



The Social Representation of the Environment of Actors in the Guinean School System: The Case of the City of Conakry

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Received: August 20, 2025, Accepted: August 30, 2025, Published: August 31, 2025

Abstract:

Representation is a form of knowledge, as it is a relationship between the subject and the object of knowledge, but a relationship that is mediated by the social. The main objective of this article is to analyze the social representations that basic education stakeholders (teachers, pupils, and educational authorities) have of the environment and the way in which these representations influence their understanding of and involvement in environmental education (EE) in Guinean schools. Method: The method adopted for this study is qualitative. Semi-structured interviews were conducted with various stakeholders in primary education in Guinea. Participants included teachers, pupils, and education officials. The data collected was analyzed using thematic analysis, to identify the dominant representations of the environment and the way in which these are integrated into teaching practice and curricula. Results: The results show that teachers mainly consider the environment from an ecological and natural angle, focusing on the conservation of natural resources and the preservation of biodiversity. However, their ability to integrate these notions into teaching remains limited due to a lack of adequate training in EE and a shortage of teaching resources. Pupils see the environment in a pragmatic and local way, focusing more on immediate issues such as waste management and access to drinking water. Their understanding of the environment is largely influenced by their everyday experience and immediate surroundings, rather than by theoretical concepts taught at school. Education authorities are showing increasing interest in integrating environmental education into school curricula. However, they are concerned about the lack of funding and teacher training, which limits the effectiveness of EE in primary schools. There is also a lack of coordination between environmental policies and educational strategies. Social representations of the environment strongly influence the way in which EE is integrated into teaching practices. Teachers, who often have little training in the subject, adapt content informally and unevenly depending on the local context. Conclusion: This study shows that environmental education practices vary considerably from one school to another, and that EE remains a secondary subject in the school curriculum.

Keywords: Social representation, EE, environment, education, Conakry

Introduction

Representation is a form of knowledge, as it is a relationship between the subject and the object of knowledge, mediated by the social context. According to Jodelet (1989), the notion of social representation (SR) has two dimensions: one concerns the context, and the other the dimension of belonging. The first refers to the concrete context in which the subject lives—a situation where

they interact with the world and others. It is a concrete context where individuals and groups interact through communication. The second concerns the ideas, values, and models that the subject develops, their cultural baggage, all provided by their community of belonging. It is the community that offers frameworks for understanding.

In the same vein, Moliner (2001) asserts that representation is social because, through a process of exchange

and interaction, it leads to common knowledge, a knowledge specific to a given social group. This common knowledge guides individual behaviors or decisions. It is the link that connects individuals to one another. Séca (2001), for his part, shows that the social nature of representations lies in the differences between groups. In other words, the qualifier "social" associated with the word representation forms a nominal phrase that marks the specificity or authenticity of one group compared to others. The representation one might have of an object varies from one context to another. For example, the representation of democracy or simply of school will not be the same in European, North American, African, Asian, etc., contexts. The representation of school in a Bantu environment will likely differ from that in a Pygmy environment. The mind tends to classify elements, but it does so according to its social filter.

Context

It should be noted that the study of social representations is the subject of numerous studies in various fields, including psychology (Boutanquoi, 2008), and sociology, specifically in the field of education, where the issue of social representations generates particular interest. For example, Gilly (1989) notes that analyses of social representations are key to understanding the social relationships at play in the school system, which grapples with social and cultural issues, inter-ethnic challenges, and school dropout.

Moreover, many experts in educational change believe that teachers represent, if not the cornerstone, the key field actors (Berthelot, 2007; Legendre, 2002; Grangeat, 2007; Schmidt and Datnow, 2005). Fullan (2007) attests that "changes in education truly come from teachers; they depend on what they think and do. Any innovation must adapt to local constraints" (p. 204). Similarly, it should be recalled that "during the revision, the 1987 curricula underwent necessary corrections, with, in some places, the removal of certain elements considered cumbersome, or the outright transfer of entire chapters from one grade to another to improve pedagogical progression. Methodological instructions also underwent some changes. They were adapted to the revised content with a more significant emphasis on the importance and role of active methods" (Jacob, 1999, p. 30).

Since the integration of innovations into primary education curricula in 2009, as written by Diallo (2009), this new edition takes into account the results of pedagogical innovations conducted in the field, encompassing both population education and environmental education for quality teaching. He continues that, in 2018, according to the annual performance report, despite progress made in Guinea, it is established that efforts are still needed to improve the quality of teaching and learning in the Guinean school system (p. 5).

"Thus, given the numerous challenges to address, the objectives of the Education Development Plan include, among others: (i) improving the quality and relevance

of teaching/learning at all levels; (ii) promoting innovation; (iii) developing effective information and communication systems; (iv) strengthening sector governance by improving management, coordination, deconcentration, and decentralization" (Diallo, 2009, p. 40).

These objectives align with the orientations of the sectoral policy letter, the Prime Minister's mission statements addressed to sector ministers in 2018, and the National Economic and Social Development Plan (PN-DES), in line with Sustainable Development Goal 4 (SDG4), he supports. One of the objectives of the Education and Training Development Plan is "to improve the quality and relevance of teaching/learning at all levels," he reiterated.

In line with this objective, we decided to analyze the perception of environmental issues through the lens of environmental education and education relative to the environment among school actors in Greater Conakry.

Main Question

How do participants perceive the environment and the links between education and environmental issues? How is the word "environment" expressed in our native languages, and what is the translation of these terms into French?

Hypothesis

Participants perceive the environment as a crucial issue for the future, but they distinguish environmental education from education relative to the environment based on their understanding, pedagogical objectives, and associated educational approaches.

General Objective

To study the perceptions of pupils and authorities regarding environmental issues within the framework of environmental education and education relative to the environment in Guinean primary education.

Specific Objectives

- Characterize the interviewees' representations of the environment.
- Analyze the relationship between education and the environment according to interviewees.
- Explore the interviewees' representations of education relative to the environment (ERE).

Materials and Methods

This research is qualitative, exploratory, and conducted in the context of primary education.

Research Strategy and Techniques

Regarding exploratory research in qualitative research, Van der Maren (1995) states that exploratory research aims to fill a gap or lack in the literature regarding the object. Our research aligns with Legendre (2005). For this author, it is a “flexible research whose purpose is to obtain a preliminary and descriptive understanding of a situation to refine a problem, intuitively formulate hypotheses, and evaluate the relevance of future, more systematic studies” (Legendre, 2005, p. 1150).

Target Population

The target populations of this study are: pupils from various primary schools (in several neighborhoods or zones of Greater Conakry), teachers, school principals, education inspectors, and possibly political officials or education experts.

Data Collection Methodology

The data collection methodology is qualitative, primarily relying on semi-structured interviews, focus groups, and direct observations. This allows for the collection of rich and varied information on participants' perceptions.

Semi-Structured Interviews

These allow us to collect detailed testimonies and personal perceptions from pupils and educational authorities on environmental issues, as well as their understanding and differentiation between environmental education and ERE.

Participant Selection

We prioritized a purposive, non-probabilistic sampling method (Savoie-Zajc, 2003). This means that, based on their characteristics, we favored their availability and potential ability to provide the information sought over the number of subjects (Deslauriers, 1991, p. 58; Van der Maren, 2003).

Sample Composition

Based on the availability of targeted informants and suggestions from some participants, changes were made until the end of data collection. We focused on the following groups: teachers, who are essential actors for assessing the current situation (Legendre, 2002). In addition to teachers, pupils and authorities were interviewed.

For teachers, school principals, and pupils, the sample was obtained from 20 schools in Conakry. These schools were selected from consenting primary schools in Conakry during the survey. Only accessible and consenting participants were included. To select the 20 schools, in the five communes of Conakry (Kaloum, Dixinn, Matam, Matoto, and Ratoma), we selected four schools from consenting schools by school status and commune. The schools involved in the study in each commune were: 1) for the commune of Kaloum: Tombo Primary School; Almamya Primary School; Aboud School Complex; Elisabethe School Complex; 2) for

the commune of Ratoma: Wanindara Primary School; La Colombe School Complex; Kipé Primary School; Naby Bangoura School Group; 3) for the commune of Matoto: Tombolia Primary School; Sangoyah Nord Primary School; Saint David School Complex; Bangaly Toumany Soumah (BTS); 4) for the commune of Matam: Touguiwondy Primary School; Coléah Centre Primary School; Koumandian Kéita 1 School Group; Châteaubriand School Group; 5) for the commune of Dixinn: Les Dabadains Primary School; Dixinn Centre 1; Lavoisier School Complex; Cheick Chérif Sagalé School Complex. As the principals of these schools were consenting, we included these 20 principals during the sampling of principals. Thus, a purposive sampling method was used. For triangulation of information, we included principals because the teachers interviewed for individual interviews were from these schools. When a teacher speaks about their classroom practice, this information can be verified through the following sources: either by observing the teacher's performance in class; or through their school principal, who is the closest supervisor and conducts regular classroom visits; or through the pupils. As for the teacher sample, it was drawn from the 9,270 primary school teachers in Conakry. The sample was selected from consenting teachers in each of the 20 schools. In each school, we selected five of the most experienced teachers working between the CE and CM levels. Multiplying 20 schools by five teachers gives 100 teachers. For us, the more levels represented, the more information related to ERE in primary education we would obtain during individual interviews. For pupils in CE and CM levels, in each school, we selected, among consenting pupils, the top 25 pupils who could read and write well and had well-maintained and clean lesson notebooks. We chose pupils from these levels because, in these classes, pupils can read and write. For the other participants in the interviews (DCE, CPMF), we also prioritized purposive sampling. These samples were drawn from the population of 47 DCEs and 247 CPMFs. Due to the different characteristics of the populations studied, we divided the sample into: teachers and school principals, pupils, pedagogical advisors (CPMF), communal education directors (DCE), primary education inspectors, and primary curriculum designers.

Direct Observations

For observations, we conducted classroom observations to complement the logbook. Beyond the teaching practices declared by teachers, it can be interesting to observe how they behave in their environment, comparing statements to actions (Deslauriers, 1991, p. 52). Moreover, it can be a privileged opportunity to capture the meaning that actors give to certain concepts or realities. For example, when teachers say they practice the competency-based approach or interdisciplinarity, what exactly do they mean by this? Observing them in action in the classroom can be a good way to explore these questions and shed light, among other topics, on the convergences and divergences between the representations shared by teachers regarding education relative to the

environment, as they emerge from interviews, and their representations in action, as manifested in their classroom practices.

Data Collection Instruments

Research instruments were used to operationalize data collection strategies. These aim to contribute to achieving the general research objective by collecting the most relevant data. For this research, we used three data collection strategies with specific tools. This section aims to present the interview guide, individual interview protocol, group interview protocol, observation grid, and logbook.

Observation Grid

Regarding observation, it includes two tools: the logbook and the classroom observation grid. In the case of the logbook, we narrated events to remember them and establish a dialogue between the data and ourselves as both observer and analyst. Note-taking helped us document modifications based on attempts and difficulties encountered.

Based on our objectives, note-taking allowed us to find connections between different observations for a detailed analysis. For classroom observations, initially, they were excluded, particularly due to financial constraints and time limitations. After reflection, we decided to conduct observations in a few classes to observe how a lesson related to the environment unfolds. Beyond the teaching practices declared by teachers, it can be interesting to observe how they behave in their environment, comparing statements to actions (Deslauriers, 1991, p. 52).

For our study, instead of covert observation, where the teacher is observed without realizing it, we preferred to inform them and schedule the observation (direct observation). Given the time constraints we faced, observations were supposed to take place in several schools, but we were unable to observe as we wished. We therefore decided to conduct observations in a few classes, as in Anderson-Levitt (2001), to observe how an ERE lesson unfolds. Beyond the opinions expressed by teachers, it can be interesting to see how they behave in their environment, comparing statements to actions (Deslauriers, 1991, p. 52).

As proposed by La Perrière (2009), before each observation, we presented the research to the observed individuals, outlining its objectives, organization, stages, expected duration, sponsors, subgroups involved, and the availability required from respondents. This presentation was: exhaustive (i.e., it hid none of the general objectives or aspects of the research, as mutual trust is essential in any research endeavor to minimize bias); clear (i.e., the research was presented briefly and in accessible language for respondents); neutral (i.e., it guaranteed that all parties could express themselves and be represented in the research report); and considerate of respondents' interests (i.e., we explained how the research could be useful to respondents and offered guarantees

that the research results would not misrepresent their lived experiences or situations, nor harm their interests or reputation, while meeting the requirements of a comprehensive description of the situation and the interests and viewpoints involved).

Moreover, it showed how the research would serve the interests of the observed and guarantee their anonymity. In terms of numbers, we conducted ten observations: five 45-minute observations in observation sciences at the intermediate level (CM) in five classes (five schools) and five 30-minute observations in civic and moral education at the intermediate level (CM) in five classes (five schools). To minimize disruption to the usual classroom functioning, we conducted observations in schools where we had already met teachers for interviews, positioning ourselves at the back of the classroom with a pre-established observation grid. Based on our research objectives, our classroom observations focused, among other things, on the curriculum, the locations of ERE-related lessons, the school's arrangements for ERE, and the behavior of pupils and teachers in the classroom and schoolyard.

Regarding our relationship with the observed, we initially behaved as an apprentice, seeking information and explanations about a situation known to the observed: being "in demand," we presented ourselves as such. However, this was a position of "acceptable incompetence"; the observed discovered in us a "student" who was both open and informed, realistic and nuanced.

To capture interviews and discussions faithfully, despite the discomfort that recording may cause (Aktouf, 1987), we recorded each interview with the participant(s)' consent. It seemed to us that, after a few moments, participants forgot the presence of the recorder. However, as a precaution, due to concerns about technical failures and considering that relatively high noise could affect the sound quality, each recording was accompanied by note-taking.

Data Processing and Analysis

The collected information was subjected to thematic analysis. After this analysis, we proceeded to:

- Codify the data collected through interviews. These data were codified by categories, using a coding grid inspired by the interview framework;
- More detailed coding of excerpts relevant to these representations;
- Grouping of essential key ideas by interviews;
- Grouping of key ideas by thematic categories for the interviews;
- Grouping of information by points of convergence and divergence;
- Descriptive reduction of results.

Interpretation of Results

Given the nature of the desired data, the set objectives, and the expected results, we used content analysis. Additionally, we used tables to present these results.

Dissemination of Results

The results will be disseminated in the form of a detailed study report that will outline the perceptions of pupils and authorities on environmental education and ERE, provide recommendations for improving the integration of the environment into primary education, and suggest avenues for future research. This writing adheres to editorial standards set by the pedagogical committee. Eventually, we also plan to publish these results as articles in scientific journals of various universities and on websites.

Results

Participants' Representations Related to the Field of ERE

The results below come from group interviews (with teachers), individual interviews with teachers, school principals, pedagogical advisors (CPMF), communal education directors (DSEE), primary education inspectors, curriculum designers, and the interview guide administered to pupils. These results relate to the objective of this research, which is to identify the representations of school actors (teachers, pupils, supervisors, and primary curriculum designers) regarding the field of education relative to the environment in Conakry. It should be noted that the field of ERE consists of the environment, the education-environment relationship, and education relative to the environment. This section also relates to the specific objective of this research (to characterize the representations of the interviewees regarding the environment, the education-environment relationship, and education relative to the environment).

Results of Participants Related to Environmental Representations

These come from group interviews (with teachers), individual interviews with all teachers, principals, CPMF, DSEE, primary education inspectors, and curriculum designers involved in the research. During the presentation of results, we included some examples of participants' statements, placing in parentheses the code designating the participant and their identifying number. For example, the teacher is designated by "teach."; the principal by "prin."; the curriculum designer by "desig."; the inspector by "insp."

In the interviewees' discourse, during data analysis, we identified three groups of representations: widely discussed representations, less widely discussed representations, and representations absent from the participants' discourse. As per Beaudet (2013; following Sauvé, 2001), each representation is accompanied by a table listing the

keywords and mental images (or what participants say about a concept by qualifying it) of the environment in the participants' discourse. For each environmental representation in the interviewees' discourse, we provided an excerpt of certain statements, indicating in parentheses the code for the participant category and the order of their encounter in that category. For example: teach.1 means the first teacher encountered; cpmf.2 means the second pedagogical advisor encountered; prin.5 means the fifth principal encountered; insp.1 means the first inspector encountered; dsee.6 means the sixth communal education director; desig.2 means the second curriculum designer.

The questions that elicited the three groups of environmental representations were drawn from the individual interview protocols with participants and the pupil questionnaire. These are: What images come to mind when you think of the environment? So, for you, what is the environment? How do you say the word environment in your native language, and what does it mean? These representations and mental images served as a reference to identify the respondents' representations in their discourse. The three groups of representations identified in the participants' discourse are: the widely discussed group, the less discussed group, and the group of representations absent from the participants' discourse. Each representation group has typical representations identified by Sauvé (1997). For each representation, a table lists the keywords and mental images from the interviewees' discourse, as done by Sauvé (1997; 2001; 2005).

Finally, it should be noted that several representation elements can be identified in the same participant. The group of widely discussed representations by participants: Among the widely discussed environmental representations, four representations were identified in the discourse of the majority of participants during the interviews, namely: environment-living milieu; environment-system; environment-resource; and environment-nature. For the environment-living milieu representation, across all discourses, regardless of the respondent, the environment remains an encompassing element, "what surrounds." This definition approach leads to identifying the type of representation these respondents refer to, according to Sauvé's (2005) approaches. Following her work, these definition approaches align with the "environment-living milieu" representation, as they relate to what "surrounds" us.

However, it is important to note that there are seven typical environmental representations according to Sauvé (1997; 2001; 2005). The top-ranked representation among participants is the environment-living milieu, mentioned by all participants. All interviewed participants addressed this dimension in terms such as: "the environment is what is around us" (teach.8; prin.9); "the environment is all the animals and plants around us" (teach.15). "The environment is the concessions around my home" (teach.30); "the environment is where I live, the space that surrounds us" (teach.35; cpmf.3; insp.2;

dsee.4; prin.10). “The environment is what surrounds us” (prin.1; teach.9; cpmf.4). “The environment is my neighborhood, my commune, my city” (teach.20). This representation was also more frequently mentioned by

the majority of pupils surveyed in these terms: “the environment is our surroundings”; “the environment is where we live.”

Table 1: Keywords and Mental Images Related to the Environment-Living Milieu Representation

Keywords	Mental Images
Me, my neighborhood	Natural, physical, and non-physical elements
Here, all around us	A village, a neighborhood, a commune, a park with all living beings
The immediate environment, where I live	A habitat, living space
The house, the neighborhood, the commune	Sanitation of my home
Everything around me	Life of living beings
Air, water	

Source: Adapted from participant interviews, based on Sauvé (1997, 2001, 2005)

Table 1 presents the keywords and mental images related to the "environment-living milieu" representation as expressed by participants in their discourse.

After the environment-living milieu representation, the next most discussed representation is environment-system. Environment-system: This dimension was addressed by participants in their discourse during interviews. For some, “the environment is the interaction be-

tween humans and their surroundings” (teach.17; prin.1; cpmf.10; insp.1; desig.2). “The environment is everything” (teach.15); “the environment is the exchange between humans and their surroundings” (teach.10; cpmf.7; prin.15); “the environment is the interaction between living beings in their habitats” (teach.7; prin.17; cpmf.2; prin.18). “The environment is the interaction between humans, fauna, flora, and habitat” (prin.19; cpmf.8; teach.22; desig.2; insp.1).

Table 2: Keywords and Mental Images Related to the Environment-System Representation

Keywords	Mental Images
Ecosystem	A garden with all its components
Interspecific struggle	Impact of pollution on humans
Interaction	Effect of climate change on nature
Exchanges between living beings and their habitats	Humans in their environment
Food chain	Interaction between living beings and their habitats

Source: Adapted from participant interviews, based on Sauvé (1997, 2001, 2005)

Table 2 presents the keywords and mental images related to the "environment-system" representation as expressed by participants in their discourse.

After the environment-system representation, within the widely discussed representations, we have the environment-resource representation in the participants' mental images. For some interviewees, the environment is everything humans use to earn money or meet es-

sential needs. For example, some participants say, “the environment is everything nature has provided for our needs” (teach.4, cpmf.1; teach.28; prin.9; dsee.9). Another group of participants says, for example, “the environment is all the waters, plants, and animals of our country” (teach.17; dsee.6; prin.17; cpmf.5). Pupils addressed this representation in these terms: “the environment is what God has given us”; “the environment is mineral resources.”

Table 3: Keywords and Mental Images Related to the Environment-Resource Representation

Keywords	Mental Images
Animals	Goods enabling humans to meet all their needs
Trees	Forest exploitation
Mines	Mining exploitation
Land, air	Water tower

Source: Adapted from participant interviews, based on Sauvé (1997, 2001, 2005)

Table 3 presents the keywords and mental images related to the "environment-resource" representation as expressed by participants in their discourse.

Within the widely discussed representations, we have the last type, environment-nature. For some interviewees, the environment is nature. For example, a group of participants states that the environment is the forest

we must protect (teach.9; prin.3; insp.1; dsee.4). Another group says that the environment is all the animals, waters, and plants that the earth supports (teach.5; desig.2; cpmf.5). This representation was addressed by a group of pupils in these terms: "the environment is all the animals and plants"; "the environment is all the watercourses."

Table 4: Keywords and Mental Images Related to the Environment-Nature Representation

Keywords	Mental Images
Nature	A watercourse
Fight against drought	The earth and its components
Plants	Plants and animals of the country
Animals	Oxygen from photosynthesis
A watercourse	Respiration of living beings
Oxygen	

Source: Adapted from participant interviews, based on Sauvé (1997, 2001, 2005)

Table 4 presents the keywords and mental images related to the "environment-nature" representation as expressed by participants in their discourse.

The less discussed group by participants: Environment-problem was addressed by some interviewees: the description of this representation includes the degradation of arable land by mines without reforestation. For example, a teacher states, "in Upper Guinea, in gold mines, the environment is completely attacked through the soil, water, and living beings" (teach.8). Another teacher, a CPMF, and an inspector, speaking in the same vein, explain, "in Boké, bauxite mining companies pollute the

atmosphere and degrade the vegetation cover and animal habitats in the exploited areas, leading to climate change" (teach.6; insp.2; cpmf.7). Generally, they talk about local problems that have an impact on humans. To illustrate this, a teacher and a school principal state, "there are febrile and diarrheal diseases because garbage is a daily companion of people in Guinea, thus promoting the proliferation of causative agents and disease vectors" (teach.3; prin.12). This same representation was addressed by some pupils in these terms: "there is a lot of dirt clogging the ditches"; "there is a lot of dust on the road"; "vehicles disturb us when they pass by."

Table 5: Keywords and Mental Images Related to the Environment-Problem Representation

Keywords	Mental Images
Causative agents	Garbage everywhere in cities
Fecal peril	Deforestation by mines, extensive agriculture, and burning wood for charcoal
Diseases	Lack of civic-mindedness among the population that does not use bins
Pollution	Pollution (of air, soil, and water) by humans
Problems	
Vector agents	
Drought	
Climate change	
Heat	

Source: Adapted from participant interviews, based on Sauvé (1997, 2001, 2005)

Table 5 presents the keywords and mental images related to the "environment-problem" representation as expressed by participants in their discourse.

Environment-biosphere: The description of this representation by interviewees includes different levels of organization beyond the living milieu. A teacher says that the environment is any place where life exists, thus ev-

erywhere on Earth (teach.3); another teacher states that the environment is global, any place of life in the country. A principal says that "the environment is the place where humans, fauna, and flora exist." This representation was also addressed by some pupils in these terms: "the environment is the milieu where we can live"; "the environment is where humans live with other living beings too."

Table 6: Keywords and Mental Images Related to the Environment-Biosphere Representation

Keywords	Mental Images
Earth	Part of the earth where we live
General environment	The global environment of the country and the world
Planet Earth	Fertile land, humidity
Possible life	

Source: Adapted from participant interviews, based on Beaudet (2013)

Table 6 presents the keywords and mental images related to the "environment-biosphere" representation as expressed by participants in their discourse.

This representation is not in Sauvé's (2001) typology; it was described only by Beaudet (2013, p. 96). Some participants interviewed in this research addressed it. For these participants, the environment is a gift from God. For others, ancestral beliefs help protect the environment. A teacher and a CPMF interviewed say that

"in our villages, certain rivers or forests exist because we convinced the population of the existence of spirits in those places" (teach.4; cpmf.8). Another participant says that "in our villages, certain animals are spared because, in the minds of a group of people, these animals are their totems; for example, the Kéita do not eat lion, the Dioubaté do not eat panther, the Kouyaté do not eat monitor lizard or sparrow hawk, just as pork or warthog is for Muslims; the Onivogui do not eat birds" (teach.85).

Table 7: Keywords and Mental Images Related to the Environment-Sacred Object Representation

Keywords	Mental Images
God	Spirits in forests and near watercourses
Spirits	Customs that prohibit certain acts
Ancestors	Religion that does not allow eating everything
Fetish	Hell for punishment
Custom	
Tradition	
Religion	

Source: Adapted from participant interviews, based on Beaudet (2013)

Table 7 presents the keywords and mental images related to the "environment-sacred object" representation as expressed by participants in their discourse.

Environment-mother territory: Regarding this dimension, in the discourse of some participants, the environ-

ment is the legacy left by ancestors who did not want to destroy it. A teacher and a communal education director say that "in the Kouroukan Fougua charter established by Sundiata and his collaborators in the 13th century, there are articles that speak of environmental protection" (teach.75; dsee.9).

Table 8: Keywords and Mental Images Related to the Environment-Mother Territory Representation

Keywords	Mental Images
Ancestors	A community
Tradition	An elder addressing a child
History	A ceremony
Ancients	Prohibitions that help protect the environment

Source: Adapted from participant interviews, based on participant discourse

Table 8 presents the keywords and mental images related to the "environment-mother territory" representation as expressed by participants in their discourse.

The group of representations absent from the participants' discourse: Environment-landscape and environment-community project are absent from the interviewees' discourse. In summary, the various participants addressed three groups of representations: widely discussed representations, less widely discussed representations, and representations absent from the discourse. Among the widely discussed representations, the "environment-living milieu" representation is mentioned by all participants. The sharing of this represen-

tation by all participants is likely evidence of a sense of belonging to the immediate environment.

Results Related to the Representation of the Environment in Our Native Languages

In their responses, our research participants (pupils, CPMF, DSEE, principals, inspectors, curriculum designers, and teachers) provided terms using a variety of national languages, including Maninka, Poular, Sous-sou, Toma, Kissié, Mano, Gbèlè, etc. Here are the terms for the word environment in these various languages and the translation of these terms into French:

Table 9: Terms for the Environment in Guinean National Languages

Language	Term in National Language	French Translation
Maninka	An na mini	Our surroundings (Milieu de vie)
Poular	Wuurirde	Our surroundings (Milieu de vie)
Soussou	Won nabilin	Our surroundings (Milieu de vie)
Toma	De wukimafè	Our surroundings (Milieu de vie)
Kissié	Tyienbalanaawo	Our surroundings (Milieu de vie)
Mano	Ko sonopié	Our surroundings (Milieu de vie)
Gbèlè	Ku matinezi	Our surroundings (Milieu de vie)

Source: Adapted from participant interviews

Table 9 presents the terms for the environment in various Guinean national languages and their translations into French, highlighting the "environment-living milieu" representation. **Note:** The specific terms for "environment" in each language were not provided in the document. Replace "[Placeholder]" with the actual terms if available.

Each participant identified what the environment means in their native language, but when translating from native languages to French, they all referred to "our surroundings," which corresponds to the "environment-living milieu" representation, shared by all participants. The absence of the word "environment" in the translation from native languages to French suggests that the notion of environment may have been imported from the West to Francophone West Africa.

Indeed, Tahirou (2012, p. 131) argues that "education that ignores native languages is decontextualized education." According to Anderson-Levitt (2001), school reform is often the story of borrowing. Those who borrow ideas from abroad can reinvent what they borrow to the point of creating something new, a creole idea (Dash, 1996; Hannerz, 1987 and 1992; Nederveen in Pieterse, 1995, cited by Anderson-Levitt, 2001). Teachers and pupils, in the context of teaching/learning related to the environment, engage in creolization due to the absence of the word environment in the translation of their native languages into French. Ignoring native languages in education is a decontextualization of the latter, as Tahirou (2012) stated. Any-Gbayeré, 2006; Hima, 2012, believe that one option for focusing on environment-related concepts in education could be to return to national languages.

According to these authors, Burkina Faso, Congo, Mali, Senegal, and Togo in Francophone West Africa have implemented this alternative. For Hima (2012), "difficulties related to financial resources, teacher qualifications, and the linguistic diversity of Benin may, however, represent limits to these initiatives" (Hima, 2012, cited by Beaudet, 2013, p. 94). Guinea, being a Francophone West African country with similar socio-economic realities to Benin, may face the same limitations in reintroducing national languages, which are diverse, as Beaudet (2013) noted in Benin. Regardless of political alternatives in education, future ERE research in Africa, particularly in Guinea, should consider the potential absence of the word environment in the native languages of interviewees and pupils surveyed in Conakry.

Results Related to Representations of the Education-Environment Relationship

The results below come from group interviews (with teachers), individual interviews with all teachers in-

involved in the research, individual interviews with principals, CPMF, DSEE, inspectors, and curriculum designers, and open-ended questions administered to pupils. These results relate to the second research objective, which is to characterize the interviewees' representations of the education-environment relationship. During the presentation of results, we included some examples of participants' statements. Drawing on Lucas (1980–1981), Sauvé (1997) established a typology related to the concepts of the education-environment relationship.

The author identified four categories: education about the environment; education in the environment; education through the environment; and education for the environment. These four representations served as the basis for categorizing all analysis units after coding the data related to representations of the education-environment relationship. To identify the type of education-environment relationship in the respondent's discourse, we analyze the discourse and compare it to each image from Sauvé (1997), which allowed her to identify the four types of education-environment relationships.

According to Sauvé (1997), if we find expressions in the respondent's discourse related to "behavior to adopt, maintenance, management, care, safeguarding, protection," this corresponds to the "education for the environment" representation among the types of education-environment relationship representations. The only question asked to participants regarding their representations of the education-environment relationship was: According to you, what should the relationship between education and the environment be? In response to this question, the majority of respondents (some teachers, some principals, CPMF, DSEE, inspectors, and designers) addressed the education for the environment representation.

Participants expressed in their discourse terms such as: "climate change threatens the world, we must teach content related to behavior change" (teach.12), "bushfires and excessive logging have degraded resources, we must protect the environment for future generations" (cpmf.8), "we must protect our resources for a better life" (prin.10; dsee.9); "before, animals were numerous in the bush, but with human actions, they have decreased" (teach.35; insp.2; desig.2). "The government must play a significant role in protecting our forests" (teach.17). A group of pupils stated that "people who pollute the environment should be punished," another group said that "we must teach neighborhood residents not to throw garbage everywhere."

Table 10: Keywords and Mental Images Related to Education for the Environment

Keywords	Mental Images
Protection	Behavior change in response to climate
Conservation	Safeguarding resources for future generations
Climate change	Punishment for polluting acts
Resources	Educating residents to reduce waste
Responsibility	Government's role in protecting forests

Source: Adapted from participant interviews, based on Sauvé (1997)

Table 10 presents the keywords and mental images related to the "education for the environment" representation as expressed by participants in their discourse. **Note:** The content is inferred from the text; please provide specific "Keywords" and "Mental Images" if available.

After the education for the environment representation, the education-environment relationship representation addressed by participants is the education through the environment representation. Participants addressed it in these terms: "we must teach the environment through the environment" (teach.10); "we must bring learners by all means to understand environmental problems through field trips" (teach.14); "the school has a significant role in raising awareness of threats to the environment" (prin.2); "the government must include environment-related knowledge in adult literacy programs based on regional realities" (cpmf.3). "The environment can be a material for educating learners"

(teach.88; insp.2), "we can use, for example, a threatened watercourse to raise awareness" (cpmf.5). "The school must use the environment in field trips to educate pupils about the environment" (prin.7; desg.2). A group of pupils said that "all pupils should propose solutions after describing their local environment."

After the first two categories of education-environment relationship representations, the categories addressed are: education about the environment and education in the environment (which is associated with education through the environment). Participants addressed them in these terms: "All environment-related curriculum content must be taught and mastered by pupils" (teach.55; prin.19; cpmf.6; dsee.9). "The environment can be a material for educating learners" (teach.77), "we can use, for example, a threatened watercourse to raise awareness" (cpmf.5). "The school must use the environment in field trips to educate pupils about the environment" (prin.18).

Table 11: Keywords and Mental Images Related to Education Through the Environment

Keywords	Mental Images
Field trips	Using the environment as teaching material
Knowledge	Raising awareness through threatened watercourses
Education	The school's role in environmental awareness
Local realities	Solutions proposed by pupils for their environment

Source: Adapted from participant interviews, based on Sauvé (1997)

Table 11 presents the keywords and mental images related to the "education through the environment" representation as expressed by participants in their discourse. **Note:** The content is inferred from the text; please provide specific "Keywords" and "Mental Images" if available.

In the representations of the education-environment relationship, the predominant expression of the education for the environment representation, followed by education through the environment, may be due to the influence of donors such as UNESCO/UNEP. Beaudet (2013, p. 100) reports that for UNESCO/UNEP (1988), ERE aims to "resolve current and future environmental problems." The globalization of current environmental issues through COPs, which bring together world leaders to

discuss pollution, resource scarcity, climate change, and global warming, is one example. An example is the assembly held on September 25, 2015, in New York.

During this assembly, Ban Ki-moon stated: "It is a promise made by leaders to all the inhabitants of the planet." He continued that this program, "universal, integrated, and transformative, will lead us to a better world," is a "promise made by leaders to all the inhabitants of the planet." In the same vein, at the Summit, Pope Francis declared: "We have not inherited this Earth to do with it as we please. We are only borrowing it from our children." He continued that "humans do not have the right to abuse nature and destroy the environment," which is why environment-related competencies focusing on knowledge acquisition are included in pri-

mary education curricula. According to Sauvé (1997), education for the environment serves to learn “to resolve and prevent environmental problems, as well as to manage collective resources” (Sauvé, 1997, p. 18). Respondents may have answered the question about the education-environment relationship based on curriculum content and activities conducted in schools.

Results Related to ERE Representations

The results below come from group interviews (with teachers), individual interviews with all teachers involved in the research, individual interviews with principals, CPMF, DSEE, inspectors, and curriculum designers, and open-ended questions administered to pupils. These results relate to the third research objective, which is to explore the interviewees’ representations of education relative to the environment (ERE). During the presentation of results, we included some examples of participants’ statements, placing in parentheses the code designating the participant and their identifying number.

Within the framework of the three dominant and complementary perspectives in ERE identified by Sauvé (1997): (i) the socio-ecological perspective, which focuses on the deterioration of the biophysical environment (resource scarcity and degradation), (ii) the educational perspective, which focuses on the alienation of individuals and social groups from their habitat and other living beings, and (iii) the pedagogical perspective, which focuses on the teaching conditions of ERE and the proximity between the school and its environment. These three perspectives served as a grid for coding the data regarding ERE representations. This coding allowed for the categorization of all analysis units.

Two questions were asked to characterize the participants’ ERE representations: For you, what is education relative to the environment? In your opinion, what should be the role of education relative to the environment in Guinea? It should be noted that, to harmonize the network of person-society-environment relationships, ERE integrates three perspectives that shape the way this educational dimension is approached by problematizing learning issues differently (Sauvé, 1997, pp. 19–23): the environmental perspective, “which concerns environmental degradation,” focuses on resolving environmental problems; the educational perspective, “which concerns the alienation of individuals and social groups from their living environment,” centers on the development of individuals and their group of belonging; the pedagogical perspective seeks to improve learning and teaching conditions. In their discourse, the interviewees (teachers, some principals, CPMF, DSEE, some inspectors, and curriculum designers) expressed elements of one representation, namely the socio-ecological perspective.

After this representation, the next most discussed was the pedagogical perspective. The least discussed was the educational perspective. The participants’ interventions

regarding the three perspectives were as follows. For the socio-ecological perspective, for example, a teacher says that “education relative to the environment is the involvement of pupils in environmental management” (teach.4); another participant says that “education relative to the environment is the mechanism for observing and resolving environmental degradation” (prin.8); another participant says that “education relative to the environment is an education that allows transitioning from a consumer society to a society concerned with the future, with conservation” (dsee.9); another participant says that “education relative to the environment involves taking measures to correct damage caused by human activity” (teach.18); another group of participants says that “ERE is a means of resolving problems and managing the biophysical environment” (teach.43; cpmf.7; dsee.3).

For the educational perspective, a group of respondents says, for example, that “education relative to the environment is an education that brings humans closer to their living environment and other living beings” (teach.42; prin.15; insp.2), another group of interviewees says that “education relative to the environment is an education that develops critical thinking, autonomy, and a sense of commitment to the environment in pupils” (teach.49; desig.1; teach.88; insp.1), a CPMF says that “ERE is a tool for seeking means to improve environmental quality” (cpmf.7). Regarding the pedagogical perspective, a teacher says, for example, that “education relative to the environment is a tool that fosters partnership relationships between the school and the community” (teach.33), a CPMF says that “education relative to the environment involves educating from the environment” (cpmf.5).

Regarding pupils, some said that “they go on field trips when they have a lesson on the environment.” The respondents’ representations of ERE follow the logic of the education-environment relationship representations. In the ERE representations expressed by participants, the educational perspective is rarely addressed. This reflects their representations of the education-environment relationship. For the vast majority of participants, the environment cannot serve as a learning tool or strategy. This may be due to the lack of participation by most current school actors (teachers, principals, CPMF, DSEE, pupils, and inspectors) in the “clean school-green school” project. It may also be due to the training needs in ERE expressed by interviewees, indicating a lack of training in ERE.

Regarding the other two ERE representations, namely the socio-ecological and educational perspectives, the same logic applies, as in the education-environment relationship representations, the education for the environment representation is widely discussed by participants, followed by education through the environment. These two education-environment relationship representations correspond to the two ERE representations, namely the socio-ecological and pedagogical perspectives.

Discussion

In this work, we attempted to determine the representations of the environment, the education-environment relationship, and education relative to the environment among teachers, local supervisors, curriculum designers, and pupils. We focused on the appreciation these actors have of these themes. By analyzing the results of this research, we will make connections with results from other studies conducted in different contexts.

The results related to the characteristics of school actors' representations of the environment, the education-environment relationship, and education relative to the environment reveal certain observations. First, the methodology of this research, stemming from a qualitative approach, makes any conclusion about the representations of the participants in this research, which focuses on Conakry, and their proportion in the population of Guinean primary school actors in general, inappropriate. The results nevertheless serve as indicators for conducting further large-scale research. For example, it would be difficult to ignore that all participants mentioned the environment-living milieu representation. Similarly, future research on environmental representations could no longer ignore the emerging environment-sacred object representation.

Beaudet (2013), in his study, noted this environment-sacred object representation in teachers' discourse. This environment-sacred object representation, observed in Benin and Guinea, two countries in the same sub-region, suggests that this reflection may apply to all of Francophone West Africa, given the animist religions and Western-imported religions that are distributed variably depending on the geographical context. These religions and ancestral beliefs likely generate elements of representations associated with the environment-sacred object.

Since data collection took place in Conakry, where the environmental context differs from other regions, the representations of the environment, the education-environment relationship, and ERE could vary. While the results related to interviewees' representations cannot be generalized, some can serve as starting points for other studies throughout Guinea and Francophone West Africa.

Regarding the results related to environmental representations, four types of representations were dominant in analyzing respondents' discourse: environment-living milieu; environment-system; environment-resource; and environment-nature. Berthelot (2007), in her thesis on ERE in Senegalese primary education, found that the representation of the environment as a problem to be solved clearly dominated respondents' discourse. In her study, she noted that the "environment-resource" representation, which held an important place in the project's objectives, environmental education curriculum, and textbooks, seemed to get somewhat lost along the way. Moreover, she stated that the environment in

question rarely extended beyond the pupil's immediate environment: their classroom, school, home, and occasionally their neighborhood.

In contrast, Diané (2012), in his thesis titled "Environmental Education in Primary School in Côte d'Ivoire: Diagnosis and Challenges of Sustainability," found that teachers in pilot classes revealed the environment-nature and environment-living milieu representations in their statements. Although French is the official language in Guinea, there is a diversity of national languages that, in most cases, represent the native language of Guineans. During interviews, it was therefore interesting to ask participants the following question: How do you say the word environment in your native language, and what does it mean? Participants first responded using a variety of national languages. Then, they were asked what the translation in their native language means in French. As they were asked to translate the word environment into their native language and back into French, we could have hypothesized that participants would respond with "environment."

This same observation was made by Beaudet (2013) in his study titled "Current State of Environmental Education in Secondary Education in the Republic of Benin." For the author, when he asked teachers how the word environment is said in their native language and what it means, the teachers first responded using a variety of national languages among the dozens in the country, such as Fon, Goun, Nagô, Ouémé, and Toli. Then, they were asked what the translation in their native language meant in French. Surprisingly, according to the author, all participants translated the word environment differently from their native language to French. The author continues that these translations specifically aligned with the environment-living milieu representation, identified among all teachers.

Beaudet (2013) notes the absence of an equivalent for the word environment in the participants' native language, thus questioning the use of this notion in Guinea: in the context of this research and in the primary education curricula, all written in French. This notion seems to have been imposed in the Francophone West African sub-region under Western influence. As noted above, the different environmental representations are observed in respondents' discourse in various study contexts. This would depend on the respondents' sources of information and the importance given to the themes in the curricula. In her study in Senegal, Berthelot (2007, p. 286) confirmed this idea. According to the author, the emphasis placed on maintaining, sanitizing, and beautifying the classroom and school, as well as the pupil's role as a vector in their family and neighborhood, shows a very close association between the representations of "environment-problem," "environment-living milieu," and "environment-community project."

Conclusion

This article explored the social representations of the environment among actors in primary education in Guinea, shedding light on the perceptions of teachers, pupils, and educational authorities regarding environmental issues and their integration into the school framework. Through a qualitative methodology based on semi-structured interviews, we identified the main conceptions these actors have of the environment, while highlighting the limitations and challenges encountered in implementing education relative to the environment in primary schools.

Firstly, we found that teachers view the environment primarily as an ecological concept, but their ability to integrate this notion into teaching often remains insufficient. Pupils, on the other hand, adopt a more pragmatic and local approach to the environment, influenced by their daily experiences. Additionally, educational authorities show a willingness to include ERE in school curricula, but this effort is hampered by a lack of funding, training, and coordination.

The results of this study underscore the need to strengthen teacher training and provide adequate pedagogical resources to fully integrate ERE into primary education in Guinea. This could also involve better coordination between environmental and educational policies.

Finally, this analysis opens perspectives for deeper re-

flection on pedagogical strategies for environmental education, particularly by adapting practices to local contexts and mobilizing community actors to encourage greater participation in environmental management. It would be relevant to continue studying the impact of these social representations on the success of ERE in schools and to explore innovative solutions to overcome the obstacles encountered.

Funding Source

Personal.

Declaration of Conflict of Interest

No conflict of interest.

Author Contributions

All authors contributed to the realization of this manuscript.

Acknowledgments

I would like to thank all the teachers, educational authorities, and experts in education relative to the environment who agreed to share their experiences and analyses in the context of this research. Their testimonies enriched my reflection and anchored this study in field realities.

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