.

These two forms are closely linked to each other and in the management of the methodological work they must be integrated as a system in response to the proposed objectives.

The results of the scientific-methodological work constitute one of the main sources that allow the teacher to better develop the teaching-methodological work. In the same line of criteria, the methodological work constitutes one of the main ways for the preparation of teachers in order to achieve the realization of the integrating systematization that allows the fulfillment of the main directions, as well as the objectives of each subject. According to articles 43, 44 and 45 of Resolution No. 210/07 issued by the Ministry of Higher Education (MES, 2007)

In this sense, primary school teachers need environmental contents in the methodological subjects, since they do not have it incorporated in their mode of action within the study program in the subject of Natural Sciences.

The criterion is shared and it is a quite generalized tendency to identify the success of this task only with the teachers' mastery of the science they teach as a specialist with a deep knowledge of the content, which leads to undervalue the role played by the methodological aspects, which in the author's opinion should not happen, since a teacher very well prepared in his specialty is not conceived without the necessary mastery of the knowledge of pedagogy and didactics, so that he can actually carry out the objectives of education.

In this sense and revealed from the analysis made so far, that in the process of environmental education of the teacher from the methodological work is evident the relationship between the didactic components of the teaching-learning process, which in the opinion of the authors of the present work is essential, however, there are difficulties in the planning of the teaching-learning process, However, there are difficulties in the planning and integration of the contents of this objective in the programs and methodological orientations of the subjects of Natural Science and Geography in Cuba in the 5th and 6th grades, with the forms and types of methodological work approached in the teaching collectives in Primary Education.

It is opportune to emphasize that from this methodological work, a thorough analysis of the content to be approached should be carried out, so that the methods to be used and the means are specified, the latter being essential, since it is through them that the best demonstrations can be made to show the knowledge, skills and values to be formed, prior planning.

Methodological work according to (Horruitiner, 2011, p. 54) is the management of Didactics that in its development enables teachers involved in this process to work to optimize it and, consequently, to achieve the proposed objectives.

Methodological work constitutes the fundamental link in the preparation of primary school teachers, especially those who work with multigrade students, since it is aimed at preparing them to work on individual differences on the basis of teaching and educating students, to intervene in the different contexts where they will work as social subjects, based on the content of the different subjects that comprise it, taking into account the essential processes to be faced in later years such as: teaching classes, methodological work sessions and the strategy to be followed for their work in these complex grades.

What has been systematized so far in terms of teacher training, preparation and environmental education in multigrade primary education through methodological work allows considering that it constitutes a process, is systemic, systematic, involves interaction among teachers, favors their integral development and is directed and oriented to development, towards the fulfillment of the specific social objectives in the Model of the Primary Education Professional.

Based on the above analysis, the definition of environmental education of the teacher is assumed from the methodological work as the process of integration of knowledge, skills and environmental values with the methodological procedures of the educational agents from their interaction in the collective. (Márquez, 2015).

The definition insists on the formation and integration of knowledge, skills, values, guiding ideas and methodological procedures as a working tool towards the environmental and the educational from the fundamental forms of methodological work.

The methodological work for the preparation of the primary teacher in a multigrade school constitutes a fundamental element, since it is an essential basis for achieving an efficient teaching-learning process, taking into account that it is here where the teacher is prepared to face the complexity of the contents and the attention to the individual differences of the students.

The preparation of the multigrade elementary school teacher is developed in two fundamental variants at the present time.

First variant, it is developed with all the teachers of the territorial area that constitutes it around 8 to 9 schools, in this variant diverse orientations are issued that must be fulfilled in the educational teaching process such as, the priorities, the political-ideological work and the motivations, all these elements to link it in the classes of the different curricula.

Second variant, in the cycle collective, where several teachers from different schools of the same cycle participate, being this the most important and complex, since several aspects that are decisive for the educational teaching process are analyzed, making the analysis of contents of a certain study unit to look for variants in the possible dosages, the methods, procedures, system of skills, didactic procedures and the different dimensions to be taken into account in developmental learning, applying three fundamental dimensions that allow orienting the teacher about relevant aspects of the development of schoolchildren, these being the cognitive, reflexive, regulatory and affective.

From the above, it is inferred that the environmental education topics do not have an interdisciplinary treatment, it is not specified in the study plan, which contents will be taught in the Natural Science subjects in the second moment of development, only in the curricular strategy, which is not enough, causing the students not to have a wide knowledge of the activity, as well as the pedagogical and didactic systematization of them on the part of the teacher.

The systematization carried out on the subject under analysis leads the author to reveal the following as essential features of the teacher's environmental training from the methodological work:

The **environmental**: abiotic, biotic, socioeconomic and cultural elements present in nature and society are interposed. They are expressed in different ways such as: management, methodological axis, openness and thought for a constructive action; others through informal and non-formal formal ways with a systemic character from the teaching activities; which in fact leads to environmental education and training of the teacher from the methodological work for a sustainable development from the local environmental reality.

The educational: it relates the rules of conduct in the environmental training of the teacher from the methodological work, which positively influences the education of the students as carriers of

the set of socio-educational influences derived from the teacher-student interaction and from the personal example of the teacher.

The methodological: the characteristics of the teachers are combined with those that identify them from their knowledge, skills and standards of conduct in their modes of action, as an important and necessary aspect in the structuring of a process of sensitization, reflection and awareness for the solution of environmental problems to be taught in the subjects.

These features have the characteristics of being essential, interdependent and dialectic seen from the instructive, educational and developmental aspects, both for the strategy and for the environmental training from the methodological work, each one of them cannot be seen individually without making reference to the others, and the changes that prevail in one of them have as an effect the change in the others, having as purpose to improve and expand the knowledge, the environmental, the methodological and the educational in an integrated way.

As an effect of the above, the author sees education as a practical term not only to form attitudes and norms of conduct, but from the instruction justifies the environmental education of the teacher from the methodological work, as a process of sensitization, awareness and taking positions in acting in favor of its transformation.

- The authors of this article are of the opinion that the environmental education of the teacher from the methodological work is a related process, which must be mastered by the teacher so that they can appropriate a theoretical-methodological instrument that guarantees the transmission of this knowledge to their students, due to the role they play in society, hence, the reason for the reflections offered.

Conclusions

The epistemological systematization carried out, evidenced the limited response from the preparation of the multigrade primary school teacher to develop environmental education through the subjects of Natural Sciences in the third stage of development, an aspect that limits their professional performance according to the requirements of the III Educational Improvement.

The results obtained through the diagnosis corroborate the need to improve the preparation process of the multigrade elementary school teacher for the development of environmental education and demonstrate the need to make proposals that make possible the elevation of the

quality of the teaching-learning process with an integral and interdisciplinary view in this education.

The reflections offered contribute to improve the preparation process of the multigrade elementary school teacher and in fact to the elevation of the quality of the teaching-learning process of Natural Sciences in the third moment of development, which contributes to a higher quality of the teaching-educational process.

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