Knowledge of forests and their representation among urban children (elementary school children in the municipality of Rio de Janeiro): Considerations about environmental education

CLAUDIA L. S. MENDES, VIRGINIA T. SCHALL

Laboratório de Educação Ambiental e em Saúde, Departamento de Biologia, IOC, Fundação Oswaldo Cruz, Rio de Janeiro, RJ 20001-970, Brasil

The relation of the urban child with the forest environment has been investigated in a health education project aimed at primary schools in order to understand the child’s knowledge and feelings towards this environment. Among the students who stated having visited a forest, 35.3% from the North Zone (NZ) and 37.5% from the South Zone (SZ) failed to characterize it adequately, mentioning instead, leisure sites in the urban area such as the Zoo or parks. Among the students who described a forest, 44.1% (NZ) and 47.9% (SZ) refer to the occurrence of the trees and animals in the environment. Out of these, 49.3% (NZ) and 61.2% (SZ) refer positively to what they had experienced. The negative records are rare and generally attached to fear of animals, which demonstrates insufficient knowledge of the national fauna. The previous comprehension of the students’ knowledge and their relation with the natural environment enables us to re-address the question of environmental education, raising questions which may stimulate more participation and constructive action by children.

A relação de crianças de áreas urbanas com ambientes naturais foi investigada no contexto de um projeto de educação em saúde desenvolvido em escolas de 1º grau. Foram entrevistadas 346 crianças, quanto ao que conhecem e sentem em relação a florestas. A amostra foi selecionada aleatoriamente em 17 escolas de duas regiões (Zona Norte - ZN e Zona Sul - ZS) do município do Rio de Janeiro. Verificou-se que dos alunos que declararam já ter ido a uma floresta, 35,3% (ZN) e 37,5% (ZS) não a caracterizam como tal, relatando lugares de lazer na área urbana, como o jardim zoológico ou parques. Dentre os que caracterizavam uma floresta, 44,1% (ZN) e 47,9% (ZS) a descrevem como um lugar onde tem árvores e bichos; 49,3% (ZN) e 61,2% (ZS) posicionavam-se favorablemente quanto ao que sentiam. Os relatos negativos são raros e geralmente ligados à medo de animais, demonstrando desconhecimento da fauna nacional. A compreensão prévia da relação e conhecimento de escolares com um ambiente natural, permite uma reavaliação da questão da educação sobre o ambiente que possa despertar questionamentos que motivem uma atitude mais participativa e construtiva.

The current situation of Health Education in elementary schools is being evaluated by a sampling of public and private elementary schools in the municipality of Rio de Janeiro. Among the areas of investigation is Environmental Education, in view of the close relation between environment and health. According to Rouguayrol (1), health is a condition which depends on the equilibrium of the ecosystem, where system is defined as "a complex unit" which, in the case of man, includes his specific relations with other living beings (animals and plants), the relations of the latter amongst themselves, and the relations of all with the inanimate substrate within which life and its interactions are processed. Thus, in an ecosystem favorable to life, relations are equilibrated and permit an individual to maintain himself and to defend himself against physical deterioration.

To try to maintain this equilibrium, man must understand his relations within this system, perhaps starting from his own home, by observing, for example, that the infrastructure of the city in which he lives is based on natural resources

Correspondence to: Virginia T. Schall, Laboratório de Educação Ambiental e em Saúde, Departamento de Biologia, IOC, Fundação Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro, RJ 20001-970, Brasil.

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and that it is important to know where the water he consumes comes from, how it is treated (if treated) and where it goes. Inquiring about sanitation, nutrition and hygiene may provide a real vision of the existing ecological relations and of what is impairing the preservation of the environment, altering the quality of life, and interfering with health.

Tanner (2), in his book "Environmental Education", stated that "the main objective of the latter is that mankind be able to maintain itself indefinitely in a system of dynamic equilibrium with the Earth and its resources", a fact that would provide, in addition to simple maintenance of living beings and their environment, better living conditions on the entire planet. In the recovery of this equilibrium, a fundamental factor is the ecological awareness of the citizen, which is linked to a more intense social practice since participation depends on becoming aware of the facts.

On this basis, the knowledge that urban schoolchildren have of the natural environment and of their dependence on it for their quality of life is an important factor to consider, since it would allow an evaluation of the vehicles through which the information reaches the child, forming his concepts and values. We know that it is mainly through formal education that children obtain most of their information about nature, especially through Science education, although there is no concern about linking this discipline to others and to the social factor. The themes approached in this discipline are usually divided into topics and treated separately, indicating that the teaching system is fragmented, thus impairing an understanding of the interdependence between living beings and the planet and not always permitting the vision of a healthy environment and of the importance of the schoolchild's participation as a citizen.

We agree with Meyer (3) when she states that "research in the area of Environmental Education (EE) is recent in our country, a fact that impairs the interpretation of the knowledge and attitudes of the population with respect to the environmental questions" and that "EE proposals should first try to understand the relations that the population establishes with nature. In this way, education will be a permanent reevaluation of knowledge about the environment".

The objective of the present study was to determine the relations of children from an urban area with the natural environment and the conceptual representation they form of the latter, so that, by determining their concepts and attitudes, we may elaborate a more articulated teaching-learning process which will stimulate the search for knowledge and a greater participation in environmental questions.

Sample: The present study was carried out at 17 elementary schools (8 of them public and 9 private) in the Northern Zone (NZ) and Southern Zone (SZ) of the municipality of Rio de Janeiro, comprising a sample of 146 pupils of the 1st and 2nd grades, 82 of them in the NZ and 64 in the SZ.

The schools were selected by locality in an attempt to cover different social strata.

The NZ and SZ of the municipality of Rio de Janeiro are characterized by the socioeconomic differences of the populations they comprise. The public Schools (PS- "EPU") of the 5th District of Education and Culture (5th DEC), which belong to the NZ, generally include the less affluent children of the region and even among the private schools (PS - "EPA") of this zone only two include middle-class children. The other private schools admit pupils of the less affluent classes, including children who receive government scholarships for not having found a place in public schools.

The other sampled area, SZ, is characterized by a population with higher socioeconomic standards. The private schools of this zone include children of the upper and middle classes, characterized by high socioeconomic and cultural levels. The public schools, on the other hand, which belong to the 3rd DEC, include children of the working class, resembling the public schools of the NZ. These pupils come either from slums or from popular housing projects in the SZ. Many pupils are children of workers who dwell at their working places (such as porters and maids).

Procedure: For each grade four pupils were interviewed after a random selection. Interviews were carried out orally through a questionnaire, in order to obtain information on several thematic areas connected to health. The questions whose answers were analyzed aimed at defining the pupils' representation of forests. The choice of this topic is due to the current threats posed to that environment by factors such as deforestation and inadequate exploitation of plant products. Furthermore, the children's conception of forests is influenced by the context of the stories told to them, where the forest is generally described in a frightening and threatening way, as pointed out by Machado (4). Lastly, the city of Rio de Janeiro has the largest urban forest of the world, currently converted into Patrimony of Mankind, and still very little explored for educational purposes by schools.

Methodology of analysis: The answers to the questions "Have you ever visited a forest?", "How was it like there?" and "How did you feel there?" were listed and categorized, in order to ensure a precise analysis of the ideas presented by the pupils. Some examples of the categorization of answers to the second question are given below in the Appendix, at the end of the article.

Those answers by pupils who claimed to have been to the forest before, which alluded to other places, such as "my house is in the forest, it has got a lot of plants" were included in the category "Does not characterize a forest". Other answers, such as "it had trees, grasses, a river, little monkeys..." were included in the category "Characterizes a forest by the physical description of the environment", see Table 2.

The answers to the question "How did you feel there?" which revealed positive impressions towards the forest were included in the category "Favorable impressions", see Table 2. The answers appearing in Table 3 were analyzed likewise.

Age range of the sample: The age of the children interviewed ranged from 7 to 14 years. Among first-graders in the SZ there is a predominance of 7-year-old children both in public schools (60%) and in private schools (68%) but children up to 10 years old may be enrolled in that grade (6.6%). In the
NZ there is a predominance of children aged 7 to 9 years in public schools (84%) and between 6 and 9 years in private schools (88%). Children up to 13 years old may eventually be found in the 2nd grade of both public and private schools in that zone (4%).

The age of second grade pupils in the public schools in the SZ ranged from 8 to 14 years, 9-year-olds being the most frequent (35.5%). Among pupils attending private schools there is a predominance of 8-year-olds, with a slight variation towards 9-year-olds.

In the NZ the age of second grade pupils ranged from 7 to 14 years both in public and in private schools. Whereas there is a predominance of 8 to 10-year-olds in private schools, they range from 8 to 12 years old in public schools.

**Results**

**How is the forest like?**

Of the pupils interviewed, 74.4% of the ones in the NZ and 75.0% of the ones in the SZ reported having visited a forest (Table 1). When asked “How is the forest like?” 35.3% of the NZ pupils and 37.5% of the SZ pupils did not describe satisfactorily a forest. They generally alluded, instead, to a Zoological garden or other kinds of public gardens, as well as amusement parks. Of the pupils who characterized a forest (64.6% in the NZ and 62.5% in the SZ) 44.1% in the NZ and 47.9% in the SZ enumerated objects in their descriptions of a forest (Table 2).

Of the pupils who reported not knowing any place like a forest (24.4% in the NZ and 18.7% in the SZ - Table 1) 31.6% in the NZ and 42.9% in the SZ exposed favorable impressions about that habitat upon being stimulated to answer how it would be like, whereas 21.4% in the SZ and 15.8% in the NZ revealed unfavorable impressions. Only NZ pupils (21.0%) answered to that question with a description of the environment (Table 3).

**Why did you feel there?**

Of the pupils who reported having been to a forest, 49.3% in the NZ and 61.2% in the SZ had related positively to the experience, whereas 13.0% of the pupils in the NZ and 12.2% in the SZ reported unfavorable impressions (Table 2). Ranking among these unfavorable impressions were: “did not like” (55.6%); “felt discomfort” (22.2%); “felt had” (11.1%) and “felt discomfort for the presence of mosquitoes” (11.1%).

Of the pupils who claimed to know a forest those who revealed positive impressions study mostly in the NZ (55.5% of the pupils versus 15.4% in the NZ). Upon being asked “How would you feel in the forest?”, 38.5% of the NZ pupils revealed unfavorable impressions (Table 3).

**Forest animals that cause fear**

Of the 146 interviewed pupils 86 (58.0%) reported fearing animals in the forest. Snakes were mentioned by 27 pupils (38.0%) in the NZ and 12 pupils (30.7%) in the SZ. Dogs were mentioned by 7 (9.9%) of the NZ pupils and 3 (7.7%) of the SZ pupils and lions were mentioned by 3 (4.2%) of the NZ pupils and 5 (12.8%) of the SZ pupils. Other animals were mentioned by only 1 or 2 pupils. It is interesting to note that NZ pupils mentioned almost twice as many animals as SZ pupils (71 and 39 kinds of animals, respectively). Furthermore, different animals are mentioned according to Zone (Table 4).

On the basis of the results obtained, most of the pupils

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**Table 1 - Pupil responses to the question: “How ever you visited a forest? by area studied, i.e., North Zone (NZ) and South Zone (SZ).**

<table>
<thead>
<tr>
<th>Have you ever visited a forest?</th>
<th>NZ (%)</th>
<th>SZ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claims to have visited a forest</td>
<td>61 (74.4)</td>
<td>48 (75.0)</td>
</tr>
<tr>
<td>Does not know a forest</td>
<td>20 (24.4)</td>
<td>12 (18.7)</td>
</tr>
<tr>
<td>No answer</td>
<td>1 (2.4)</td>
<td>4 (6.3)</td>
</tr>
<tr>
<td>Total</td>
<td>82 (100)</td>
<td>64 (100)</td>
</tr>
</tbody>
</table>

χ² (a and b) = 0.45; p ≤ 0.05.

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**Table 2 - Categorization of the responses of pupils who claimed to have a forest to the questions: “How was the forest?” and “How did you feel there?”, by area studied, i.e., NZ (North Zone) and SZ (South Zone).**

<table>
<thead>
<tr>
<th>How was the forest?</th>
<th>NZ (%)</th>
<th>SZ (%)</th>
<th>How did you feel there?</th>
<th>NZ (%)</th>
<th>SZ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not characterize a forest</td>
<td>24 (35.3)</td>
<td>18 (37.5)</td>
<td>Favorable impressions</td>
<td>34 (49.3)</td>
<td>30 (61.2)</td>
</tr>
<tr>
<td>Characterizes a forest by physical description of the environment, enumerating objects</td>
<td>30 (44.1)</td>
<td>23 (47.9)</td>
<td>Unfavorable impressions</td>
<td>9 (13.0)</td>
<td>6 (12.2)</td>
</tr>
<tr>
<td>Characterizes a forest by describing negative aspects of the environment</td>
<td>6 (8.8)</td>
<td>2 (4.2)</td>
<td>Positive description</td>
<td>2 (2.9)</td>
<td>1 (2.0)</td>
</tr>
<tr>
<td>Quality expressed by a positive adjective</td>
<td>3 (4.4)</td>
<td>3 (6.2)</td>
<td>Physical activities</td>
<td>7 (10.1)</td>
<td>4 (8.2)</td>
</tr>
<tr>
<td>Quality expressed by a negative adjective</td>
<td>2 (2.9)</td>
<td>0 (0.0)</td>
<td>Vague</td>
<td>1 (1.4)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Characterizes forest activities</td>
<td>3 (4.4)</td>
<td>2 (4.2)</td>
<td>No answer</td>
<td>16 (23.2)</td>
<td>8 (16.3)</td>
</tr>
<tr>
<td>Total of responses</td>
<td>68 (100)</td>
<td>48 (100)</td>
<td></td>
<td>69 (100)</td>
<td>49 (100)</td>
</tr>
</tbody>
</table>

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Table 3 - Categorization of the responses given by pupils who declared that they did not know the forest to the questions: “What would a forest be like?” and “How would you feel there?”, by area studied, i.e., North Zone (NZ) and South Zone (SZ).

<table>
<thead>
<tr>
<th>What would a forest be like?</th>
<th>N (%)</th>
<th>N (%)</th>
<th>How would you feel there?</th>
<th>N (%)</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Described favorable impressions</td>
<td>6 (31.6)</td>
<td>6 (42.9)</td>
<td>Presumes favorable impressions</td>
<td>2 (15.4)</td>
<td>5 (55.6)</td>
</tr>
<tr>
<td>Described unfavorable impressions</td>
<td>3 (15.8)</td>
<td>3 (21.4)</td>
<td>Presumes unfavorable impressions</td>
<td>5 (38.5)</td>
<td>2 (22.2)</td>
</tr>
<tr>
<td>Described the environment</td>
<td>4 (21.0)</td>
<td>0 (0.0)</td>
<td>Describes negatively</td>
<td>0 (0.0)</td>
<td>1 (11.1)</td>
</tr>
<tr>
<td>Distorted</td>
<td>1 (5.3)</td>
<td>0 (0.0)</td>
<td>No answer</td>
<td>6 (46.2)</td>
<td>1 (11.1)</td>
</tr>
<tr>
<td>No answer/Does not remember</td>
<td>5 (26.3)</td>
<td>5 (35.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total answer</td>
<td>19</td>
<td>14</td>
<td></td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>

interviewed declared that they had visited a forest; of these, approximately 35.0% (NZ) and 37.0% (SZ) did not describe a forest but rather leisure sites in the urban area such as the Zoo, the Botanical Gardens or even amusement parks (no significative difference, $\chi^2$, p < 0.05). Most of these pupils stated that they felt good in the places described, possibly because they are special places for outings which differ from their habitual environment and therefore acquire an important meaning.

Among the pupils who described a natural environment, the idea of a forest was usually related to trees, animals and leisure spaces (eating fruit, climbing trees, swimming in a river, etc.). Few negative reports that were related to fear of animals or accidents that might occur were registered. The animal that elicits most fear in children is the snake, often mentioned as a poisonous animal that may kill a person.

The feelings for a forest were favorable. Most of the pupils replied to the question “How did you feel in the forest?” by stating that they felt good, that the forest was “just great”. Some also reported activities such as playing and hunting. Again, unfavorable impressions (most frequent in the NZ students) were related to fear of accidents or of animals, such as: “I don’t want to go because I’m afraid of mosquitos and snakes, I’m afraid of being bitten” or “I did not like it, a snake may have been there, and you could even die there, I only went there once and ran back home”. The impressions of urban children were mostly positive but we did not observe a better knowledge of the environment. A place in the woods was described as being pretty but potentially dangerous, as in the following statement: “I went to the Realengo woods where there are no snakes; I liked the landscape, the clean air”. Or: “In the woods near my house there’s grass, trees, monkey houses, fruit to eat (Java plum), if you swallow the pit you die. The pit is poison”.

Most of the pupils who declared never to have visited a forest, when stimulated to describe how it would be, replied by describing this environment as a place with woods, full of animals, and reported favorable impressions such as: “It would be great”. In this respect, significative differences ($\chi^2$, p < 0.05) related to the region (NZ or SZ) were observed. The children from SZ declared more favorable feelings than the NZ.

Most of the animals cited as belonging to the forest were actually domestic animals (chickens, goats, horses, cattle, etc.), animals frequently occurring in the urban area (rats, spiders, lizards, cats, dogs, etc) and fearful animals (poisonous snakes, spiders, scorpions). The term poisonous also appeared in relation to plants.

Several books and mass media resources also treat the environmental question as a reality distant from the urban zone, thus transmitting a utilitarian and anthropocentric vision of nature.

In their analysis of data obtained from teachers about teaching in the area of sciences and health, Pendilhe et al (5) revealed that “less than 50% of the answers refer to positive criticism on the adequacy of books”, despite their widespread

Table 4 - Animals mentioned by pupils interviewed in reply to the questions: “Are you afraid of animals when you are in the woods? Which ones?”, by area studied, i.e., North Zone (NZ) and South Zone (SZ).

<table>
<thead>
<tr>
<th>Animals mentioned/number of times</th>
<th>N=71</th>
<th>N=39</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snake</td>
<td>27 (38.0)</td>
<td>12 (30.7)</td>
</tr>
<tr>
<td>Dog</td>
<td>7 (9.9)</td>
<td>3 (7.7)</td>
</tr>
<tr>
<td>Monkey</td>
<td>5 (7.0)</td>
<td>1 (2.6)</td>
</tr>
<tr>
<td>Lion</td>
<td>3 (4.2)</td>
<td>5 (12.8)</td>
</tr>
<tr>
<td>Elephant</td>
<td>4 (5.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Toad</td>
<td>3 (4.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Butterfly</td>
<td>3 (4.2)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Large lizard</td>
<td>2 (2.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Bat</td>
<td>2 (2.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Chameleon</td>
<td>2 (2.8)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Bear</td>
<td>0 (0.0)</td>
<td>2 (5.1)</td>
</tr>
<tr>
<td>Tiger</td>
<td>0 (0.0)</td>
<td>2 (5.1)</td>
</tr>
<tr>
<td>Spider</td>
<td>0 (0.0)</td>
<td>2 (0.0)</td>
</tr>
<tr>
<td>Jacaracatu/Aedes mosquito/crocodile/ giraffe/bull/headless male/crab*</td>
<td>8 (11.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Mosquito/panther/lizard/caterpillar/ horse/turtle/centipede*</td>
<td>0 (0.0)</td>
<td>7 (17.9)</td>
</tr>
<tr>
<td>Armadillo/cockroach/rat/pig/animals in general*</td>
<td>5 (7.0)</td>
<td>5 (12.8)</td>
</tr>
<tr>
<td>Total animals mentioned</td>
<td>71</td>
<td>39</td>
</tr>
</tbody>
</table>

* Animals mentioned only once; N = number of replies given; $\chi^2$ = 9.3, p < 0.01.
employment. The current practice of teaching in the health and environment areas is based on educational books, mostly detached from the teaching practices and containing distorted and far-fetched concepts from the pupil's reality (4, 6, 7). Barbieri (8) states that "the teacher frequently abandons his/her formative experience in order to adopt the educational book."

In a research on comic strips Maia and Vilaça (9) suggest that the forest is the most frequently depicted natural environment in this kind of communication medium, generally associated with a negative image ("it is held as a dangerous place, a habitat of wild and dangerous animals"). According to these authors, nature is depicted as a caricature, as opposed to the city ("for example, the forest is dark, in contrast to the bright and lighted city; the fear of getting lost in the forest is opposed to the excessive organization of information in the city; nature and its "weird" inhabitants are frightening when compared to the cities and their uniform fashion"). Machado (4) also stresses the negative image of forests in children's stories, which is changing nowadays in the recent literature for children, after increasing the ecological consciousness.

Learning trough books, sometimes inadequate, children do not learn to think starting from their own reality. By questioning the value of their environment, they may gain a better understanding of their role in nature, with their teachers playing an important part in terms of their values and knowledge about the environment.

Considering the learning in the schools, it depends on the teacher. The training of Science teachers has been frequently criticized. Factors such as curriculum, lack of laboratory facilities in the school, lack of support from the Director's office for laboratory classes affect the quality of teaching, which is traditionally structured in an inadequate manner, as pointed out by Krashlich (10).

The way a teacher handles the topic to be treated, his/her interest and ability in stimulating the pupils may affect the way the students learn. Thus, we believe that it would be very valuable to carry out a survey to evaluate teacher performance and not only the performance of Science teachers with respect to the environment, in order to revise the practice of education in general.

We believe that the stimulation of values and attitudes favorable to the environment among these children requires a more practical and participative education. The study of the relationships between the city and other kinds of environments should be approached with a sharper focus. As the city produces few vital (natural) resources, it depends on other environments for its survival, such as the rural and the natural ones.

One point to ponder is the condition of cities, where most industries and other sectors of the economy are located, which are responsible for the great energy and raw material requirements of this kind of environment. On the other hand, the largely unrecycled refuse disposed of by the city pollutes the environment. As stated by Odum (11): "the city is 'run' as something detached from its life-sustaining systems, destroying and disregarding the basic conditions on which human dignity and life depend, although these sectors are important from an economic point of view even to rural areas". We thus consider as equally important that the social and economic relationships be studied. Carson (apud 2) emphasizes the development of what she calls "the Feeling of Wonder" in children, stressing the importance of practical environmental education to be obtained in outdoor excursions with children. In this way, they can explore the environment, experience their feelings and formulate their own questions, thus developing a "feeling of wonder" for the natural world which, once consolidated as an inner value, would lead to respect nature.

Environmental education should suggest a holistic vision of the environment, aiming at a better understanding of it. For that purpose, it is necessary that knowledge be transmitted and that the school be responsible for the development of the bases that will enable this knowledge to turn schoolchildren into better citizens.

When the child knows his environment and its possibilities, participation becomes more constructive and creative, permitting a broader long-term vision, and stimulates discussion which is essential for personal growth and for the preservation of the environment.

Appendix

Operational definition of the categories of replies to the question: "Have you ever visited a forest? How was it?"

A - States that he/she has visited a forest:
A1 - Does not describe a forest - Replies of pupils who state that they know a forest but describe other places such as public parks, zoos, a backyard, amusement parks, etc.
Examples: - In my house, it is full of weeds.
- In Quinta and in Santana Park...
- ...it was good, there were little airplanes to ride, a flying saucer, a magic carpet...
- It was a zoo.
- At the Botanical Gardens...
A2 - Characterizes a forest by giving a physical description of the environment, enumerating objects - Describes the environment by listing its components.
Examples: - It was full of trees and plants...
- There were trees, grass, a river, little monkeys...
- ...there was waterfall, it was big, there were cows, ducks...
- I saw a lot of animals, plants...
A3 - Characterizes a forest by describing negative aspects of the environment - Describes the environment in an unfavorable manner.
Examples: - ...there may be a snake, you could even die there.
- There are all kinds of grasses. It's bad, there are crickets biting me...
A4 - Quality expressed by a positive adjective.
Examples: - Great...
- It was good...

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A5 - Quality expressed by a negative adjective.
Example: - I didn’t like it...
A6 - Characterizes activities in the forest - Does not define the environment but lists the activities he/she performed in the forest.
Examples: - I threw seeds for the birds...
- I liked to play there...
- Up North, it was time to go hunting with my uncle...

B - States that he/she does not know a forest (assumes how it would be)
B1 - Describes favorable impressions.
Examples: - I think I would like it.
- If I went there I would like it.
- It would be great, I could play hide-and-seek behind the trees.
B2 - Describes unfavorable impressions.
Examples: - Bad
- I think that it’s not very good. There’s grass that cuts the hand.
- It’s bad, there are animals like elephants, giraffes that could run after you and hurt you.

B3 - Describes the environment.
Examples: - ...full of trees, grass, full of animals.
- It would be full of animals.
- With lots of trees and lots of grass.

B4 - Distorted
Example: - I go by car where I could have a picnic.
When I go by car I see everything.

Operational definition of the categories of replies to the question “How did you feel in the forest?”:

A - Favorable impressions - Manifests positive feelings with respect to the forest.
Examples: - I would like it.
- I was very happy.
- I thought it was good.

B - Unfavorable impressions - Manifests negative feelings with respect to the forest.
Examples: - Did not feel good.
- Felt bad, full of mosquitoes biting.
- Did not like it.

C - Positive description of the environment.
Examples: - I liked the landscape, the clean air.
- I think I would like the clean air, I would not be afraid of any animal.

D - Negative description of the environment.
Example: - I felt bad because there could be mosquitoes.

E - Physical activities.
Examples: - I was playing and very happy, flying a kite.
- I liked to play there...

References and notes
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