

---

# Integrating Education with the Environment and Sustainable Development into Education System in Senegal: Contribution of School Geography

EL Hadji Habib Camara

Department of History and Geography, Faculty of Sciences and Technologies of Education and Training, Cheikh Anta DIOP University, Dakar, Senegal

## Email address

habcam2002@yahoo.fr, elhabib.camara@ucad.edu.sn

## Citation

EL Hadji Habib Camara. Integrating Education with the Environment and Sustainable Development into Education System in Senegal: Contribution of School Geography. *AASCIT Journal of Education*. Vol. 5, No. 1, 2019, pp.1-9.

Received: May 1, 2019; Accepted: July 1, 2019; Published: July 12, 2019

---

**Abstract:** This article seeks to identify the opportunities that can be offered by the geography programs in Senegal's middle and high schools, in terms of integrating environmental education and sustainable development in Senegal's school education. The conceptual and methodological framework defined made it possible to identify the objectives, themes and strategies of environmental education and sustainable development and their use to analyze the contents of geography programs in Senegal. The analysis of these contents has revealed the existence of pedagogical intentions and themes in line with environmental education for sustainable development, but it reveals the limits of its effective management with regard to the traditional strategies of their development. teaching-learning constrained by the school form. Hence the need to explore other non-formal strategies to promote such education at school in Senegal.

**Keywords:** Environmental Education and Sustainable Development, Geography, Middle Education, Secondary Education, School Program, Senegal

---

## 1. Introduction

In Senegal, Education for the Environment and Sustainable Development (EESD) is not an institutionally recognized field of education; in other words, it is not yet the subject of explicit measures, in terms of support in formal education, as is the case in France [9]. Nevertheless, it is nonetheless an issue for the valorization of certain school subjects (HG, SVT, EFS), in view of the values and principles it advocates and, especially as it could contribute to their more meaningful teaching / learning.

The will of the public authorities to integrate the study of the environment in the National Education is nevertheless real. This is evident in Law n ° 2001 - 01 of January 15, 2001, in article L7 Environmental Code which states that " The State guarantees to all citizens the right to environmental education. In this context, public and private institutions in charge of teaching, research or communication must participate in education, training and awareness of the population to environmental problems:

by integrating into their activities programs to ensure a

better knowledge of the environment,

by promoting the capacity building of environmental stakeholders ". [10, 2]

It is in this respect that it is necessary to reflect on the methods of taking it into account in school education. Thus, as a geography didactician, it is incumbent upon us to see how a discipline such as geography could constitute a way of integrating EIDS into formal education in Senegal, without unduly disrupting the academic form that governs it.

In fact, geography is one of those school subjects that "study objects [referring] to situations where human actions are central" [(1, 69) It is assigned to him in the middle and secondary education in Senegal, the mission "to help the Senegalese student to understand the environment in which he lives, in order to integrate and transform it if necessary" [8, 3]]. It is thus in phase with the EEDD, the purpose of which is to provide citizens with skills and values enabling them to put their action into sustainability in order to improve their living conditions, without harming their environment. In other words, it helps to make them future citizens able to ensure the sustainability of their lifestyles as well as their

environment [5].

The objective of this reflection is therefore to identify the opportunities (in terms of objectives, themes and strategies) that current geography programs can offer to promote EESD within the framework of of geography teaching in Senegal.

It is articulated for this purpose, around three parts:

- (1) a first part presenting the conceptual framework to provide the elements of a grid of reading of the geography programs of Senegal in relation to the data of the EEDD.
- (2) a second part devoted to the presentation of the adopted methodology.
- (3) a third part dealing with the results in terms of identifying the opportunities and limitations of the management of EESD by teaching geography, as well as the determination of possible integration strategies for EESD in formal education.

## 2. Conceptual Frame

Through a review of the literature on this subject, it is necessary to circumscribe the key concepts in order to identify the indicators (in terms of objectives, themes and strategies for environmental and social education, sustainable development) to be used in the analysis of program content.

### 2.1. The Environment

The theorization of the environmental concept revolves mainly around the relation between man and nature that manifests itself through two conceptions: biocentric for the first and anthropocentric for the second.

Proponents of the first conception maintain that " The environment is more or less associated with nature, and man is represented as one of the natural objects. This environment is presented as a list, a collection of objects, from isolated elements, living or non-living (plants, raw materials), through environments, ecosystems (marshes, forests, etc.), types of objects. space (coastline) to arrive at the biosphere (the terrestrial ecosystem) [6, 27].

For the followers of the anthropocentric conception, the environment is defined (putting the man in the center) as " the set of objects that provide from the point of view of the quality of life advantages or disadvantages independently of their ends by the use that the subject makes of them, to the extent that he accesses, neighbors with them, or affects them by activities " [6, 27].

### 2.2. From the Environment to Sustainable Development

It was not until the declarations of the Rio Conference of 1992 that the problematization of the concept of environment was put into a perspective of sustainable development. This is illustrated by Principle 4, which argues that "to achieve sustainable development, environmental protection must be an integral part of the development process and can not be

considered in isolation" [12, 1]. However, it should be noted that sustainable development integrates all aspects of human life in the same way as the environment, but the environment is only used as a means to achieve its objectives.

Moreover, Ndiaye emphasizes "Contrary to the notion of the environment, that of sustainable development comes from the economic sphere and proposes a more managerial than ecological approach to environmental issues" [10, 4]

The concept of sustainable development, however, appeared well before the RIO Conference; it is mentioned in the French version of the Brundtland report published in 1988 under the title "Our future for all", in which it is defined as "sustainable development that meets the needs of the present without compromising the ability of future generations to respond. to theirs [12, 10].

Lacoste, in his dictionary, is more explicit on this subject by writing that: "sustainable development is to take into account the long term and the protection of the environment in the process of growth wealth and improvement of the living conditions of the populations (...); it is a global development strategy that combines the protection of the environment with the fight against poverty, the creation of economic activities, services and the establishment of local, regional and national governance " [3, 247-248].

It is, adds Leininger-Frezal, "of a process of economic growth [which certainly has] a qualitative dimension. It takes into account the biophysical environment and aims to improve the quality of life of the population » [3, 268].

Moreover, the urgency to take charge of the environment led to a first meeting on the environment on June 5, 1972 in Stockholm followed by a second meeting in Belgrade in 1975. The latter allowed UNESCO and UNEP to shape the International Environmental Education Program (IIEP).

### 2.3. From Environmental Education to Education for Sustainable Development

In connection with the IIEP, an international symposium on Environmental Education was organized in October of the same year (1972) with the main purpose of making the world population, a population " conscious and concerned about the environment. environment and related issues, a population that has the knowledge, skills, mindset, motivations and commitment to work individually and collectively to resolve current issues and to prevent the emergence of new ones "[10, 3].

For many nations, integrating the environment into education had therefore become imperative. From then on, the question that arises for the realization of this will is " How to do it? "

It is to answer this question that the Tbilisi Conference was held in 1977 to institutionalize environmental education. As well known as environmental education as environmental education, it became a concept that became more complex as the experts tried to define it and think about its operationalization. That is why the only definitional tests revolve around its purpose, which according to the Final Report of the Tbilisi Conference of 1977, is to "facilitate an

awareness of the economic, political and ecological interdependence of the world. modern, so as to stimulate a sense of responsibility and solidarity among nations' by bringing " individuals and communities to understand the complexity of the natural and man-made environment. complexity due to the interactivity of its biological, physical, social, economic and cultural aspects " [14, 15].

Thus, the conceptualization of the environment and sustainable development, following the international meetings in Tbilisi in 1977 in Rio in 1992, led to a better understanding and a more appropriate use of so-called education. Environment and Sustainable Development or Environmental Education for Sustainable Development (EESD), specifically its objectives, themes and strategies.

#### **2.4. The Objectives and Themes of Environmental Education and Sustainable Development (EESD)**

As the geography programs in Senegal focus on the study of all continents, we have opted for a review of the literature on EESD that targets both the global scale and different geographical areas at other scales.

According to the Final Report of the Tbilisi Conference, 1977 environmental education " should not be a further matter to add to existing school curricula, but should be incorporated into programs for all taught..., [it] requires the implementation of new concepts " [14, 15]

These new concepts are found mainly in the publications of major international conferences on the environment. These include the United Nations Conference on the Environment in Stockholm in 1972, which focuses more on the knowledge of and preservation of the elements of the environment: "The natural resources of the globe, including the air, water, land, flora and fauna and particularly representative samples of natural ecosystems, must be preserved for the benefit of present and future generations through careful planning or management as appropriate " [17, 3].

Similarly, studies on its operationalization in countries that adopted this educational policy revealed that it has been used in the context of solving environmental problems.

Indeed, the seminar organized by the Jamaica Institute of Arts, Science and Technology in collaboration with the UNEP-UNEP International Environmental Education Program (bringing together 36 member countries, including 9 Caribbean countries) reports the integration of environmental education with major themes that refer to environmental issues in these regions. In the Dominican Republic, " among the major environmental problems is the pollution of the sea, fresh water and air, the disappearance of many species due to wild hunting, deforestation and poor protection. watersheds. " [17, 4].

In Antigua, these problems are: "deforestation, land pollution, beach erosion and pollution of the sea" (ibid., P. In Grenada this concerns "soil and coastal erosion, reef degradation, depletion of fisheries resources and reduction of water supply, solid and liquid wastes". In Guyana, specialists are turning to "water supply, energy, pollution, waste disposal,

resource depletion and erosion." [17, 4].

In Saint Lucia, the environmental issue focuses on solving the problems of "deforestation as pollution, waste disposal" and the conservation of resources. In Sant Vincent and the Grenadines, the themes are related to the resolution of the problems of "trash thrown into the nature, the erosion of grounds and the beaches, the deforestation, the pollution of the rivers and the air" (idem, p. 5) and in Jamaica, it is " soil erosion, deforestation, air pollution, sea, soil, beaches and industrial pollution, floods... " [17, 4-5] who are affected.

Other studies have been developed in other countries, but the realities are almost identical, regarding the themes used to integrate environmental education and sustainable development. The example of Tanzania focuses on environmental issues such as "low rainfall, tsetse infestation, soil erosion, deforestation and high population density". on usable land]. In Egypt, emphasis is placed on "basic training in science, hygiene, agriculture and social studies (largely based on family and village or neighborhood) from an environmental perspective". This is also the case in Thailand, where "the State will propose an education that will raise awareness of the need to preserve natural resources and the natural environment" [17, 6-7].

For Senegal, it is the setting up, within the framework of the Inter-State Committee for Drought Control in the Sahel (CILSS) of the Training Program-Information for the Environment (PFIE) which covers the Sahel countries; a program for which, it is expected of the school that it allows the pupil "to be in his environment.

- (1) an informed witness of phenomena, mechanisms of drought and desertification
- (2) a committed and effective player in the fight against drought and desertification
- (3) a vector capable of promoting the multiplication of the opinions, attitudes and behaviors targeted by the EESD. [2, 15]

This assumes the development of observation, design, action and evaluation skills (environmental observation, knowing the solutions and projects for the environment, knowing how to carry out actions. Read more about the effects of actions on the environment). [2]

#### **2.5. Environmental Education and Sustainable Development Strategies**

The report of the United Nations Environment Program (UNEP) on the environment in the curricula taught is not limited to environmental topics, it also gives priority to strategies [17]. These last ones constitute the very bases of this integration.

In general, environmental education and sustainable development (EESD) is not simply an addition of knowledge about the elements and phenomena of the environment. It was a project and therefore an objective and objectives that required the development of strategies well suited to achieving these objectives.

This education has given up the idea that Paulo Freire named 'the banking pedagogy', this market pedagogy where

the student only learns to 'give back' to his teacher, the test day, not " [7, 6].

It wants to break with the mere disinterested transmission of a body of knowledge by paying more attention to improving the students' behavior towards the environment. For this, we must consider that learners have empirical knowledge, even representations, from their contact with nature and should be given the means of investigation on the basis of their experience. This is why Environmental Education and Sustainable Development (EESD) often favors the problem-solving approach based on this empirical knowledge to stimulate learners and provide them with motivation and interest in learning.

In this respect, it is recommended that teachers,

- (1) multiply the " possibilities of investigation,
- (2) increase the personal and collective effort to build representations based on their experience, information from the media,
- (3) get students to take a step back from their presentations by asking them to confront them with those of other students, or those of their books, ie to clarify them " [16, 20].

As a result, students will have to develop automatisms as they question and find answers while learning "a certain number of elementary gestures that we can reproduce automatically, without investing the slightest intellectual energy " [7, 6].

All of this denotes the importance of developing critical thinking in environmental education and sustainable development that allows' the emergence of 'resistant citizens', 'debating citizens', 'citizens who do not do not accept that one thinks of their place and who intervene in the public debate with force,... " [7, 4].

Since this active pedagogy provides the learner with the tools and the habit of being able to question the validity of the information received outside of school as in social networks, the media, and especially groups of activists of the environment to remove it from indoctrination.

In the same way, supports Mériou, "Environmental Education allows first and foremost to introduce a new approach, an original way of thinking of the world as a complex system consisting of a multitude of interacting elements" [7, 4]. Therefore, environmental education and sustainable development place great importance on the systemic approach. This approach refers to the word " system " which is a set of interdependent elements whose modification of an element leads to the modification of this set, consisting here of physical, chemical, biological, social and economic elements; It should therefore be made clear to students that they are an integral part of this system and that their actions on one of these elements have repercussions on the whole system.

In addition, the practical guide for the PFIE trainer designed by CILSS, advocates for the implementation of environmental education and sustainable development, the following approaches:

- (1) Participatory pedagogy,

- (2) A pedagogy by project and resolution of concrete problems of drought and desertification, [improvement of the living environment],

- (3) Learning in situation,

- (4) A sense of utility, cooperation, cooperation, spirit,

- (5) An interdisciplinary approach » [2, 24].

This is also supported by Yogo in his doctoral dissertation, "A Strategy for Environmental Education and Sustainable Development in Burkina Faso", identifying a variety of approaches and pedagogical means inspired by EESD and focused on on the development of skills on which learning activities should be based; it is

- (1) the pedagogy of conscientization,

- (2) project pedagogy,

- (3) the interdisciplinary study of the environment,

- (4) the problem solving process,

- (5) the role play,

- (6) the survey, etc. [19, 118].

Each activity begins with a scenario, followed by three main phases, namely a phase of observation of the reality that allows to define the problem and to envisage solutions to a given problem, then a phase of analysis of the a reality that allows the search and processing of information leading to the understanding and resolution of the problem [19].

Finally, it should be emphasized that, as the environment is constantly changing, an education about it can hardly be fixed. This justifies the obligation to update the knowledge about the environment taught at school according to the temporal context so that they are not too late compared to scientific discoveries.

This is evidenced by the following recommendation: "In order to ensure the continued effectiveness of the actions to be undertaken, environmental education must constantly formulate its orientations, content and methods, while ensuring that it is kept up to date. knowledge of individuals and groups as well as the continuous adaptation of this knowledge to new situations " [16, 26].

At the end of this review, a number of themes and strategies related to environmental education and sustainable development were selected, without pretending to be exhaustive, that could serve as a reference for developing a grid of analysis of the management of such education by geography programs.

### 3. Methodology

This study is part of a descriptive and exploratory perspective based on a content analysis on the contents of the Geography of Middle and Secondary Education (secondary and high schools) programs in Senegal.

The analysis procedure used is the thematic content analysis whose main operation is to categorize the textual elements of the aforementioned documents.

It is a question of identifying and recording the units of meaning (objectives, themes, strategies) with regard to the pre-established categories in terms of themes and strategies provided by the conceptual framework and indicated in the

following table:

**Table 1.** Themes and Strategies for Environmental Education and Sustainable Development Identified.

Themes	Strategies
Pollution	
biodiversity	
Renewable and non-renewable resources	
Natural phenomena	
Climate change	
Natural risks	
Desertification	
Drought	
Salinisation	Problem solving approach
Protection	Systemic approach
Backup	Project approach
Deforestation	Interdisciplinary approach
Reforestation	Participatory approach
Pollution	Learning in situation
Sustainable development	
Degradation	
Energy	
Erosion	
Environment	
Ecosystem	
Waste	
Flooding	
etc.	

It is therefore these elements listed in the table that are used as program reading keys for:

- (1) "track" possible entries at the level of lessons, pedagogical intentions formulated, activities recommended in the programs,
- (2) and propose implementation strategies that give them meaning in relation to EESD

Moreover, the quantitative approach was adopted for the analysis of objectives and themes in the form of a statistical frequency treatment for the objectives and the hourly volumes allocated to the different themes, whereas for the strategies, the option The focus was on the qualitative approach to determine slow, obvious contents.

Therefore, to better conduct this study, we found it important to draw up an analysis grid (Table 1) containing the themes and issues of the EESD as well as the approaches favored by it.

For the objectives and themes of environmental education and sustainable development, their presence in the programs is appreciated, under the lighting of the themes and problems of the grid, in percentage according to the scale below:

- 0 to 25%: low presence.
- 25 to 50%: relatively large presence.
- From 50 to 75%: important presence.
- From 75 to 100%: very important presence.

The qualitative approach has prevailed in the study of strategies for education on the environment and sustainable development (EESD). It consists, through the reading of the programs to detect the various explicit or implicit strategies appropriate to this type of education.

## 4. Results

The analysis of the geography programs in the light of the identified EEDD themes and strategies has helped determine the share of EESD in the objectives, themes and strategies of these programs.

### 4.1. Share of the EESD in the General Objectives

**Table 2.** General objectives of the 6th to the Terminal.

Level	Class	Share of EE in general objectives (%)	Others (%)
	6th to TI	27	73

The project on Education for the Environment and Sustainable Development (EESD) fits well in the general objectives of the geography programs of the middle and secondary education of Senegal, even if the presence is of the order of 27%.

Indeed, in programs, the objective of endowing students with the ability to think about space " is at the same time an objective of knowledge (knowledge), of know-how (aptitude), of well-being and knowing-becoming (attitude and state of mind) " [8, 2].

The teaching of geography follows the same logic as the EESD, since it is based on the intention of providing both the learner with knowledge (knowledge objectives) and skills (know-how objectives). as well as values and attitudes (goals of "savoir-être") to live in harmony with one's environment and possibly participate in its good management. However, it should be noted that, in the programs, it is only at the level of the goals of "savoir-être" that intentions are explicitly stated in relation to environmental issues.

#### 4.1.1. In Medium School Programs

**Table 3.** Objectives in the medium.

Level	Class	Share of EE in general objectives %	Others (%)
First	6th to 5th	18	82
Second	4th to 3th	44	56
Total		31	69

The management of EESS by the general objectives of the medium is relatively important overall (31%), however, this assessment should be qualified with regard to the difference in score between the first level (6th and 5th grade), of the order of 18% (weak) and the second (4th and 3rd) which is of the order of 44% (relatively important).

Overall, these EESD objectives identified at all levels in the medium are highly relevant to EESD.

In the first level of middle school (6th and 5th), it is mentioned that " the pupil must:

- (1) to have the sense of the measure in its relations with its environment,
- (2) be aware of the precariousness of spatial equilibrium " [8, 2].

In the second level (4th and 3rd), the aims of "savoir-être"

also refer to EEDD concerns. It is stated at this level that " the pupil must

- (1) know how to relativize the potentialities of the environment (in relation to the needs of populations, compared to other environments);
- (2) know how to be imaginative for an optimal and rational use of the resources of the environment;
- (3) become aware of the complementarity and solidarity between different spaces and environments;
- (4) be able to show respect and tolerance towards other environments, other spaces. " [8, 3].

**4.1.2. In Secondary School Programs**

*Table 4. Objectives in the secondary.*

Level	Class	Share of EE in general objectives %	Others (%)
	2 <sup>nd</sup> , 1th, Tl	23	77

The project on environmental education and sustainable development is weakly taken into account in the general objectives, 23% or 16 of the 69 pedagogical intentions formulated in the secondary cycle.

This low score (23%), however, does not obscure the relevance of EESD issues to these goals of "savoir-être" and "savoir-être", in that they aim to bring students

- (1) " have the sense of space and its balance;
- (2) to have the critical sense and the relativity of judgment in relation to geographical environments and phenomena ",
- (3) " be aware of global interdependence in terms of Sustainable Development " [8, 2]. This represents 3 of the 6 goals of "savoir-être" and "savoir-être" and 3 of the 22 general objectives of the Second class.

In the Second class, the human aspects that accompanied the study of the environments were extirpated to retain only the physical aspects. The clarity option prevailed with physical anchoring in the second grade and the dismissal of general human geography problems in the first class [8].

Thus, the second class is dedicated exclusively to the study of the physical aspects of the natural environment. As a result, the intentions can only validate the virtual presence of EEDS in this class. This is the case of learning objectives that aim to get students to:

- (1) " analyze the mechanisms of natural phenomena;
- (2) to know the potentialities of the various natural regions of the globe;
- (3) to know the nature protection codes and conventions;
- (4) to know the natural causes of environmental degradation;
- (5) to know the main areas of reserve and production of natural resources. " [8, 25].

In the same way, this predominance of the study of the natural environment is noticed in the objectives of know-how such as

- (1) " know how to discriminate spaces according to natural variables;
- (2) knowing how to evaluate the potentialities and limits of

an environment. " [8, 26].

The objectives of "savoir-être" and "savoir-être" follow the same logic by inviting the learner to

- (1) " become aware of the need to protect one's environment;
- (2) to respond to a need for protection and harmony of a geographical area. " [8, 26].

The general objectives that refer to EESD are important in this class. They concern 10 of the 19 general objectives formulated in the Second class, ie a percentage of 53%.

However, in the class of First, the rule which makes prevail "a physical anchorage in second class and the reference of the problems of general human geography in first class" (MEN, 2004, p. 25) is respected in the formulation of pedagogical intentions. The few EESD objectives identified are "eco-citizenship" in that they aim to get students to:

- (1) " know how to protect one's environment;
- (2) participate in information actions on the environment;
- (3) to apprehend the organization of the world in the perspective of a united planet. "

These goals of "savoir-être" represent 3 of the 19 objectives formulated in Première class, ie a low proportion of 16%.

**4.2. EESD Share in Themes**

*Table 5. Themes from the sixth to the final.*

All classes	EE shares in themes (%)	Others (%)
6th to Tl	32	68

In this part, the quantitative analysis of the place of the EESD in the themes of the program is carried out on the basis of the representative and significant values of the environmental themes.

In the combined middle and high school programs, the presence of EESD is relatively high (32%) in the topics to be taught; but this score hides disparities according to cycles and classes.

**4.2.1. In Medium School Programs**

*Table 6. The themes in the medium.*

Level	Class	Share of EE in the themes %	Others (%)
First	6th	28	72
	5th	25	75
Second	4th	19	81
	3th	43	57

In the Sixth grade, where a score of 28% is recorded, the object of study focuses on the child's environment and the themes are distributed according to the six natural regions of Senegal. In each natural region, it is almost the same sub-themes that are studied in 6 or 7 lessons: the location of the geographical region serving as a basis for the study of its physical conditions (topographical, climatic, edaphic, biogeographical, evolution of the ecosystem and its consequences for people and activities).

The 5th class, is devoted to the study of Senegal with 7 out

of 26 lessons of EESD: it is the analytical study in 6 hours of the physical aspects (geology, climate, vegetation, soils, hydrography, ecosystems) followed by a 2-hour synthetic study of these aspects entitled " Environmental and nature protection issues ". All this represents only 25% of the hourly quantum.

In 4th grade, the study covers the five continents with a slight predominance of Africa. The number of hours allocated to the EESD themes refers to a weak presence with its 19%, a weight partly attributable to the encyclopaedic nature of the teaching which is more interested in the problems of economic integration at the level of these continents.

In the 3rd class, it is the study of the planet Earth, precisely its natural elements, its social economic aspects in a systemic perspective.

Indeed, in Chapter 1, entitled " The Earth, a Planet of the Solar System ", the first lesson of 2 hours allows to locate the Earth in the solar system, the second lesson of 3 hours entitled " The Earth, a planet of the solar system: potential and equilibrium " approaches its potentialities, its resources and their cycles. Chapter II "The Earth, a threatened planet" is subdivided into 2 lessons of 5 hours: the first deals with the overexploitation of resources and its consequences and the second with the climatic consequences of the economic exploitation of the planet (pollution, warming, threat of aridity...). This means that we end up with a significant integration of the environment in the program of the corresponding 3rd class 43% of the hourly quantum.

Thus, with EESD themes addressing the major environmental issues of the century, the third class outperforms with 43%, the other 3 classes, since the latter have not even managed to reach the average of 29%.

#### 4.2.2. In Secondary School Programs

*Table 7. themes in the secondary.*

Level	Class	Share of EE in the themes %	Others
	2 <sup>nd</sup>	84	16
	1th	0	100
	T1	19	81
	Total	34	66

In secondary education, the presence of EESD in the themes is, on the whole, relatively large (34%), but with great disparities from one class to another.

Indeed, in the Second class, the themes relate exclusively to the study of the situation of the Earth and its physical aspects; so that the share of the EESD in the hourly quantum is very important in this class, reaching for the first time the 84%. This percentage concerns precisely the 3 chapters of the second part entitled "Continents, oceans and seas", "The climates of the Earth" and "The reliefs of the Earth", as well as a lesson of the third part entitled " The 'natural regions' of the globe and their potentialities ".

In the Première class, on the other hand, it is the specificities of the world population that are privileged. The content of the lessons is thus purely economic and does not explicitly correspond to the themes of the EESD, even if the

division of certain areas of agricultural activities as lesson 9 (Forms of agricultural development in tropical countries: forms traditional) responds to a logic of belonging to climatic regions.

As for the class of Terminal, it poses a problem of analysis, since it dissolves in its chapters as well the physical, human and economic aspects with a predominance of these economic aspects in the 18 lessons divided into 5 parts.

Indeed, in this class, it is the economic areas of the world that are discussed, ranging from the North American economic space to the African space, through the European, Asian and Latin American economic areas. And in each part, it is asked to make a presentation of their physical environments and then highlight their potential or limits in terms of development. However, in this class which closes the secondary cycle, the EEDD represents only 19% of the time allotted to the 18 lessons of geography. This is a very small part as economic geography accounts for almost all of the remaining 81%.

Overall, if we combine the two cycles (middle and secondary), the presence of the EEDD in the themes is considered relatively important with a score of 32%, which, however, hides the disparities between the different classes, the 6th at the Terminal. In this respect, we can distinguish two categories of class: those that exceed 32% and those that are below 32%.

In fact, only the 3rd and 2nd classes were able to exceed the average percentages of integration of environmental education in the subjects with respectively 43% and 84%. The peculiarity of these two classes is the study of the planet Earth, first in all its aspects (physical, human, economic) in 3rd, then a deepening of the physical aspects of the medium in the 2nd class. Hence, these EESD attendance rates are important in the themes of their respective programs.

The second category consists of the class of First characterized by the absence of themes that refer explicitly to EESD, as well as those of 6th, 5th, 4th and Terminal which study the natural elements in the same way as the other aspects (economic, humans). As a result, the number of EESD topics in these classes does not even reach 32% in these classes.

#### 4.3. The Nature of the Strategies Advocated in the Programs Related to EESD

All learning is operationalized by appropriate strategies; the analysis of the geographic programs in relation to the EESD strategies aimed to determine the presence or absence of these strategies in the letter of these programs.

Thus, it has been noted that both in the middle and in the secondary, the strategies advocated explicitly in the programs refer to the following three types of didactic circumstances: "

- (1) maximum didactic assistance activities where the teacher will provide the pupil with the support necessary to achieve the specific objectives, including personalized assistance for learning;
- (2) Limited didactic assistance activities where the teacher will rely on the alleged learning achievements to get

the student to fully exploit his prerequisites, in order to assimilate new knowledge and know-how within the framework of a very interactive situation;

- (3) autonomous learning where the role of the teacher will be limited to the organization of work and the definition of instructions. It will encourage students to search for and exploit data to produce information individually and / or collectively » [8, 23].

However, as formulated, these strategies do not, in principle, refer to EEDD explicitly, even if it does not exclude them; especially as it is stated in the programs that "the letter and the spirit of the program also suggest to privilege the empirico-inductive approach, [ie a learning based on the experience, the experience] whatever the didactical circumstance of the teaching-learning situation" [ 8, 20].

In addition, if one refers to the formulation of the EEDD objectives identified in the geography program (for example: "to live in harmony with one's environment and to participate in its management" (6e), to know how to relativize the potentialities of the environment (5e), "Knowing how to evaluate the potentialities and limits of the environment, knowing how to respond to a need for protection and harmony (2nd), knowing how to protect the environment, participating in actions of information on the environment"), force is to recognize that their operationalization could only be done with the EEDD strategies, even if the programs do not mention them explicitly.

#### **4.4. The Limits to the Management of EESD by the Geography Programs**

These limits appear at the level of the strategies, because the programs do not evoke explicitly the appropriate devices for such an education; these strategies are undoubtedly suggested through the formulation of the general objectives; the experienced teacher should ask each time, following the formulation of each objective, the following questions: how and with what to achieve the learning carried by this objective; which is not always obvious because a good part of the teachers are temporary (the 3/5 teachers of history and geography).

In addition, the management of EESD by teaching geography in Senegal would be hampered by a number of obstacles that it is, no doubt, possible to overcome; it is mainly about:

- (1) the school form with timetables that do not often take into account extramural activities necessary for environmental education and sustainable development,
- (2) -lack of openness to other disciplines likely to carry EESD in schools (pre-eminence of disciplinary partitioning).
- (3) -openclodism of current programs of geography (which also confers on the learning of geography a more diffuse, more abstract character so far removed from the concerns of learners),
- (4) teaching practices mainly based on the interactive lecture (which gives little responsibility to the learner

in the construction of his knowledge) and exclusively on intramural activities [13].

Moreover, since school geography is one of the school subjects able to take charge of the EESD, it is up to the National Geographical Commission of Senegal, during the next reform of the programs, to take account of it in particular to refurbish, modify classical educational practices in

- (1) -promising a citizen geography, a geography that values the actors' game, a geography integrating the precautionary principle in the face of risks;
- (2) -validating the development of critical thinking, the acceptance of scientific doubt, the recognition of the plurality of possible solutions, and especially the prospective mind (think today to prepare tomorrow from a plurality of scenarios more or less optimistic (without catastrophizing)
- (3) taking into account the different scales of time and space (precisely the scales interlocking)
- (4) by advocating appropriate strategies such as, the pedagogy of the project (a participative and motivating pedagogy that promotes the involvement of learners so that they build their knowledge as much as possible by themselves); the systemic approach (a system-based approach to address and constrain complexity), the problem-solving approach (a pragmatic approach targeting the environmental issues facing students).

## **5. Conclusion**

The analysis of environmental stewardship in the geography programs revealed, on the whole, a relatively large presence of the EESD in the themes and objectives with 32% of the time quantum of the themes and 23% of the medium and high school objectives combined.

Regarding the themes, the average score of 32% masks the differences in the degree of support for the EESD, according to the classes. In some classes almost all of the themes relate to the human, regional and economic aspects of Geography; this is the case of the 4th, First and Terminale classes. On the other hand, at the level of the 3rd, 2nd and 6th grade classes, the themes are largely imbued with EEDD.

As for the objectives related to the EESD, the relevance of their formulation is undoubtedly indicative of the interest granted to the study of the environment in the geography programs in that they seek to bring the pupils "to know the and be able to act without compromising his balance. However, the weakest link in this program support remains the "silence" on the appropriate strategies in EESD.

There is no doubt that through the formulation of the objectives, the designers of these programs have given general guidance in line with the EESD; it is urgent to give substance to these orientations to undertake a rewriting of these programs by emphasizing the explanation of the appropriate strategies likely to favor the achievement of these objectives.



---

## References

- [1] Audigier, F. (2011). Du concept de situation dans les didactiques de l'histoire, de la géographie et de l'éducation à la citoyenneté. *Recherches en éducation*, 2011, no. 12, p. 68-81.
- [2] CILSS (1999). *Education environnementale au Sahel: guide pratique du formateur*. Bamako: Institut.
- [3] République du Sénégal (1991) Loi n° 91-22 du 16 février 1991, Journal Officiel de la République du Sénégal n° 5401 – page 107, 9 pages.
- [4] Lemercier C. (2013), La santé environnement: concept, enjeux et appropriation par les acteurs, Mémoire de Master 2, Université Montpellier III – Paul Valéry, UFR IV Sciences Economiques, Mathématiques et Sociales Département d'Administration Economique et Sociale, 156 pages.
- [5] Lacoste, Y., 2003, *De la Géopolitique aux paysages. Dictionnaire de la géographie*, Paris, Armand Colin, 413 p.
- [6] Leininger-Frezal, C. (2009). Le développement durable et ses enjeux éducatifs: Acteurs, savoirs et stratégies territoriales. [Thèse]. Lyon: Université de Lyon, Faculté de Géographie, Histoire, Histoire de l'Art et du Tourisme. 540 p. En ligne [http://tel.archives-ouvertes.fr/docs/00/44/98/03/PDF/These\\_C.\\_Leininger-Frezal.pdf](http://tel.archives-ouvertes.fr/docs/00/44/98/03/PDF/These_C._Leininger-Frezal.pdf), [Downloaded 20/06/2014 at 17:06:54].
- [7] Meirieu Ph. (2005), Éduquer à l'environnement: Pourquoi? Comment?: Du monde-objet au monde-projet, Conférences de Philippe Meirieu, 17 p.
- [8] MEN (2004) Programmes de géographie des collèges et lycées du Sénégal. Site web de l'IGEF. [www.gouv.sn](http://www.gouv.sn).
- [9] MENESR (2004), Education à l'environnement pour un développement durable bilan national de l'expérimentation année 2003-2004, direction de l'Enseignement scolaire, 23p Ministère de l'Education nationale de l'Enseignement supérieur et de la Recherche, (sd) circulaire du Ministère français de l'éducation sur l' EDD <http://eduscol.education.fr/pid23360/education-au-developpement-durable.html>.
- [10] Ndiaye A. (2012), Les fondements de la réglementation de l'environnement: évolution et conséquences internationales, Laboratoire de Climatologie et d'Etudes Environnementales (LCE), Département de Géographie, FLSH, UCAD, 9 p.
- [11] ONU (1972), Déclaration de Stockholm, Conférence des Nations Unies sur l'Environnement 6.
- [12] ONU (1992), Déclaration de Rio sur l'environnement et le développement, Conférence des Nations Unies sur l'Environnement et le Développement, 4 p.
- [13] Pouye, A (2018). La prise en charge de l'environnement dans les programmes de géographie au Sénégal? Mémoire de master: Dakar: UCAD-Fastef.
- [14] UNESCO. (1975). La Charte de Belgrade. Un cadre mondial pour l'éducation relative à l'environnement, Belgrade, Unesco, 5 p.
- [15] UNESCO. (1978). Rapport final, Conférence intergouvernementale sur l'éducation relative à l'environnement, Tbilissi (URSS), Paris, Unesco, 28 p.
- [16] UNESCO (1986), L'éducation relative à l'environnement: Principes d'enseignement et d'apprentissage, Série Education environnementale n° 20, 228 p.
- [17] UNESCO-PNUE (1988), Le Développement durable grâce à l'Education environnementale, Bulletin de l'éducation relative à l'environnement Connexion Vol XIII, n° 2, Juin 1988, 8 p.
- [18] UNESCO, 2004, Eduquer pour un avenir viable: engagements et partenariats Actes du colloque international de haut niveau sur l'éducation pour le développement durable du sommet mondial sur le développement durable 2-3 septembre 2002 Johannesburg, Paris, Editions Unesco, 247 p.
- [19] Yogo, M-E. (2016). Une stratégie d'éducation à l'environnement et au développement durable au Burkina Faso: les ateliers d'éducation à l'éthique éco-citoyenne (A3E) à Markoye. Thèse de Doctorat en Sciences de l'Éducation. Université de Lyon, 2016. Français. NNT: 2016LYSE2096.