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BACK TO THE SAVANNAH?

AN EVOLUTIONARY AND ENVIRONMENTAL PSYCHOLOGY APPROACH TO LANDSCAPE'S AFFECTIVE EFFECTS IN GREEN ENERGY ADVERTISING

ABSTRACT

This paper analyses affective reactions to advertising depicting specific natural environments or urban scenes, both prominent ingredients of contemporary advertising imagery. The experimental field study exposed participants on random to one ad out of a set of 13 experimental green energy advertisements. Global attitude towards the ad and six basic emotional responses to the advertisement (pleasure, arousal, happiness, freedom, safety and interest) were assessed subsequently. Results of the study confirm the leading opinion on a generalized human preference for visual stimuli representing nature scenes with biospheric contents over pictures of urban environments or desert settings. With regard to the hypothesis that landscape preference is shaped by innate evolutionarily determined factors, suggested by several researchers, findings contradict a generalized preference for savannah-style landscapes in advertising, but support a preference for landscapes with water and biospheric contents that are more familiar to the subject.

KEY WORDS

Green brand communication, green brand associations, environmental psychology, advertising imagery

1. Introduction

A review of research on nature discourses in advertising reveals that, despite numerous studies on advertising messages in the broadest sense, there has been surprisingly little research on the representation of nature. However, the visual representation of nature has been a prominent ingredient of advertising imagery for many decades. Most often, marketing and advertising efforts rely heavily on associating products with visual images of nature (Wilson, 1992; Gunster, 2004). Furthermore, the very few studies that have been conducted on this topic are focused, with hardly any exception, on environmental advertising claims (Banerjee, Gulas, and Iyer, 1995; Iyer and Banerjee, 1993; Kilbourne, 1995; Merten, 1993) as, in particular, the introduction of environmental marketing has led to an additional surge of

advertising campaigns figuring pictorial presentations of mostly pristine and unspoiled natural environments.

Hansen's (2002) analysis of the relative prominence of different uses of nature in 467 British television advertisements – probably the most informative and up-to-date study of the field – confirms that nature imagery is used extensively in television advertising. Still, with few exceptions (Hem, Iversen, and Grønhaug, 2003), a review of relevant literature did not reveal any kind of scientific approach to picture preferences or other behavioural effects for specific nature representations in advertising. However, it seems plausible to suppose that consumer's exposition to different kind of nature scenes represented in advertising should lead to differentiated patterns of perceptual and behavioural consequences. In the simplest case, these consequences may imply a varying degree of ad liking or degree of pleasure feelings with regard to specific visual stimuli contained in advertisements.

In this study, a stream of research from anthropology and environmental psychology is reviewed, that may hint at perceptual mechanism involved in the development of preferences for specific types of nature imagery. In the empirical study, a sample of consumers was exposed to a set of experimental green energy advertisements depicting visual stimuli representing different categories of natural environments, as well as to one ad representing urban scenery. Subsequently, the attitude towards the ad, and the degree of basic emotional responses evoked by the ad was assessed.

2. Behavioural approaches to landscape preferences

Research stretching over several decades has shown consistently the overall preference for natural scenery (Calvin and Curtin, 1972). The attraction toward nature is widely considered a significant aspect of human behaviour (Wilson, 1984). Numerous studies have demonstrated human's preference for environments with natural elements over those that are predominantly built (Kaplan and Kaplan, 1989; Cackowski and Nasar, 2003; Purcell et al. 1994). Thus, natural settings are generally overrepresented among favourite places and underrepresented among the unpleasant places (Korpela, Hartig, and Kaiser, 2001; Hartig, Kaiser, and Bowler, 2001; Newell, 1997). Also, shifting from urbanized, complex environments to more natural environments has been considered of intrinsic value for human beings. Numerous research findings in health, medicine and psychology appear to be supportive of the proposition that

nature has some inherently positive effects on physical and psychological well-being for humans (Frumkin, 2003). For instance, in a series of experiments, the exposition to images of nature led to more positive influences on psychophysiological states than urban scenes. There was also a consistent pattern for nature, in particular water, to have more positive influences on emotional states (Ulrich, 1981; Ulrich, Altman, and Wohlwill, 1983; Ulrich 1984). Furthermore, there is prominent evidence of greater restorative effects arising from experiences in nature, compared to urban environments (Hartig, Mang, and Evans, 1991; Kaplan, 1995; Kaplan and Kaplan, 1989; Maller et al. 2006).

Several theories have been suggested on the development of human preferences for specific landscapes and biospheric environments: information processing or knowledge acquisition theory (Kaplan and Kaplan 1989, Kaplan et al., 1998), psycho-evolutionary or affective theory (Ulrich 1983, 1986), prospect-refuge theory (Appleton 1975), habitat selection theory (Orians, and Heerwagen, 1992) and the anthropological perspective (Williams and Cary, 2002). There is considerable evidence that humans prefer landscapes that are relatively open and smooth (Kaplan, Kaplan, and Brown, 1989). These seemingly universal preferences are most commonly attributed to inherited predispositions. Orians (1980) has argued that innate preference for very open landscapes provided an evolutionary advantage for hunters and gatherers living on the ancient savannah of East Africa at the time when the human brain, including structures associated with emotion, was developing, suggesting the highest human affinity towards savannah-type landscapes: wide horizons, distant views, grasslands with low and homogeneous vegetation, dispersed round-shaped trees and presence of water. These more open landscapes provided the best shelter, hunting, and disease-free environments. Processes of natural selection have ensured that innate attraction to such landscapes still influences the attitudes of humans today. Other writers have attributed preference for open landscapes to other survival needs of humans, including the need to see potential predators and prey without being seen oneself (Appleton, 1975) and to navigate and move through a landscape with ease (Kaplan, 2001). While several studies support the evolutionary theory of human landscape preferences (e.g. Balling and Falk, 1982) other research challenges the evolutionary theory. For instance, in Lyons's (1983) study, subjects' preferences were highest for the most familiar biome. No evidence was found to support the hypothesis that landscape preference is shaped by innate or evolutionarily determined factors. Further research suggests that biodiversity has a positive relationship with landscape beauty ratings, but that perceived

biodiversity differs with educational and occupational background of respondents (Van den Berg, Vlek, and Coeterier, 1998).

The following hypotheses are developed from the conceptual framework:

H1: Ads representing nature scenery with biospheric content (plants, animals) are preferred to ads representing urban scenery or desert landscapes.

H2: Ads representing savannah-like landscapes are preferred to ads representing other types of landscapes and elicit more favourable basic emotional responses.

H3: Ads depicting biospheric nature scenery with clear water evoke more favourable emotional responses than ads with nature imagery in which water and, specially, clear water is absent.

H4: Ads representing familiar biospheric content are preferred to ads representing more unfamiliar landscapes and plants.

3. Method

With the aim to address empirically the issues raised in the conceptual part of this paper and to test the proposed hypotheses, an experimental field study of the preference structure regarding particular natural and urban environments in advertising was carried out. For this purpose, 13 experimental ads for a fictitious green energy brand were developed showing an identical brand name, advertising copy and formal structure. The ads however varied in the content of the depicted image. Each ad figured one distinct landscape, one ad depicting a desert setting and one ad showing urban scenery (Appendix). Eleven of the ads represented biospheric content consistent of visual representations of pleasant nature scenery. Pictures chosen showed a savannah setting with trees, an Alpen-style mountain lake with cattle, a savannah setting with elephants, a mountain creek, an European beech tree on a meadow, an Australian eucalyptus tree in a bush setting, palm trees on a tropical beach, a stretch of Mediterranean Coastline, a Canadian landscape with lakes and forests, an European oak forest and an European pine forest. The urban picture showed a sunny view of a visually pleasant street with classical and modern buildings, while the picture of the desert depicted a rocky desert in the sunlight. The selection of pictures was based on previous qualitative research

with last-year undergraduate university students, consistent of several sessions of focus groups and in-depth interviews, in which participants were asked to point out pictures from a wide selection of images of nature and urban scenery that would best evoke positive feelings of pleasure and attraction.

Each participant of the study was exposed randomly to one of the experimental ads and subsequently asked to rate on a likert-type scale his/her global attitude towards the ad, as well as six basic emotional responses to the advertisement on semantic differential scales (pleasure, arousal, happiness, freedom, safety and interest). The emotional dimensions were derived from the literature on basic and environmental emotions to assess in particular the emotions evoked by the different environments depicted in the ads (Mehrabian and Russell, 1974; Izard, 1977; Plutchik, 1980; Russell and Mehrabian, 1977; Watson and Tellegen, 1985; Watson and Clark, 1992; Russell, 1980). After completing these tasks, all 13 ads were shown to the subject, who was instructed to point out the most and least liked ad of the selection.

A total of 735 subjects were interviewed in 6 towns and villages of northern Spain. The geographical location of the sample on the Atlantic side of northern Spain is specially relevant in this case, as landscapes and vegetational biosphere are flush green, similar to central European scenery including mountainous landscapes, and very different from the remaining Iberian landscapes which are predominantly dry. Subjects were selected by random sampling (street interviews) following a quota criterion. The composition of the sample was 54.3% female and 45.7% male, aged between 18 and 90 years. 39.2% of the interviewees had a higher education (university degree). The quotas of the sample were established to guarantee a sample composition covering different social stratus and focusing on middle class and medium aged consumers.

4. Results

Subjects showed a clear preference for ads representing biospheric nature imagery, as compared to the visual representations of urban scenery or the desert landscape, with respect to both attitude towards the ad and positive emotional responses evoked by the stimuli. Results of the descriptive analysis of the attitude towards the ad scale and the semantic differential scales on emotional responses are shown in Table 1 and Figure 1. Differences in the preference scores are appreciable and, as the anova analysis on the differences of mean

values reveals, overall significant ($p<0.000$). Highest rated on ad attitude were, in the following order, the ads depicting the mountain creek, the Canadian lake and forest setting and the Mediterranean coastline, while the ads with the urban setting and the desert scenery received nearly equally low ratings. The AAd ratings were in most part consistent with the task to select the most liked and disliked ad of the whole set of print-ads (Figure 2). In this case, the ads depicting the mountain lake, the mountain creek and the Canadian lakes and forests were most liked, while the rocky desert, the urban setting and the Australian Eucalyptus bush setting were most disliked (in this order).

TABLE 1

MEAN VALUE DIFFERENCES OF ATTITUDE TOWARDS THE AD AND EMOTIONAL RESPONSES (F, P, MEAN VALUES)

	AAd	Pleasure	Relax/Arousal	Happiness	Freedom	Safety	Interest
F	17,006	32,196	22,347	36,767	17,195	13,764	18,766
p	,000	,000	,000	,000	,000	,000	,000
Savannah trees	6,80	7,39	7,53	6,60	8,02	6,40	6,37
Mountain lake cattle	7,67	8,14	8,10	7,64	8,46	7,24	7,46
Savannah elephants	6,96	7,42	7,12	6,89	7,68	5,79	7,04
Mountain creek	8,18	8,75	8,70	8,25	8,68	7,37	8,03
Rocky desert	5,19	4,31	6,21	3,26	5,07	4,02	3,91
Beech tree Europe	7,34	8,24	8,24	7,63	8,44	7,12	7,07
Eucalyptus Australia	6,13	6,31	6,44	5,30	6,36	5,62	5,57
Palm beach tropical	7,14	8,22	8,34	7,93	8,05	6,67	7,17
Coast Mediterranean	7,91	8,65	8,05	8,11	8,61	7,05	8,04
Lakes & forests Canada	8,11	8,40	8,34	7,86	9,69	7,66	7,84
Urban city	5,07	5,62	4,42	4,75	4,09	5,45	5,65
Oak forest	7,48	8,04	8,07	7,37	8,04	6,72	7,16
Pine forest	6,98	7,50	7,57	7,31	7,43	6,22	7,11
Total	7,01	7,47	7,48	6,84	7,60	6,42	6,80

A further step of the analysis addressed the mean differences (t-test) of the AAd ratings of the ad depicting the typical savannah setting with the remaining adverts. As the results show (Table 2), several of the nature ads show significantly higher ratings, i.e. the ads depicting the mountain creek, the mountain lake with cattle, the Canadian lake and forest setting, the Mediterranean coastline and the oak forest.

FIGURE 1

AAD AND EMOTIONAL RESPONSE RATINGS OF EXPERIMENTAL ADS
(MEAN VALUES)

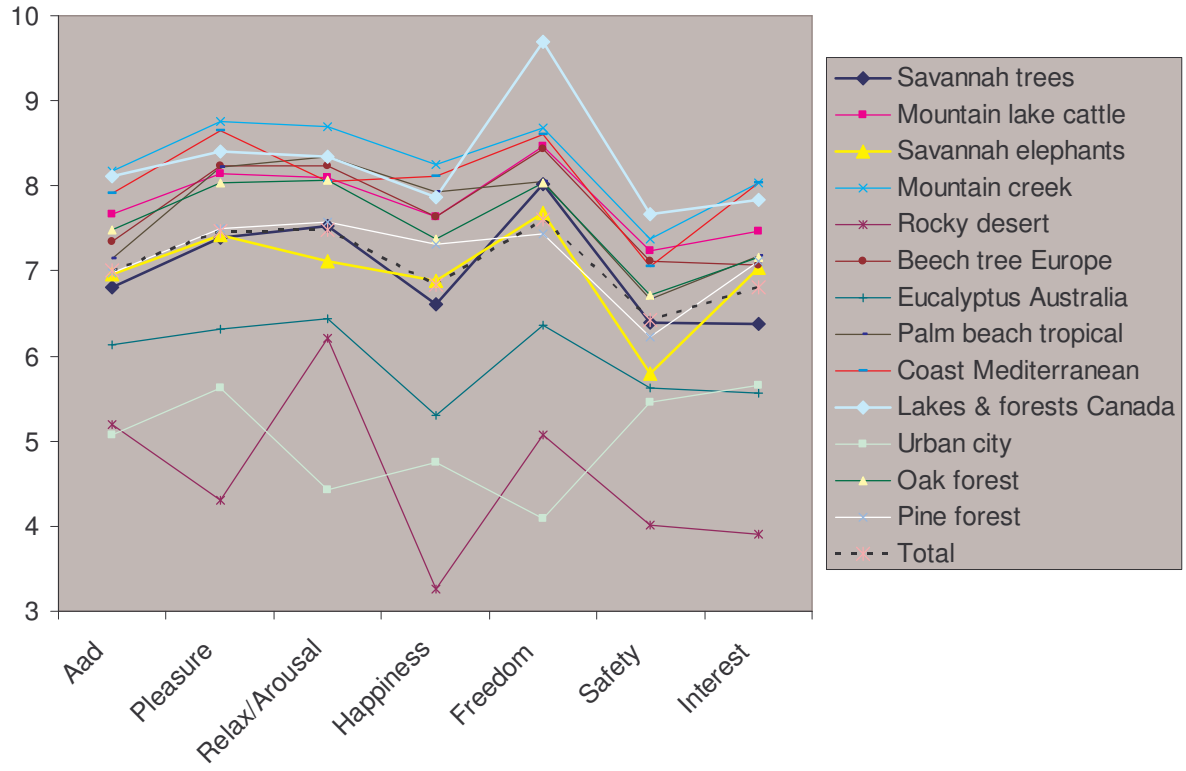


FIGURE 2

MOST LIKED AND MOST DISLIKED ADS (PERCENTAGES OF RESPONDENTS)

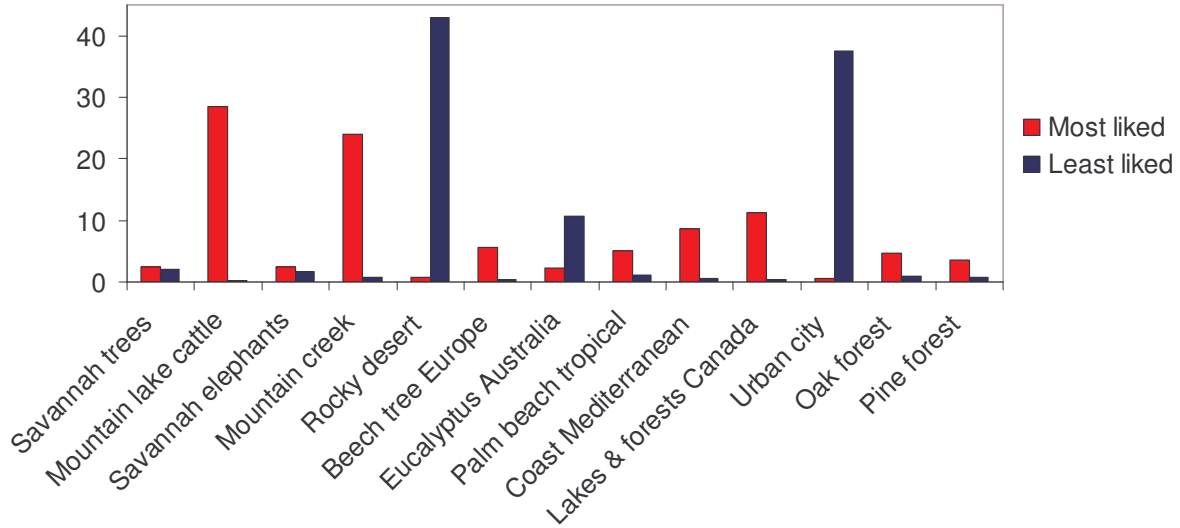


TABLE 2

MEAN VALUE DIFFERENCES (T-TEST) BETWEEN AAD RATINGS OF THE SAVANNAH AD AND OTHER ADS WITH BIOSPHERIC CONTENT (MEANS, T, P)

	Mean AAd	t	p
Savannah trees	**6,80**		
Mountain lake cattle	7,67	-2,449	,016
Savannah elephants	6,96	-,454	,651
Mountain creek	8,18	-4,168	,000
Rocky desert	5,19	3,633	,000
Beech tree Europe	7,34	-1,573	,118
Eucalyptus Australia	6,13	1,779	,078
Palm beach tropical	7,14	-,976	,331
Coast Mediterranean	7,91	-3,496	,001
Lakes & forests Canada	8,11	-4,264	,000
Urban city	5,07	4,460	,000
Oak forest	7,48	-1,966	,052
Pine forest	6,98	-,523	,602

Principal component factor analysis with varimax rotation was used to explore the dimensionality of the subjects' emotional responses toward the ads. Two categories of basic emotions with an eigenvalue > 1 were identified (Table 3).

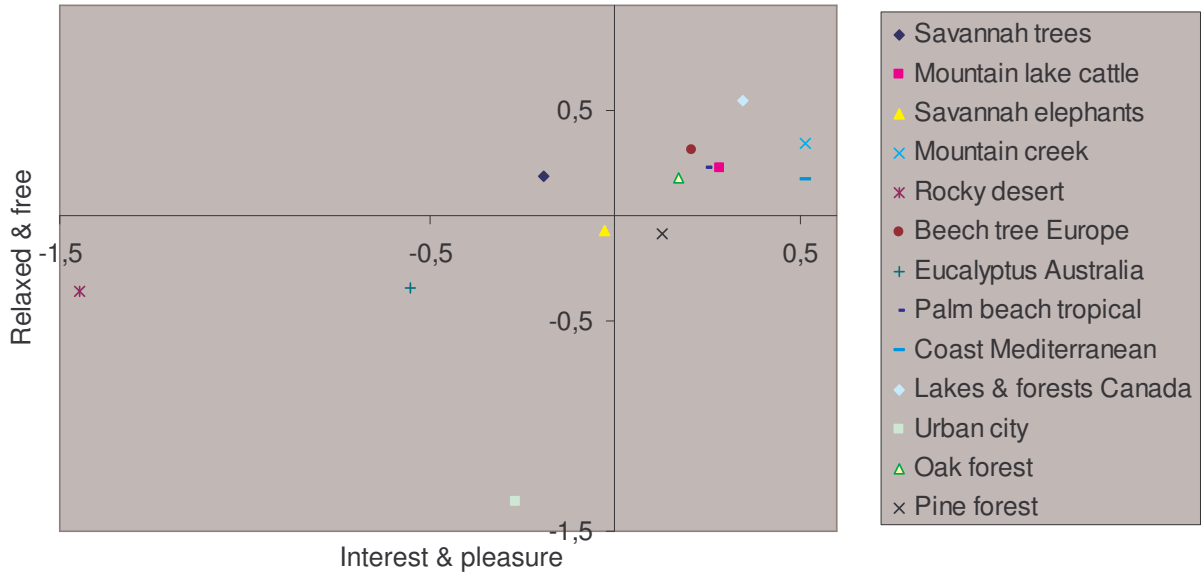
TABLE 3

DIMENSIONALITY OF EMOTIONAL RESPONSES: EXPLORATORY MAXIMUM LIKELIHOOD FACTOR ANALYSIS

	Factor	
Variable	Interest & pleasure	Relaxed & free
Pleasure	,757	,453
Relax/Arousal	,426	,696
Happiness	,827	,357
Freedom	,225	,877
Safety	,741	,312
Interest	,870	,200
Variance extracted	,47	,29

FIGURE 3

EXPERIMENTAL AD RATINGS IN EXTRACTED EMOTIONAL DIMENSIONS
(MEAN VALUES)



The first emotional dimension comprises pleasure, happiness, safety and interest (47% of variance), while the second extracted factor combines the emotions relaxation/arousal and freedom (29% of variance). The ratings of the experimental ads in the extracted emotional dimensions are depicted in Figure 3. With regard to the elicited emotional reactions, the analysis in the two extracted emotional dimensions reveals that the ad depicting the desert setting rated lowest on interest and pleasure and second lowest in inspiring a feeling of tranquillity and freedom. Conversely, the urban scenery elicited least feelings of freedom and tranquillity, while also rating low on interest and pleasure. The Australian eucalyptus bush scenery rated average low on both dimensions. Strongest positive responses were evoked by the ads depicting the mountain creek, the Mediterranean coastline and the Canadian lakes and forests. Both ads representing typical savannah scenery were close to the mean ratings of all ads.

5. Discussion and implications

The empirical results of the study confirm clearly a generalized preference for ads containing visual stimuli representing biospheric nature scenes or landscapes over pictures of urban environments and vegetation-free desert settings, thus giving further support to the leading opinion in the literature on landscape preferences (Hypothesis 1). However, contrary to the evolutionary theory on the formation of human preferences toward specific natural landscape types, the ads representing the most savannah-type nature scenes had not the most favourable behavioural impact of the nature ads (Hypothesis 2). Thus, while the first of the proposed hypothesis is supported by the results of this study, the second hypothesis must be rejected. Still, nature imagery of ads most liked by the surveyed subjects had one visual element in common not represented in the remaining nature images: the presence of clear water (while water was also present in the savannah-elephants image, this water was actually muddy and brownish). This finding may hint at an evolutionary origin of human preferences for particular nature scenery and thus, give limited support to the abovementioned theory (Hypothesis 3).

On the other hand, a further interpretation of these results could come to a different or, at least, complementary conclusion: the pictures of ads rating highest on AAd and positive emotional responses all reflect nature scenery typical to holiday situations, in particular, taking in account local national holiday customs. These findings lead to a considerable degree of support for Hypothesis 4, as ads with nature imagery familiar to the respondents through holiday-experiences seem to be preferred over less-familiar nature-settings. Thus, all of the most pleasure evoking ads represent natural environments of typical Spanish holiday destinations: mountain scenery, Atlantic or Mediterranean coastlines. These findings are not contradicted by the high ratings of the Canadian lake and forest scenery, as the visual style of this specific biosphere is quite similar to central European nature-reserve scenery present in Northern Spain. Conversely, the ad depicting the Australian eucalyptus bush setting represented the lowest rated biosphere. These latter findings are consistent with Lyons (1983), who found that preferences for specific vegetational biomes changed through the subjects' life cycle, with the highest preferences for the most familiar biome, and suggested that the development of landscape preference is a cumulative process sensitive to socially differentiating factors. Now, the abovementioned holiday hypothesis could also be understood or interpreted in reverse order: People probably choose the mountains or the coast for their vacation because they are programmed by evolution to prefer these landscape settings. There

could even be a further reinforcement of landscape preferences through a sort of feedback process if particular landscapes are more often chosen for recreational purposes and then become more familiar to the subject. After all, not many Spaniards choose for their vacations the typical Spanish plains which are dry, flat and poor on trees.

Advertising and, in particular, green advertising may use to its advantage the potential of favourable behavioural effects if specific images are chosen. Findings lead to the recommendation of the use of nature imagery rather than pictures of urban environments or desert-style settings and, in particular, pleasant nature representations including water, ideally depicting familiar biospheres and possibly appealing on nature vacation schemata of specific target groups.

Regarding the limitations of this study, the most problematic issue is probably raised by the comparability of different visual content, since the aesthetic qualities may vary due to other than biospheric content-related variables (further aesthetic dimensions of the images). Our method to control these influences consisted in the selection, in the scope of focus group sessions, of the most visually appealing images for each analysed landscape-type or urban setting out of a very large quantity of pictures available in several commercial databases. Future research should further examine the extend to which the behavioural effects, i.e. preference structure and pleasure feelings evoked, are culturally specific or are rooted in general evolutionary instincts, common to all human beings, in particular, given the increasingly global character of advertising and media communication.

Acknowledgments

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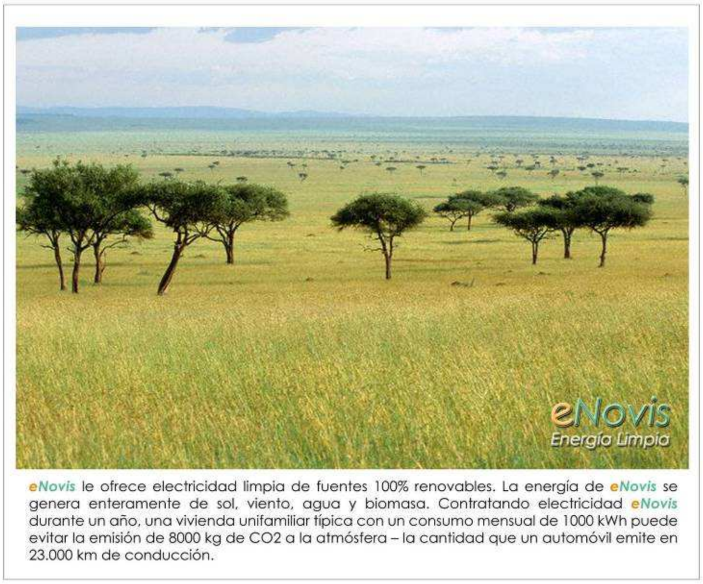
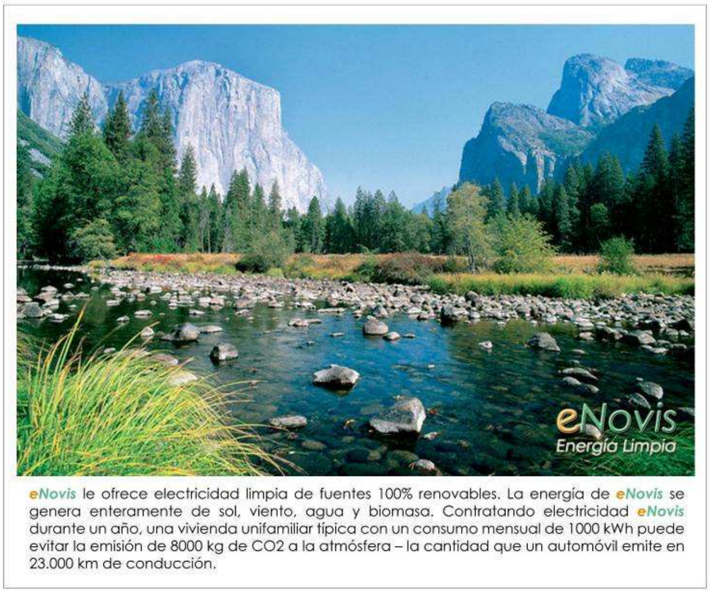
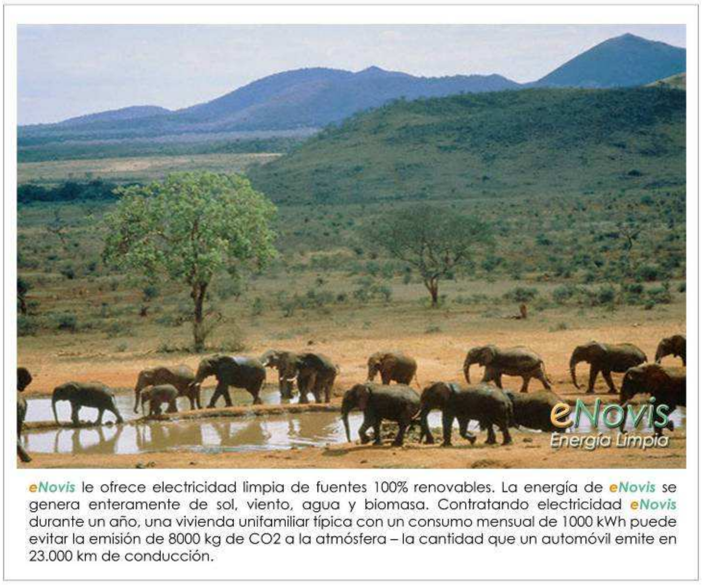
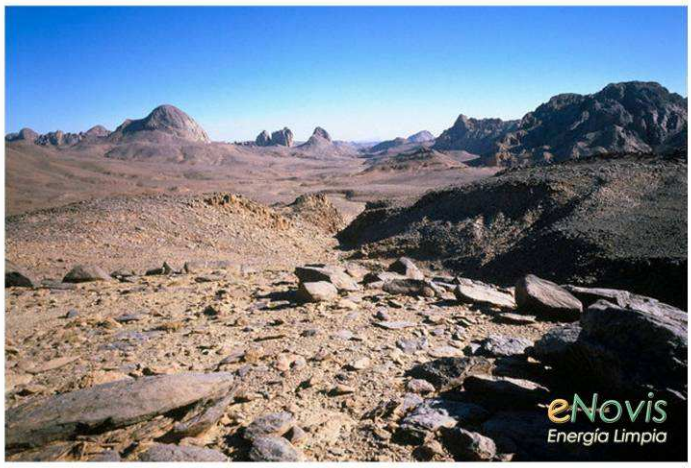
APPENDIX – SELECTION OF EXPERIMENTAL ADS

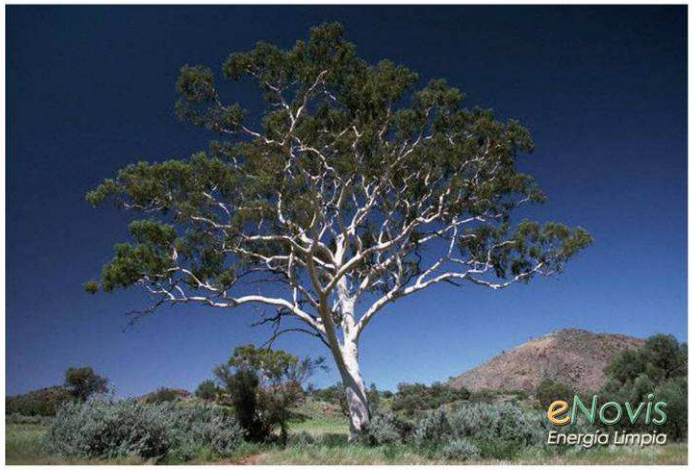








eNovis le ofrece electricidad limpia de fuentes 100% renovables. La energía de eNovis se genera enteramente de sol, viento, agua y biomasa. Contratando electricidad eNovis durante un año, una vivienda unifamiliar típica con un consumo mensual de 1000 kWh puede evitar la emisión de 8000 kg de CO2 a la atmósfera – la cantidad que un automóvil emite en 23.000 km de conducción.



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