

Nature Experience and Perception of Nature in Peruvian School Students: Closer to Nature, but still far away?

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Natur subjektiv

Studien
zur Natur-Beziehung
in der Hightech-Welt

natursoziologie.de
2/2014 JRN10 Peru

Abstract: In a technological world, nature experience competes with the use of TV or computers in children's everyday life, as surveys have shown (e.g. Medienpädagogischer Forschungsverbund Südwest, 2010). Other studies (Brämer 2011a) have repeatedly highlighted an alienation of young people from nature, in the sense that there is a romanticized image of certain idealized aspects of nature. In contrast, the everyday nature with its countless links to human life is ignored, particularly nature as a resource for human life. For this study, we examined a total of 170 Peruvian students (age 14,4 yrs.) from a rural rainforest area as to their nature experience and perception of nature, and compared this image to the relatively well-known situation in Germany. Our aim was to investigate the influence of geographical as well as cultural aspects on the students' appreciation of nature and their environmental awareness. We supposed that Peruvian students, due to their close everyday contact with nature and the agricultural society they live in, would show a much less romanticized notion of nature than the German sample. In contrary to this expectation, we found the image of nature painted by the Peruvian students to be just as dichotomized and alienated as in Germany. Environmental education appears to have strong effects on the perception of nature in our Peruvian sample, but not in favour of nature experience. Together with other factors of rather socio-economical kind, it obviously rather reduces nature experience of young people who are surrounded by nature.

Keywords: Attitudes, Biology, Environment, Alienation, Glorification

THEORETICAL BACKGROUND AND RESEARCH QUESTIONS

Empirical studies have underlined the role of nature experience for environmental education (e.g. Bögeholz 1999). However, surveys indicate that children spend a growing part of their time in front of TV, cell phone or PC screens, while the time spent on outdoor activities decreases (Medienpädagogischer Forschungsverbund Südwest, 2010). Only half of the children aged 6 to 13 (n = 1214) play outside every day, although these outdoor activities are still the favourite activity for 43% of them, compared to 32% who prefer watching TV above everything else. This seems to apply for many countries with high technological standards (Louv 2011, p. 37). In order to retrace what this means for the young generation's emotional affinity and attitude towards nature, Brämer (e.g. 1998, 2011) has reported data from German samples for the last 15 years. The evidence indicates a growing alienation of young people from nature, in the sense that there is a romanticized image of certain idealized aspects of nature,

whereas they ignore the everyday nature with its countless links to human life, particularly natural resources used by humans in agriculture or forestry. Young Germans, instead of validating a sustainable use of the earth's natural resources, tend to entirely exclude humans from their idealized image of nature that rather resembles a Disney movie ('Bambi syndrome', Brämer 1998).

Romantic idealization of nature has been interpreted as a reaction to industrialization (Cronon 1996). The first national parks in the U.S. were created soon after life in the big cities had turned to something much more 'civilized', and dominated by technology, than what the first settlers had encountered: the wilderness was now idealized and transformed into something pristine (Cronon 1996). These historical developments make it reasonable to assume that a lack of nature experience in everyday life may lead to a romanticized glorification of nature. Ironically, this appears to deepen the separation between man and nature, as the idealized image is blurred and lacks important aspects such as a sustainable use of natural resources.

The alienation from nature coincides with a well-documented lack of nature experience and a shift from outdoor activities to indoor technology-based leisure time. But is the altered relationship to nature really due to a lack of nature experience in industrialized countries? We investigated this causal relation by adapting Brämer's survey method to a rural and poor area in Peru, where geographical and cultural aspects differ very much from Germany. The German survey series 'Jugendreport Natur' (e.g. Brämer 2011a) served as a blueprint for the sampling method, and as a reference: we compared our results from the Peruvian sample to the outcome of Brämer's most recent survey in Germany (Brämer 2011a, 2011c). Due to their close everyday contact and the fact that many of their parents are peasants, we formulated the hypotheses that Peruvian students would show a much less romanticized notion of nature than the German age group. In detail, we investigated the following questions:

- What concepts of, and what emotional affinity to nature do Peruvian students have?
- Do they glorify and idealize nature to the same extent as German students?
- Or are they more aware of the role of humans as depending on natural resources, and thereby less alienated from these 'profane', everyday aspects of nature?



Figure 1. The Rio Mayo valley at Moyobamba in Northern Peru, a region with tropical climate and mainly agricultural economy. Slash-and-burn agriculture is widespread. 44,1% of the town's inhabitants are classified as 'poor'. *Photograph: L. Kollender.*

RESEARCH DESIGN AND METHODOLOGY

Brämer uses a questionnaire with five key constructs that the items were grouped around: (1) concept of nature, (2) value of nature, (3) frequency of outdoor activities, (4) nature preference, and (5) nature experience. The questionnaire was translated to the regional Spanish and used only once with a sample of 170 students (Table 1).

Table 1

Age distribution of the sample group in Moyobamba, Peru.

Age (yrs.)	7	8	9	10	11	12	13	14	15	16	17
No. of students	2	2	2	0	4	6	6	56	60	26	6

Notes. The average age of the total sample ($n = 170$) is 14,4 years, the majority of them (105) are female.

The questionnaire mainly contains closed questions and Likert-scale items. In addition, there was a particular section where the students were to write down their spontaneous associations in relation to the word 'nature'. We used this open-format item to depict the students' concept of nature. The Peruvian data were sampled in June 2012 in Moyobamba, a town of 40.000 inhabitants in the Rio Mayo valley, Northern Peru, with tropical climate and mainly agricultural economy (Fig. 1). 44,1% of Moyobamba's inhabitants were classified 'poor' by Peru's National Statistical System (INEI) in 2009. The average age of the total sample ($n = 170$) was 14,4 years, with individual ages ranging from 7 to 17, but most of them in the age group 14-16 years (Table 1). The majority (105) of the 170 students were girls. As it was only a small project limited in time and funding, the sample is 'ad-hoc' in the sense that we were not able to randomize the participants with respect to gender, age or economical strength of their parents (Raab-Steiner, Benesch 2010, p. 18). Data were sampled in two different schools, with most students attending the 'Colegio Ignacia Velázquez' ($n=150$). The 'Colegio' is a public, co-educative school and free from charge. Its educational approach is strictly catholic, and environmental education is very present. Several printed or hand-painted banners in and around the school building call for nature conservancy and protection of the environment (Figure 2).



Figure 2. Signs in the Schoolyard of the Colegio Ignacia Velázquez in Moyobamba. The translation of their messages is: 'Nature gives us life, let us protect the environment!', and, 'Why don't humans love me?' (planet earth). Photographs: L. Kollender.

FINDINGS

Our data indicate that the image of nature shared by the Peruvian students resembles that of German students much more than it could be expected with regard to the different geographical and socio-cultural context. Although the beliefs of the two samples differ in some aspects, teenagers in both countries show a romantic glorification of nature. The concept of nature that we found in Peru is even more abstract and idealized than it is in the German sample group. Both groups perceive humans predominantly as a threat to nature, but put different emphases in this relationship and draw somewhat different conclusions for human behaviour. In the following section, we explain selected aspects of our findings in detail, with emphasis on (a) the student's concept of nature and (b) their viewpoint as to the role of humans in nature.

Young People's Concept of Nature

Spontaneous Associations

The perspectives of both sample groups on nature differ considerably, as the data in tables 2 and 3 indicate. Young people in Germany primarily associate landscape (25,6% of all responses) and non-human beings such as plants (29,0%) and animals (16,0%) with nature. In contrast, Peruvian school kids instantaneously think of humans (75,6%), their feelings and their relation to nature. The tendency of Peruvians to associate nature with human aspects is continued in the high frequency of aesthetic ratings (35,0%), and the aspect of destruction and protection (23,5%), which is considerably less frequent in the German sample group.

Table 2

Spontaneous Associations with 'Nature' by young Peruvians from Moyobamba, compared to young Germans.

Category	Peru (% of all associations)	Germany (% of all associations)
Plants	9,0	29,0
Animals	1,4	16,0
Landscape	2,9	25,6
Sky and weather	2,5	7,4
Humans	75,6	18,8
Nature as abstract, generalized idea	9,2	3,2

Notes. Percentages refer to the total number of associated words. Peruvian sample group: n = 170, average age 14,4 ys. German data: Brämer (2011b), n = 1.006, 12 to 15 years old.

Overall, the data on spontaneous associations indicate that young Germans conceive nature as something real and concrete, represented by landscape and living beings. In contrast, the Peruvian pupils' idea of nature is a lot more idealistic and abstract, and linked to aesthetic feelings (35%), predominantly to beauty. Only the adjective 'important' was even more frequent than 'beautiful' in the Peruvian sample. Nature is rated as important 'because human existence depends on it' (questionnaire no. 13). Also, many of the Peruvian students explained that nature is a 'gift of God', and therefore has to be protected.

Table 3

Spontaneous Associations concerning the Human Relationship to Nature by young Peruvians from Moyobamba, compared to young Germans.

Subcategory	Peru (% of all associations)	Germany (% of all associations)
Humans (total)	75,6	18,8
Aesthetic Ratings (total)	35,0	4,0
‘Beautiful’	9,8	1,9
Destruction and Protection of Nature (total)	23,5	6,2
Damage or Threat to Nature	5,6	0,9
Nature Conservation (total)	18,0	1,4
...due to religious belief*	10,6	-
Commercial Use of Nature	3,1	2,6

Notes. Percentages refer to the total number of associated words. As the table contains a selected number of subcategories only (indented lines), percentages in one column do not add to 100%. Peruvian sample group: n = 170, average age 14,4 years. German data: Brämer (2011b), n = 1.006, 12 to 15 years old. *This subcategory was not used in the German sample.

What threatens nature, according to the students in Moyobamba? Although some of them mention forestry, most of the concerns that they express in the questionnaires are of a very general kind, such as: Nature is destroyed by ‘the human being’ (*el ser humano*), ‘because humans pollute the environment’ (questionnaire no. 154). Mankind appears as a general threat to nature, even though his destructive activities are rarely specified by the Peruvian students, and therefore stay rather vague.

In summary, the data in this section suggest that, on one hand, Peruvian students associate nature with positive values, such as beauty and importance, more often than the German students do. However at the same time, Peruvians do not think of nature’s real elements such as landscape, plants and animals to the same extent, and the threats to nature that they feel remain unspecified and of a rather general kind. One could conclude that Peruvians share a lot of admiration and concern for a nature that is quite abstract, compared to the concept of nature that the German students think of. Still the two populations have one thing in common: the commercial use of nature, e.g. for gaining natural resources and producing food or other goods, is basically absent in the minds of almost all of the students, both Peruvians and Germans. In a general sense, it is widely acknowledged that humans depend on nature, especially in Peru. But this does not mean that the commercial use of nature is an integral part of the idea of nature itself, at least not in the spectrum of their spontaneous associations.

Table 4

Nature as a Value seen by young Peruvians from Moyobamba, compared to young Germans.

Aspect / Item	Peru 'yes' + 'rather yes' vs. 'no' + 'rather no' (%)	Germany 'yes' + 'rather yes' vs. 'no' + 'rather no' (%)
All is good that is natural.	90,6 / 8,2	67 / 3
Without humans, nature would be in peace and harmony.	42,9 / 35,9	37 / 20

Notes. Peruvian sample group: n = 170, average age 14,4 years. German dataset: Brämer 2011c, n = 3.032, including 50% sixth-graders (12 years old) and 50% ninth-graders (15 years old). The numbers indicate the subsumed percentages of positive ('yes' and 'rather yes') vs. negative ('no' and 'rather no') ratings for the respective item on a five-point Likert-scale.

Neutral answers were possible, but are not displayed here.

Glorification of nature, and the 'Bambi syndrome'

In the questionnaire, we asked the sample group to rate a very general statement: 'All is good that is natural'. This item serves as an indicator for a naive glorification of nature (Brämer 2004, p. 27). As can be seen in table 4, the Peruvian sample showed a very high degree of approval: more than 90% answered this item with 'yes' or 'rather yes'. In Germany, the percentage is quite high also (67%), still the difference between the two samples is striking.

This glorified image of a 'good' nature in the heads of the Peruvians is confirmed by a couple of other items. Brämer (1998) had labelled this "human-free" and idealized image of nature the 'Bambi syndrome', after he had found it in his surveys in Germany. Walt Disney's classical film character 'Bambi' symbolizes the idea of a nature that is morally pure, beautiful and vulnerable, and therefore must be left untouched by humans, in order not to spoil or completely destroy it. Food chains, or even sustainable human use of natural resources, are absent from this idealized image.

An ambiguous Relationship: Humans as Part of Nature, and its biggest Enemy

The idea of nature as something beautiful and clean

Very much in accordance with the Bambi syndrome, our study revealed that order and cleanliness are essential characteristics of young people's ideal of nature, not just in Germany, but also in Peru. Wildlife should be left in peace, according to two thirds of the German and three quarters of the Peruvian students. German hunters have spread this idea for ages now, even though in Germany, the deer population is much too dense in many regions, and deer have adapted to man-made disturbances quite well.

But the alienation of young people from natural circles and natural dynamics goes even further. Both in Germany and in Peru, a great proportion of the teenagers assume that removing dead wood from the forest is beneficial for nature. In contrast, almost all students both in Peru and Germany think that planting trees is advantageous to nature. Cutting down trees, however, was generally rated as negative activity. The statement 'I would like to help foresters to cut a tree' was rejected by 72% of the Peruvian students.

In this logic, the mere presence of humans in natural habitat is rated as a threat by the students, particularly in Peru where more than 75% considered ‘running across grassland or woodland’ as being harmful for nature (table 5).

Table 5

Keeping Nature in Order. Young Peruvians from Moyobamba, compared to young Germans.

Aspect / Item	Peru ‘yes’ + ‘rather yes’ vs. ‘no’ + ‘rather no’ (%)	Germany ‘yes’ + ‘rather yes’ vs. ‘no’ + ‘rather no’ (%)
Keeping Nature in Order		
A forest has to be tidy and kept in order.	60 / 34,7	61 / 21
Wildlife should be left in peace.	74,1 / 7,1	65 / 7
What benefits /what harms nature?		
Removing dead wood	70,6 / 12,4	52 / 18
Planting trees	100 / 0	90 / 3
Running across grassland or woodland	12,4 / 76,5	9 / 29

Notes. Peruvian sample group: n = 170, average age 14,4 ys. German data by Brämer (2011c), n = 3.032, including 50% sixth-graders (12 years old) and 50% ninth-graders (15 years old). The numbers indicate the subsumed percentages of positive (‘yes’ and ‘rather yes’) vs. negative (‘no’ and ‘rather no’) ratings for the respective item on a five-point Likert-scale. Neutral answers were possible, but are not displayed here.

Adolescents in both countries acknowledge that humans are a part of nature (table 6). At the same time, they consider humans to be nature’s biggest enemies. This contradiction is also reflected in the reactions to the two statements ‘Nature should be left untouched’ and ‘Humans should make use of nature’: those groups that want to leave nature untouched are equally strong both in Germany and Peru, they account for more than half of the sample. However, at least in Peru, a big majority agrees with the statement that humans should make use of nature (75%) at the same time. This is an obvious paradox and creates an ambiguous role for man in his natural environment. However, only a quarter (Germany) or a third (Peru) of the students draw the radical conclusion to keep humans out of natural environments, e.g. by blocking off forests. Roughly 40% in both samples object to such a plan.

Table 6

Humans as a Threat to Nature. Young Peruvians from Moyobamba, compared to young Germans.

Aspect / Item	Peru 'yes' + 'rather yes' vs. 'no' + 'rather no' (%)	Germany 'yes' + 'rather yes' vs. 'no' + 'rather no' (%)
Humans as a Threat to Nature		
Humans are the biggest enemy to nature.	72 / 23	60 / 14
Humans are a part of nature, too.	92 / 7	78 / 4
Nature should be left untouched.	54 / 31	59 / 10
Humans should make use of nature.	75 / 19	37 / 23
More forests should be blocked off against visitors.	36 / 42	25 / 37

Notes. Peruvian sample group: n = 170, average age 14,4 ys. German data by Brämer (2011c), n = 3.032, including 50% sixth-graders (12 years old) and 50% ninth-graders (15 years old). The numbers indicate the subsumed percentages of positive ('yes' and 'rather yes') vs. negative ('no' and 'rather no') ratings for the respective item on a five-point Likert-scale. Neutral answers were possible, but are not displayed here.

Summary of findings

In both countries, young people see humans as nature's worst adversary, but also as part of nature. This paradoxical viewpoint is coupled with an idealized image of nature as being something beautiful, clean and tidy. In Peru, this idealization is even stronger than in Germany: Peruvian teenagers do not associate nature with animals and plants in the first place, but rather perceive it as something abstract, a collective term that is closely linked to a social norm. The difference between nature and environment is blurred in their eyes. For them, nature is a metaphor for beauty, but also for everything out there that humans have already damaged or destroyed, although they somehow depend on it. However, it is not quite clear to the Peruvian sample group *how* and *why* humans depend on nature. With the exception of forestry, which in their eyes is a threat to nature, they do not mention any use of natural resources.

For both the Peruvian and the German sample group, nature also represents a moral value ('Bambi syndrome'), it is something pristine and vulnerable, as long as it remains untouched by man. However, only a minority of the students in both countries would like to see more forests blocked off against humans.

DISCUSSION AND CONCLUSION

Our results show interesting and unexpected similarities between the Peruvian and the German sample group, but also some differences. We did not expect the Peruvians to glorify and idealize nature even stronger than the German students do. Apparently their proximity to nature, particularly to rainforest habitats with their rich and diverse flora and fauna, does not 'naturally' lead to a realistic concept of nature, driven by daily experience. In contrary, the image of nature we found in our Moyobamba survey is quite an abstract and general one. It is closely linked to the role of humans as a threat to the environment, and rather global than local. Instead of mentioning bird and frog species that they could possibly observe in their close vicinity, they express their concern about planet earth as a whole.

It is hard to say, however, how authentic and credible these statements are, or to what extent they influence the Peruvian students' actions. Many of the formulations that they used in the open-format items were very similar to the wordings on the banners and hand-painted signs in their schoolyard (Figure 2). This may indicate that the answers were influenced by social desirability, all the more as the survey was carried out in school. Social norms may urge the Peruvian students to answer like this, at least at religious schools such as the Colegio Ignacia Velázquez. Their answers possibly reflect a form of ecological correctness, which is not linked, at least not closely, to true nature experience, but rather a result of the school's moral education.

The historian Raúl Porras Barrenechea believes that 'the Peruvian is probably the most religious man in the world' (Wurgaft, 2009). Maybe an environmental education motivated by religion is inevitable, or at least effective, in countries such as Peru where 85% of the population are catholic. If the earth is a gift of god, then man has to protect this gift. However, the contradictory statements of the Peruvian sample group indicate that there is a price to pay for this education: a sustainable use of natural resources is not part of the overly correct attitude and dichotomized nature concept that it obviously produces.

The emotional pressure to keep nature 'in order' makes the pupils accept even senseless or harmful moral requirements. An impressive example for this is that collecting dead wood in the forest is considered to be beneficial to nature by more than 70% of the Peruvian students. This highlights a widespread lack of knowledge concerning the role of decay for ecosystems. But possibly, in addition to this lack of expertise, the idealized image of a clean, untouched nature is not compatible with death and decay.

Industrialisation and electronic media are believed to be responsible for a lack of nature experience in developed countries (Louv 2011). Pauli and Suda (1999) reported that 69% percent of young Germans consider cutting trees as harmful for the forest. They labelled this phenomenon *Schlachthausparadox* (slaughterhouse paradox), thereby expressing what can be found in other areas of human consumption as well: everyone likes the products, but no one likes the production (see also Mantow 1995, p. 277). However, our findings indicate that an alienation from nature can happen even to those who live in the middle of the rainforest. So how can this alienation be overcome? Margadant-van Arcken (2012, p. 93) refers to her studies with 8- to 12 year-olds and argues that 'by using a more inductive approach and (...) having the children explore their immediate environment', one could avoid what she calls an 'alienating scientific perspective on nature'. Gebauer and Gebhard (2005) also make a case for an alternative, non-scientific approach to nature in school. But in contrast to Germany, a one-sided, overly scientific approach is obviously not the main problem in Peru. Here, the alienation from nature stems from influences other than the scientific viewpoint alone: a rigorous worldview where humans are seen as a threat to nature in such a general sense that children do not dare to penetrate forests or greenland because they are afraid of doing harm to nature (or at least do not

dare to admit they do so).

Due to the relatively small sample size and the preliminary character of the study, these findings can only be first evidence. An interview study could help to elucidate the student perspectives that lead to this astonishing alienation in the middle of nature.

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Der vorliegende Beitrag wurde auch veröffentlicht in: Constantinou, C. P., Papadouris, N., & Hadjigeorgiou, A. (Eds.). (2014). *E-Book Proceedings of the ESERA 2013 Conference: Science Education Research For Evidence-based Teaching and Coherence in Learning*. Nicosia, Cyprus: European Science Education Research Association. ISBN: 978-9963-700-77-6