Original article

Perspectives of agricultural education in Junior High School

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ABSTRACTS

Preparing adolescents to relate to their environment is part of the process of acquiring basic learning. The adequate treatment of the curriculum allows solving the problem associated with the limitations of the educational system, in order to favor agricultural education in Junior High School students. The purpose of the proposal is to guarantee the preparation of the adolescent for the care of the agroecosystem, as a result of the use of a methodology deployed with a sample of teachers and students of this educational level, to promote agricultural education based on the formation of agroecological attitudes and socioemotional skills essential for this purpose.

Keywords: Training; Agricultural education; Agroecological attitudes; Curriculum.

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Introduction

Biodiversity conservation and the need to mitigate the undesirable effects of climate change have been identified as priorities in various national and international conclaves; they have been assumed as pressing problems for the continuity of the human species.

The international community uses this to develop various intervention projects that guarantee the sustainable development of each nation. In this lies the main guarantee to contribute to food security, taking as a starting point the eradication of extreme poverty.

The Cuban school has among its educational principles, the link between study and work, masterfully foreseen by Martí in 1884; as well as Salas (1953) when he pointed out that "not only agricultural explanations and mechanical instruments must be carried by teachers through the fields, but also tenderness, which is so lacking and so much good for men" (p. 514).

This principle is fulfilled in a differentiated manner at each educational level, pre-establishing the precise ways of linking study with work and in adaptation to the moments of development through which the student goes through, to their individual differences, as well as to the formative demands associated with the curricula of each Education.

This is essential in the effort to respond to the international commitments undertaken; but above all, for the implementation of the Guidelines of the Economic and Social Policy of the Party and the Revolution, approved by the VI Party Congress of 2011; as well as the National Plan for Economic and Social Development until 2030 (Council of Ministers, 2014).

Since the early years, after the triumph of the Cuban Revolution in 1959, the educational system has found various ways to establish the link between students and agricultural work, for which the school to the countryside plan, the creation of circles of interest, work in the orchards of the educational institutions themselves, as well as the basic secondary schools in the countryside (ESBEC), the pre-university schools in the countryside (IPUEC) and the student work brigades (BET), among others, were conceived.

Each of these modalities favored the use of precise ways to involve students directly in the economic life of the country, through the exercise of various agricultural activities, in which the link with the content of the subjects, or with the economic and social events of the country, among others with direct impact on the integral formation of the student, was weak or non-existent.

Although it is true that the study-work relationship has led to learning about coexistence, the formation of interests and needs in adolescents, as well as personal and national identity, it is fair to recognize that these interests and motivations have not always been sufficient to ensure the formation of an attitude committed to the environment.

In addition, the classroom is not systematically conceived by teachers as an important scenario to form in high school students interests related to the environment and particularly to agroecology, which is a problem to be solved and a limitation of the educational system that concerns agricultural education in Junior High School students.

The behavior of the referred process of agricultural education has been analyzed by authors from different perspectives that reveal the absence of integrative educational practices that promote, from the teaching-learning process, the responsible action of the student in facing the diverse and complex environmental situations that affect the agro-ecological environment.

The need to generate transformations to strengthen agricultural education from the teaching-learning process, conditions the proposal of a methodology with a transversal approach to enhance the agricultural education process in Junior High School students, as an essential objective of the research carried out.

Development

In the Cuban context, agricultural education has become a socially recognized need in various areas of analysis associated with the "2030 Agenda for Sustainable Development". Specifically, the National Plan for Economic and Social Development 2016-2030, refers in Objective 8, belonging to the Strategic Axis: Natural Resources and Environment, to the priority that should be given to all actions that allow "promoting and increasing education, awareness and environmental culture of citizens, as well as their effective participation and the role of the media, in a harmonious, systematic and coherent manner, incorporating the whole Cuban society" (Council of Ministers, 2014, p.20).

Traditionally, agricultural education has been seen as something directly linked to the rural, as "a matter of routine" (Gasperini, 2000, p.3); however, it is a formative process

that prepares the student for the acquisition and implementation of knowledge involved in the proper development of agriculture and the use of natural resources.

This is a process capable of raising awareness about integrated land management, based on generating attitudes and promoting responsible behavior from an ethical and aesthetic perspective (Pérez, 2016). In this regard, Funes (cited in Fernández and Fundora, 2016) points out that:

> A key element for a broad use of diversity for agriculture and agroecological crop management, is to develop environmental awareness in different strata of the population, using all available avenues as biodiversity is the first and most important step to achieve agroecological systems (p.8).

In the development of environmental knowledge, the teaching-learning process occupies a special place, enhanced by the guiding work of the pedagogical group, through the use of methods and procedures that focus on the development of cognitive processes and, essentially, of thinking as a starting point for knowing the environment and understanding the value of the man-nature relationship and its expression in everyday life, which offers opportunities to deploy agricultural education as a directed and planned process in the educational system.

Agricultural education is conceived as a gradual process of knowledge of the environment and the establishment of a developmental dynamic between agriculture and education, which is based on the intentionality of the educational work established with children and adolescents in terms of knowledge and care of the agroecological environment; "many children will be the farmers of tomorrow and educated children have better opportunities to become more productive farmers" (Gasperini, 2000, p.2).

In Cuba, this process begins in early childhood with the development of sensory-perceptual stimulation activities, based on the use of various teaching methods and procedures for the treatment of animal and plant life forms, with emphasis on the perception of sounds, textures and colors.

> At the kindergarten age, these possibilities are broadened and enriched through the processes of appreciation of the environment and, particularly, guided observation of animal behavior and natural phenomena, as well as the life forms of animals and plants.

With the entrance to school, agricultural education is increased from the curriculum through subjects such as: The world we live in, Biology and, Geography, which provide

the schoolchild with knowledge and values that deepen and diversify in close relation to the satisfaction of cognitive needs and affective experiences that are generated in him, strengthened by the demands of the social context in which learning takes place; however, it is during adolescence that the possibilities for the development of agricultural education increase, for this it is necessary to attend to the personological characteristics and the demands that derive from the curriculum in Junior High School.

The inclusion of agricultural education in Junior High School is based on revealing the essential relationships between the cognitive-motivational structuring of the curricular content and a perspective on the integral use and management of the components of nature, which favors the promotion of a rationality in the agricultural production process, according to the general and specific objectives of the formative process in Junior High School.

Among the general educational objectives foreseen for the curricular adaptations (2020-2021) in Junior High School (Ministry of Education [MINED], 2020), it is intended that students at this level achieve:

> Manifest with concrete actions in daily life a conscious and responsible attitude, of maintenance and preservation of nature, biological diversity and cultural heritage, in their closest context, in the understanding and knowledge of the interrelationships of the economic, political social and ecological dimensions of sustainable development at local, national and global levels.(p.2)

The aforementioned is guaranteed from the curriculum set for Junior High School, which makes possible through subjects such as Mathematics, Spanish-Literature, History, Natural Sciences, Biology, Chemistry, Geography, Physics, Geography of Cuba, Civic Education, Labor Education, Artistic Education, the acquisition of knowledge, skills and values that have high incidence in the process of Agricultural Education, according to what is stipulated in the Junior High School Project (Ministry of Education [MINED], 2003).

Valdés (2017) in the Doctoral Thesis "Escuela Técnica Superior de Arquitectura de Madrid", makes an aesthetic estimation of the landscape: criteria that are assumed in the work for a formative process, from a landscape-aesthetic perspective as a social condition, of solidarity with the components of nature and man's own existence, characterized by connoting the values of knowledge of agricultural activity.

It is therefore a question of seeing agricultural education as a process of transversalization from the academic contents in the dynamics of the formative process of Junior High School, through heuristic procedures and actions that imply an educational process where attitudes of respect, care and enjoyment of what is observed are generated towards the agricultural environment; of recognizing the landscape as a natural process and its agricultural essence, since it is a process created by man in his active relationship with nature.

The accelerated development of the cognitive-instrumental processes that adolescents can reach at this educational level, as well as the wealth of affective-motivational acquisitions and the increase in their physical possibilities, provide favorable conditions for designing and implementing, from the different subjects of the curriculum, learning tasks with an interdisciplinary perspective that potentially mobilize them to learn about, investigate, question and interact creatively and responsibly with the agroecological environment.

The work of Mitjáns (2013) highlights the need to promote creative learning, from the school context and in this regard states that:

> There is an urgent need to promote ways of learning that promote the active character of individuals in their contexts of action, contributing to the development of subjects with the capacity for transformation, so that when necessary they have the ability to act as agents of change in the spaces in which they develop (p.316).

In order to achieve this purpose, it is necessary to promote the process of personalization of adolescent learning in order to generate their own representations in the teaching-learning process, an issue in which the quality of the pedagogical team's preparation for learning orientation plays an essential role, underlying the pedagogical-professional updating of teachers for the adequate didactic management of the teaching-learning process in Junior High School.

The diagnostic exploration carried out to learn about the state of preparation of the pedagogical collective for the development of agricultural education in the selected schools was based on documentary analysis, as well as on the application of surveys and the observation of teachers' professional performance. For this purpose, an intentional sample of 32 teachers from 3 rural basic secondary schools in the province of Santiago de Cuba was selected.

On the other hand, the process of assessing the relevance of the proposed pedagogical conception, as well as the feasibility of the designed methodology took place through the method of specialists' criteria. A two-round selection procedure was followed, which resulted in a total of 25 professionals, of whom 21 (84%) are Junior High School teachers and 6 (24%) belong to agricultural labor entities. Of these, 3 (12%) have a PhD in Pedagogical Sciences; 21 have a Master's degree in Education (84%). All of them have experience in directing the process of student formation in Junior High School.

The processing and interpretation of the main results made the following evident:

- There are insufficiencies in the methodological work of teachers to deploy the process of Agricultural Education.
- The opportunities offered by the teaching-learning process to develop critical environmental thinking in Junior High School adolescents, as well as essential qualities of their personality, are not taken advantage of.
- 90.6% (29) of the teachers experience difficulties in identifying and approaching the elements of the agroecosystem in relation to the contents of the class, in the different subjects.
- A 53.1% (17) of the teachers reveal the formal and atomized approach to the contents that favor agricultural education at this educational level and, consequently, the insufficient attention to the individual differences of adolescents.

The systematization of the results obtained led to the elaboration of a Methodology for the mainstreaming of agricultural education in Junior High School that responds to the following strategic lines:

I. The implementation of a pedagogical conception of agricultural education in Junior High School.

II. The improvement of the methodological work for the mainstreaming of agricultural education in the different grades of Junior High School.

III. The modeling of learning environments that favor practice in agroecological environments.

IV. Consolidation and evaluation of learning to regulate personal performance in agroecological environments.

The evaluation process of the essential contributions was focused on the analysis of the pertinence of the proposed pedagogical conception, as well as the feasibility of the designed methodology, for which two work moments were conceived:

I. The 2019-2020 school year and,

II. The 2020-2021 School year,

In both moments, the method of specialists' criteria was used to carry out an assessment of the essential aspects related to how to educate in agriculture from the content in Junior High School. The analyses provided by these professionals made it possible to endorse the use of a transversal approach to enhance the agricultural education process in students who are trained at this educational level.

100% of the specialists placed themselves between 7 and 9 when self-evaluating their knowledge on the subject and in turn consider that there is a strong correspondence between the proposed pedagogical conception and the strategic lines that guide the design and implementation of the proposed methodology.

The criteria issued by 100% of the specialists regarding the relevance of the essential categories of the proposed pedagogical conception, are located in the category of very appropriate and incorporated approving criteria, such as:

- ... this conception helps teachers, to achieve better results with the boys ... sometimes one is not clear how to do and this proposal helps us to prepare ourselves better,
- ... the contents have depth and are in line with the 2030 Agenda,
- ..., so one already knows how to design the activities,
- ... they are a guide for the teacher's preparation; they have scientific rigor and facilitate the work.

Likewise, 93.3% of the specialists (28) considered that there is a high correspondence in the relationship established between the strategic lines proposed to implement the methodology and the actions and procedures defined for its concretion.

The specialists offered certain recommendations aimed at improving the proposal, since they visualized as threats that could affect the feasibility of the methodology the lack of time to implement the proposal, the need to create spaces for the systematic improvement of the pedagogical group, as well as the existence of teachers with low levels of motivational commitment for the implementation of the proposal.

Strengthening the relationship between school and agriculture is an issue established as a necessity in the Cuban context and, as analyzed by Mitjáns (2013), the promotion of creativity is essential to mobilize adolescents towards a change of attitude towards agriculture and nature in general, which will result in greater commitment to their own individual development, but also towards the improvement of the context in which they live.

It is precisely in this link with agriculture that it is possible to validate the knowledge provided by the different subjects in Junior High School, provided that the teaching staff is capable of promoting, from the teaching-learning process, the unity of the cognitive and the affective, concretized in the generation of spaces that allow the adolescent to reflect on everything related to agriculture, its usefulness, care and beauty.

This confirms the priority role played by the school, through the educational guidance process it deploys, according to the needs identified in the adolescent and which constitute the starting point for addressing their potential and shortcomings, with respect to environmental demands and the urgency of meeting them, an issue that is corroborated by Fernández and Sánchez (2020), when they point out that:

> Perhaps the only way to save the Earth, on a global scale, is education. A transversal education in environment, landscape and sustainability that really provides solutions that flee from the short term and that forms citizens of the present and the future, aware that the planet and all its components are limited. (p. 35).

The proposal is consistent with what has been proposed by the aforementioned authors and, in turn, favors the realization of the essential educational aspects associated with the Junior High School Project [MINED, 2003], in its different versions and also enriches what is foreseen in the Curricular Adaptations for the 2020-2021 school year, since it favors the identification and development of environmental skills and attitudes in adolescents, based on learning that takes into account the agricultural environment. In another aspect, Gasperini (2000, p.2) agrees with the idea that educated children have better opportunities to become tomorrow's farmers, which in turn responds to the state's policy on the training of human resources, since the country is an eminently agricultural one.

The proposal leads teachers to a higher level of self-preparation with respect to the agroecological environment, all of which influences a greater applicability of the

curricular content of Junior High School, in the preparation of students for life, which has a direct impact on the improvement of the relationship with the agroecological environment and consequently in their integral formation.

Conclusions

Agricultural education for adolescents is a process that goes across the entire Junior High School level and mobilizes the adolescent's personal resources, which gives it an important place in the process of this student's integral formation and conditions the need for a developmental teaching-learning process.

The results of the exploratory diagnosis of environmental education at this educational level lead to shared dissatisfaction with the role played by the school and, particularly, by the pedagogical team in promoting creative learning that consolidates in adolescents the subjective resources that guarantee their active involvement in the care and conservation of the environment, as well as in the exercise of responsible environmental practices.

The specialists' assessment of the pertinence and feasibility of the pedagogical conception, as well as of the strategic lines that guide the conception and implementation of the proposed methodology, allows recognizing that both, in their foundations and structure, guarantee the level of preparation required by Junior High School teachers to promote the agricultural education of adolescents at this educational level.