

REVIEW

Environmental education and art: visual arts as a tool for ecological education in primary schools in Cuba

Educación ambiental y arte: las artes plásticas como herramienta para la educación ecológica en la enseñanza primaria en Cuba

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ABSTRACT

The research addressed environmental education in Cuba as an essential educational process that, since the Revolution, has been linked to the need to educate citizens who are aware of the connection between society and nature. It was emphasised that the global environmental crisis originated in unsustainable development models and that Cuba, although affected by these effects and by the economic blockade, has prioritised education as a means of reversing this deterioration. Environmental education was defined as a continuous process, integrated at all levels of education, with the aim of promoting values, habits and knowledge that enable harmonious coexistence with the environment. The contributions of international conferences and national strategies in promoting this discipline were highlighted, as well as its inclusion in formal, informal and community programmes. Particular emphasis was placed on the role of the visual arts as a teaching resource to raise awareness among students from an early age. Art was identified as a tool capable of communicating and transforming attitudes towards the environment, highlighting movements such as ecological art or land art and local experiences such as community projects led by Cuban artists. Finally, an environmental assessment was presented in the municipality of Arroyo Naranjo and at the Jesús Miguel Iglesias primary school, where a system of educational activities through the visual arts was designed for 5th grade students, with the aim of improving their environmental awareness and commitment.

Keywords: Environmental Education; Visual Arts; Sustainability; Ecological Awareness; Primary Education.

RESUMEN

La investigación abordó la Educación Ambiental en Cuba como un proceso formativo esencial que, desde la Revolución, se vinculó a la necesidad de formar ciudadanos conscientes del vínculo entre la sociedad y la naturaleza. Se resaltó que la crisis ambiental global se originó en modelos de desarrollo insostenibles y que Cuba, aunque afectada por esos efectos y por el bloqueo económico, ha priorizado la educación como vía para revertir ese deterioro. Se definió la Educación Ambiental como un proceso continuo, integrado en todos los niveles educativos, con el fin de promover valores, hábitos y conocimientos que permitan desarrollar una convivencia armónica con el entorno. Se destacaron los aportes de conferencias internacionales y estrategias nacionales en el fomento de esta disciplina, así como su inclusión en programas formales, informales y comunitarios. Particular énfasis se puso en el papel de las artes plásticas como recurso didáctico para sensibilizar a los estudiantes desde edades tempranas. Se identificó al arte como una herramienta capaz de comunicar y transformar actitudes hacia el medio ambiente, destacando movimientos como el arte ecológico o el land art y experiencias locales como proyectos comunitarios liderados por artistas cubanos. Finalmente, se presentó un diagnóstico ambiental en el municipio Arroyo Naranjo y en la E/P “Jesús Miguel Iglesias”,

donde se diseñó un sistema de actividades educativas mediante las artes plásticas para estudiantes de 5to grado, con el objetivo de mejorar su conciencia y compromiso ambiental.

Palabras clave: Educación Ambiental; Artes Plásticas; Sostenibilidad; Conciencia Ecológica; Enseñanza Primaria.

INTRODUCTION

The environment comprises the basic elements of life on the planet, namely soil, water, the atmosphere, and the living organisms that these elements support. This is not a misconception, but it is incomplete since it also includes the interactions of these elements with each other and humans in particular. In this process of reciprocal actions in which humans play a leading role, new components of the environment emerge, including historical, cultural, social, and aesthetic components.⁽¹⁾ The contemporary environmental reality that concerns us originates in the development systems adopted over the last few centuries, based on irrational patterns of production and consumption that have led to the backwardness and poverty afflicting the vast majority of humanity. The protection and preservation of the environment worldwide has been one of the main priorities of our race in recent years. To this end, various complex tasks have been carried out to identify the causes and effects of environmental problems and thus draw up strategies to curb the accelerated and irrational exploitation of natural resources. Cuba is not exempt from the effects of the irrational development patterns inherited from capitalism, which it was embroiled in more than 50 years ago. Added to this is the intensification of the US government's economic blockade, which limits access to the funds necessary for its development. Since the triumph of the Cuban Revolution in 1959, our country has taken measures to make education available to all. To this end, various tasks have been outlined, and many programs have been created to advance this mission successfully.^(2,3,4)

Environmental education is one of the main tasks that the revolutionary government has set itself to guarantee that human beings receive a comprehensive education that enables them to live in harmony with our natural and social environment. The importance of this discipline as a subject of study at different levels of education is vital for conserving a sustainable world. Therefore, it is necessary to begin an intense struggle from an early age to renew the forms of production and consumption that cause the deterioration of our natural habitat, the Earth.

DEVELOPMENT

Environmental Education in Cuba

Before delving into the key aspects of Environmental Education in Cuba, it is necessary to establish the main definitions of basic concepts such as Environment, which is defined according to Law No. 81 "On the Environment" as "the system of biotic, abiotic, and socioeconomic elements with which humans interact, while adapting to it, transforming it, and using it to satisfy their needs."⁽⁵⁾ The above general definition encompasses the main characteristics of this concept. At the same time, Environmental Education has been characterized as a process that prepares citizens to prevent and solve environmental problems, thereby improving citizens' quality of life, which is more than just the standard of living. Different organizations issue various criteria for Environmental Education at different times and in other contexts:

During the First UNESCO Intergovernmental Conference in 1995 (Toltoibea), Environmental Education was defined as: "the process of recognizing values and clarifying concepts to foster the attitudes necessary to understand and appreciate the interrelationships between humans, their culture, and their biophysical environment. Environmental education also involves participation in decision-making and the development of a code of behavior concerning issues related to the quality of the environment".⁽⁶⁾

Environmental Education, viewed from the perspective of pedagogy, by Margarita Mc Pherson Sayú in her article "Environmental Education as a Means of achieving Interdisciplinarity in Teacher Training," states that: "Environmental Education behaves as a permanent educational pedagogical process and not as a particular subject. This is because it is closely linked to education in general, being sustained, developed, and implemented based on general educational principles of centralization and decentralization, unity and diversity, systematicity, generality and particularity, and massiveness and quality. This allows Environmental Education to develop in the Teaching-Learning Process (TLP) coherently and harmoniously, promoting skills, attitudes, and values that enable observation, understanding, identification, expression, and appreciation of the main aspects, situations, and problems in nature and human actions".⁽⁷⁾

However, the author of this research accepts the definition proposed and approved by the National Assembly in Chapter Two of Law #81 on the Environment, which defines it as: "...a continuous and permanent process that

constitutes a dimension of the comprehensive education of all citizens, aimed at ensuring that the acquisition of knowledge, the development of habits, skills, abilities, and attitudes, and the formation of values harmonize the relationships between human beings and between them and the rest of society and nature, to promote the orientation of economic, social, and cultural processes toward sustainable development”.⁽⁸⁾

These criteria reveal similarities, which demonstrate that the purpose of environmental education is to improve the quality of life of present and future generations by promoting sustainable development, respect for all forms of life, and the formation of more just and ecologically balanced societies where individual and collective responsibility is expressed and human and national diversity is respected.⁽⁹⁾

The term Environmental Education began to be used in the late 1960s. Its origin is linked to the interdisciplinary approach to analyzing environmental problems promoted between the natural sciences and the social sciences at the primary and secondary levels of education.⁽¹⁰⁾

Some nations had independently proposed educational policies to protect and improve quality of life. In July 1970, the French government formulated the “Program of 100 Measures,” which sought to involve the population in protecting the natural environment. Chapter 10 of this program aimed to find a pedagogy that would place individuals in touch with their environmental reality, raise public awareness, and incorporate ecological issues into basic and secondary education. Other countries, such as England, Germany, and the United States, also developed similar programs.⁽¹¹⁾

In June 1972, the United Nations Conference on the Human Environment was held in Stockholm, Sweden. It was one of the world’s most critical environmental issues at that time, as it was the first time that the concept of the environment as a whole and its relationship with humanity was examined at the international level. Its importance and timing marked the beginning of a series of intergovernmental meetings aimed at reflecting on environmental issues and proposing alternative solutions with a global reach. At this meeting, it was agreed and adopted that June 5 would be designated “World Environment Day” to stimulate the fight for environmental education.

Ten years later, in 1987, at the International Congress on Environmental Education and Training held in Moscow, Russia, the aims of this meeting were not limited to reviewing what had been achieved so far but also sought to define guidelines for education for the 1990s through the International Strategy for Environmental Education.⁽¹²⁾

Among the objectives pursued by Environmental Education are:

1. Help people clearly understand the existence and importance of economic, social, political, and ecological interdependence in urban and rural areas.
2. Provide all people with the opportunity to acquire the knowledge, sense of values, attitudes, active interest, and skills necessary to protect and improve the environment.
3. Instill new patterns of behavior in individuals, social groups, and society as a whole with regard to the environment.

It is essential to highlight that the development of active and creative environmental Education enables and contributes to shaping personalities with values that make environmental protection a practical reality rather than a theoretical concept.⁽¹³⁾

Environmental Education has also been reflected in the Revolution’s programs. Of great relevance was the impact on the population of the course “Introduction to Environmental Awareness” offered by the University for All in 1999. It was broadcast on Cuban national television channels and aimed at all age groups, with the objective of contributing to the socialization of knowledge on environmental issues.⁽¹⁴⁾

Within the National Education System, collaboration between CITMA and MINED has been strengthened for the development of Environmental Education. Actions have been adapted to changes that have occurred and are planned, both in terms of curriculum improvement in the various subjects and in the training of comprehensive teachers within the framework of the municipalization of teacher training universities.

In formal Education, elements related to the environment have been institutionally introduced for several years into programs at different levels, especially those whose subject matter is linked to natural systems, with greater emphasis at the primary level.

Efforts are also being made in higher Education, particularly in courses related to natural resources and in some teacher training centers, where significant results have been achieved in research related to solving environmental problems.

In informal Education, efforts are also being made to systematize the transmission of messages that stimulate care and protection of the environment and establish harmonious human relations in the neighborhood and community through information and dissemination systems.⁽¹⁵⁾

Various environmental education projects and ideas involve a wide range of state institutions and organizations, as well as Cuban civil society. These are characterized by the search for local solutions to environmental problems and the active participation of different sectors of the population, including the

National Environmental Education Strategy.

The National Environmental Education Strategy

This long-term educational program sets out the state's environmental policy, including the central projections and guidelines for reorienting and strengthening citizens' Education toward awareness of sustainable development. CITMA is responsible for developing environmental education strategies and promoting their implementation, encouraging the execution of programs in all sectors of the economy and services, social groups, and the general population. To this end, it will coordinate with MINED, MES, the Ministry of Culture (MINCULT), the media, and other relevant bodies and agencies.⁽¹⁶⁾

Environmental Education in Primary Education

Primary Education clearly describes why it is essential to educate about environmental conservation and the leading role that educational institutions play in this reality, becoming authentic centers of change in students' perspectives in transforming their responsibilities towards the environment and its conservation.

From a methodological perspective, the aim is to immerse students in the environmental reality of the protected area through experiential and active methods, which ensure a meaningful experience. Without losing sight of the fact that some beneficiaries who live near the areas cannot travel to them, elements and activities must be developed to disseminate information and promote appreciation of the area outside it, with particular emphasis on the use of methods that encourage community participation in the conservation of the protected natural area. This includes incorporating community and cooperative activities that favor achieving the objectives specifically for environmental preservation.

In developing the teaching and learning process focused on the environment in primary Education, educators and promoters must take into account the pedagogical definitions of the essence of this complex phenomenon. The author Ramírez (2007) points out that "the school teaching process is very complex, and its development is influenced by a series of components that must be interrelated in order to achieve optimal results."

Optimizing the process without components such as prior behavior, metacognition of students and teachers, educational context, resources, strategies, and planning is not possible, as these do not interrelate.

Students must improve in all areas, which cannot be achieved by attempting to implement a single teaching model. That is why Díaz (2006) points out that "progress in teaching consists of the growing mastery of a variety of models and the ability to use them effectively." Teacher training should reflect this reality and prepare future teachers to master a basic repertoire of six or eight models to meet their future needs.⁽¹⁸⁾

It is interesting to note that the teaching intended here must be lasting and truly meaningful, demonstrated daily in the conservation of the environment, initially within the institution but with the aim of extending this to family and community contexts. This should aim at a definitive consolidation of both cultural and artistic aspects, which can be channeled through artistic activities related to environmental conservation.

Environmental Education through the Visual Arts

Throughout history, the arts have witnessed humanity's development and accompanied man in his evolutionary process. This has been possible thanks to the communicative function in all artistic works. The visual arts have played a fundamental role in this sense due to the wide range of expressions encompassed by this concept, including the plastic arts, an artistic manifestation adopted in this research to promote environmental Education.

To work with these manifestations of art, it is necessary to define them conceptually, beginning with the visual arts.

The visual arts are those artistic expressions that exist objectively as matter in space and can be appreciated through the senses of sight and touch. They encompass the traditional plastic arts, including drawing, painting, engraving, and sculpture, among others, as well as expressions that incorporate new art-oriented technology or unconventional elements and whose main expressive component is visual—also called new media art, which includes photography, video art, digital art, net art, and fan art, among other expressions that appeared in 20th-century art, such as installation, intervention, land art, environmental art, ephemeral art, mail art, urban art, public art, and kinetic art, among others.⁽¹⁹⁾

The plastic arts involve knowing how to create with matter. Mc. Graw Hill Figueroba defines them as "a series of graphic-plastic actions and activities in which sight and touch are involved to appreciate them and stimulate our imagination and thought. They combine two elements, form, and content".⁽²⁰⁾

The plastic arts are all works developed on a plane or in space based on the organization of design principles and elements, which endure in time and space and are perceived by sight and touch. Within the plastic arts, there are several manifestations defined by their physical expression, such as sculpture or painting.

The arts have more than one function, among which the following stand out: their communicative function, which dates back to the origins of man and arose from the need to establish a code of communication between

people. Cave paintings are an example of this form of nonverbal language.

The aesthetic function is always present in all plastic works because when this manifestation arises consciously, it has a totally aesthetic and decorative character.

The first representative painters of our country reflected the Cuban landscape for decorative and aesthetic purposes. Among the most frequent themes of the period were seascapes, fields, interiors, and urbanism. Among the leading representatives of these themes are Nicolás de la Escalera (1734-1804), Esteban Chartrand (1823-1884), Valentín Sanz Carta (1849-1888), and Armando Menocal (1861-1942), among others. Although nuanced by the warm tones of the European steppes and influences from European academies, these works represented the characteristics of Cuban flora and fauna.

The theme of landscape in the visual arts reflects the relationship between man and nature, although the works were created for decorative purposes rather than communicating. This changed when art was used as a channel of communication to raise viewers' awareness about caring for and coexisting with nature. Thus, in the mid-20th century, artistic movements such as Environmental Art, Land Art, and Arte Povera began to gain strength.

Environmental art emerged in the late 1960s. From its beginnings, this art ran parallel to ecological awareness. It appeared as a form of expressing environmental art, emphasizing the biological origins of humans, their kinship with all life, and their continuous belonging to and dependence on the biotic community. This term can generally be used to refer to art that deals with ecological issues or the natural environment through an awareness of the fragility of nature, through the investigation of natural phenomena, through the use of natural materials gathered outdoors (such as twigs, leaves, stones, soil, feathers; often called Nature Art), and mainly by not contributing to environmental degradation (including "green" works made with biodegradable or recycled materials; Eco-sculpture is sensitively integrated into a natural habitat).

Among the leading exponents of Environmental Art are Richard Long, Andy Goldsworthy, Nildo, David Nash, Jean Claude & Christo, Alan Sonfist, Patricia Johanson, Agnes Denes, Hans Haacke, Lyne Hull, Wolfgang Laib, Yukio Nakagawa, Huang Yong Ping, Mel Chin, Mierle Ukeles, Dominique Mazeud, Fern Sharfer, Otelo Anderson, Joseph Beuys, and Ann Hamilton, among others. Every one of these artists, from their perspective and through their work, worked with place, planting, flora and fauna, ritual, social issues, and mainly recycling as a way to make the public react to the need to care for the environment.⁽²¹⁾

Today, ecological art and its notable trends encompass many artistic media and raise public awareness of the importance of recycling.

This term can be used generically to refer to art that deals with ecological or natural environmental issues through various strategies, such as:

- Raising awareness of the fragility of nature (which includes landscape-based photography, painting, drawings, book-works, and site-specific art)
- Investigating natural phenomena (including scientific illustration as well as interdisciplinary artistic practices)
- Using natural materials gathered outdoors (such as twigs, leaves, stones, soil, feathers; often called Nature Art)
- Not contributing to environmental degradation (including "green" works made with biodegradable or recycled materials; "eco-sculpture," which is sensitively integrated into a natural habitat).

Guided by these artistic trends or movements, new definitions within the visual arts have been developed through research, such as "sustainable art," sometimes known as environmental art or green art. Artistic works related to this movement represent ecology, ecological preservation, and the denunciation of actions that endanger the environment.

With the emergence of "isms" in the second half of the 20th century, that is, artistic styles closely related to social consciousness and artistic values, essential forms of plastic expression came to light, such as expressionism, Dadaism, and surrealism, all closely related to the respective ideologies of their time. Then came body art, installations, performance art, and artistic movements that together form a new artistic avant-garde closer to our times. They clearly reflect man's relationship with nature and its resources. However, this is sometimes expressed spiritually, as in the case of our Manuel Mendive, winner of the National Prize for Plastic Arts in 2001, as his work captures the most intimate Afro-Cuban religious secrets held by our nature.

In our country, environmental themes are becoming increasingly present in the works of our artists, who advocate for the restoration of the Cuban landscape as part of the identity of our visual arts. Such as Rita Longa with her sculpture "Ave, ca," 1950, and Juan Quintanilla from Pinar del Río with his work "Pichón," 1950. In painting, we find Ruperto Jay Matamoros with his work "Ella cubana" (She, Cuban), 1978, Flora Fong with her work "Palmar avocado" (Whipped Palm Grove), 1990, and Ever Fonseca with his work "Árbol de luz" (Tree of Light), 2004. These artists, with their respective works mentioned above, show a view of the environment with the philosophical foundations of Povera art or Land art.⁽²³⁾

Other artists who have addressed environmental issues are Wilfredo Lam with his work “La mañana Verde” (The Green Morning), 1943, and Tomas Sánchez with his interpretations of landfills, as well as his recreations of valleys with Cuban elements such as the royal palm tree. Throughout his career, Sánchez has approached landscape with a conceptual character that encourages meditation, always revealing a tiny character adopting the lotus flower posture, which is fundamental to different forms of meditation and communication with the environment.

Environmental actions are reflected in the artistic and pedagogical work of several artists, such as Alexis Leiva Machado (Kcho), in his community project in the Romerillo neighborhood of the Playa municipality, where one of the main tasks is the conservation and improvement of the environment through art. The artist Nelson Domínguez is another example with his community project “Espantapájaros” (Scarecrow) in the coastal town of Cojímar, which has been the venue for many environmental activities.

In the municipality of Cerro, an artistic project has been underway for more than ten years, led by painter, cartoonist, and animation director Cecilio Avilés. The project aims to foster an appropriate aesthetic taste among the youngest residents as a main measure to eradicate inappropriate behavior toward the few representations of local flora and fauna and to preserve the urban landscape that characterizes this municipality.

In the municipality of Regla, there are examples of visual artists of the stature of Enrique Almaguer (painter), Ernesto Gotario (painter and cartoonist), and Lázaro Calvo (sculptor), who work independently on themes closely related to the environment and the situation in Havana Bay with the project “Friends of the Bay”.⁽²⁴⁾

Arroyo Naranjo is a privileged municipality for activities related to the visual arts and the environment, as the vast majority of its geography comprises green areas. These places are the focus of environmental work aimed at preservation, and the contribution of local artists such as sculptor Osvaldo Jacinto Llingy, painters Pedro Estaviles, and the recently deceased Darién Rodríguez, all specialists from Casas de Cultura, is noteworthy. They attract the attention of residents through small, low-cost activities in the environment that develop into essential community projects.

Here, too, the visual artist Alexis Leiva (Kcho) is carrying out an important cultural project in one of the most peripheral neighborhoods within the same municipality, La Güinera. Extensive artistic and social work is being done to rescue values and education in its broadest sense, including environmental education.

PROPOSAL FOR A SYSTEM OF ENVIRONMENTAL EDUCATION ACTIVITIES THROUGH THE VISUAL ARTS FOR 5TH-GRADE STUDENTS AT THE JESÚS MIGUEL IGLESIAS PRIMARY SCHOOL IN ARROYO NARANJO

Diagnosis of the initial state of environmental education among 5th-grade students at the Jesús Miguel Iglesias Primary School

At this stage of diagnosing the initial state of environmental education among students, starting with a general diagnosis of the ecological problems in the country and the capital province was necessary, respectively.

To prioritize the country’s main environmental problems, the following criteria were considered: their significant impact on the health and quality of life of our population, prioritized economic activities, the considerable size of the national territory, and ecosystems of high fragility and economic and social importance.

The main environmental problems have been influenced by a considerable percentage of the population’s lack of awareness and environmental education, which has often worsened. The development of these elements, which directly influence human behavior toward the environment, has not been on par with other colossal works carried out by the Revolution and, therefore, constitutes an essential factor in the short and medium term for achieving positive results in the implementation of environmental policy and efficient management.

Identifying the country’s main environmental problems allows for prioritizing their attention and directing the main efforts of ecological management toward them within the universe of existing issues.⁽²⁵⁾

The diagnosis of the capital’s environmental situation was guided by the guidelines set out in the Provincial Environmental Strategy of Havana, which identified the following environmental problems: inadequate management of urban solid waste, management of hospital waste, inadequate treatment and disposal of liquid waste, drinking water supply through a deficient network, air pollution, noise pollution, and deforestation.

In summary, the main environmental problems identified in the province are closely linked to the deterioration of sanitation and environmental conditions in human settlements, affecting the quality of life and health of the population, as well as deforestation problems that greatly affect soil erosion in watershed areas and the quality of coastal ecosystems.⁽²⁶⁾

The municipality of Arroyo Naranjo, despite being part of the so-called lungs of the city due to its extensive green areas, is not exempt from severe environmental deterioration. Among the ecological problems afflicting this territory are those related to air pollution caused by transportation, industrialization, and a large municipal landfill located at the southern end of approximately 1,5 km², where natural and industrial waste is burned daily, suggesting that there is no efficient recycling process. Its overall water footprint includes rivers of great importance that indirectly flow into Havana Bay, which is why the Havana Bay Business Working Group (GTE-BH) continuously carries out actions to promote environmental education in the municipality through the

“Save the Bay” project, which works together with other community ecological managers in the Community School Environmental Education Program. The program’s main impact is participation in recreational, cultural, and environmental festivals, with broad involvement by students, educational centers, community projects, cultural promoters, municipal education, and local government officials.

The role of the school in contributing to this aspiration is expressed through its aim to develop skills and ethical values that promote social and professional behavior consistent with sustainable development.⁽²⁷⁾

Specifically, the educational center E/P “Jesús Miguel Iglesias” selected for the research is located in the municipality of Arroyo Naranjo in the Mantilla district of Las Lajas. It is a practically rural school and is geographically identified by its location near the railroad line and the La Solita district. It is an area that is difficult to access due to its location. The school has a staff 25, including 16 teachers, which is insufficient for appropriately developing the teaching-learning process. It has an enrollment of 164 students, as each grade has only one class due to the small size of the premises.

Methods such as interviews and observation were used to measure the environmental education work of the students and teachers at the center, specifically in 5th-grade students. In addition, the following indicators were used to measure environmental education work: the formation of aesthetic and moral values about ecological education, knowledge about environmental education, environmental education activities carried out at the school, and student’s attitudes towards conserving the school environment.

The indicators listed here were taken from the University for All tabloid, “Introduction to Environmental Awareness”.⁽⁵⁾

CONCLUSIONS

Environmental education in Cuba is a fundamental pillar of comprehensive citizen education, as it promotes critical and responsible awareness of the relationship between human beings and their natural and social environment. This study has shown how the Cuban state, through educational policies, national strategies, and community actions, has systematically promoted incorporating this discipline at all levels of education, emphasizing the need to promote sustainable development.

In this context, the visual arts have proven to be an effective and creative way to raise environmental awareness by allowing the expression of ideas, values, and attitudes related to environmental preservation. Artistic expression as a pedagogical tool in primary education—particularly at the Jesús Miguel Iglesias Primary School—contributes significantly to students developing an emotional and rational connection with nature while strengthening their aesthetic and communication skills.

The activities proposed in this research respond to the need to transform the environmental reality of the school and community environment, demonstrating that ecological education, when actively and participatively integrated into the teaching process, generates fundamental changes in the behavior of new generations. In short, it reaffirms that education, culture, and art are powerful tools for building a more conscious, just, and harmonious society with its environment.

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