

The use of suggestive influences in promoting environmental behaviours

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Abstract: - The use of suggestive images and texts in promoting responsibility towards the environment is a frequent practice. We tested the influence of different types of suggestions on the environmental behaviour intention on a group of students. We understood these influences in the light of the dual behaviour models. The suggestive influences did not disclose a significant difference from a control group. The results suggest that there is no automatism related to the environmental responsibility, the behaviour being conditioned by the display of certain pro-environmental values by the subjects.

Key words: suggestion, ecology, promotion

1. Introduction

The environment awareness raising campaigns often make use of materials suggesting responsibility and threat (e.g. images of natural disasters, pollution percentages, etc.) Through this study, we aim to test the extent to which different types of suggestive influences are efficient on short term in promoting an environmental behaviour among students. The topic's importance resides in the fact that, at global level, the emphasis is predominantly laid on educating the population towards a behaviour that protects the environment (e.g. sorting out and recycling garbage, lower energy consumption, less polluting alternatives for the classic automobile, etc.) On the other hand, suggestion is an element of applied psychology widely used in judicial interrogation, psychotherapy and hypnosis, medicine, education, organizational behaviour and advertising [13].

2. Suggestive influences and suggestibility

One of the most comprehensive definitions considers suggestion a form of communication where a suggestor influences, intentionally or not, another person (the suggestant) by means of verbal communication, non-verbal behaviour and/or other contextual factors. Thus, the suggestant takes over the suggestor's intentions, feelings, beliefs or desires in a process that relies on the automatic activation of the former's structures of meaning [2]. The different forms of suggestion were analysed

separately, but the suggestive influence is ubiquitous in the relationships between people. We can also talk about suggestive influences in issues concerning memory, perception, imagination, pain control, psychotherapy, relaxation, hypnosis, judicial psychology or even sports. The fact that man is a “suggestible animal” [6] is a position held by all the researchers in the field [7] [8] [9] [10]. Any person turns out to be susceptible to the types of suggestive influence although the individual degree of susceptibility can vary from one person to another [3]. Being a trait that defines the entire population, its distribution tends to be normal [10] [11].

The idea transmitted through suggestion is accepted by the subject in a semi-automatic and non-critical way [6]. This aspect can be easily observed in ideomotricity phenomena [9] [12]. The suggestive influence does not use verbal arguments, being completely different from persuasion. The explanation resides in the structures of meaning activation [2]. These are entities which become initiated, activated. A suggestion managed by the suggestor will contain a stimulus (A) that activates a structure of meaning (S). The latter will remain active for a certain period (t), according to the strength of the ties it contains. When presenting the new stimulus (B) during the period (t) when the structure of meaning (S) is still active, the suggestive influence phenomenon is produced. The new stimulus (B) will be interpreted in the context of the active structure of meaning and in complete harmony with it. Its interpretation (B) will be differently produced in this context if the structure of meaning induced through the stimulus coming

from the suggestor (A) is not yet active [2]. For example, if the subject is introduced to a person known to be a psychologist (A), the subject can develop a structure of meaning of the psychological type = specialist in psychology = a person who makes pertinent and believable observations about another person (S). This could determine the person to automatically interpret the eventual remarks of the psychologist about the subject (B) as valid and believable, in the light of the sense structure (S) induced through (A) and which is still active. The suggestive influence represents a function, a particular interaction between a stimulus meant to induce a suggestive influence and an often idiosyncratic structure of meaning proper to the individual.

The suggestive phenomena can be clarified through the action of the semi-automatic schemes postulated by the dual behaviour models. The voluntary act subjective phenomenon can be explained through the intervention or non-intervention of attentional supervision [4] [5] [14]. Among these models, the modern theory of Strack & Deutsch claims that we are dealing with two systems of the social behaviour which operate simultaneously and which are not invoked consecutively. Moreover, the two systems are competing for control and manifest behaviour [5]; Table 1

Impulsive system	Reflexive system
permanently processes information, alone or simultaneously with the reflexive system	can also be inactivated
requires a small amount of cognitive capacity	requires a great amount of cognitive capacity
its elements are connected through associative links	its elements are connected through semantic relations
contains behavioural schemes	Does NOT contain behavioural schemes
provokes a behaviour by transmitting the activation from an input to the behavioural schemes	provokes a behaviour through a decision

Table 1: Some differences between the systems theorized by Strack & Deutsch [5]

We would expect that specific suggestive influences (e.g. video spots with images of natural disasters) activate a series of associations of the impulsive system related to ecology and responsibility. This would immediately trigger an effect. In our research, we have tested the effect of different types of suggestive influences on the

subjects' immediate responses to a questionnaire regarding environmental behaviours.

3. Environmental behaviour

The environmental behaviour can be defined as the sum of human actions exerted with the purpose of protecting the environment and decreasing its deterioration [15] [19]. Certain positions distinguish this behaviour from the psychological wellbeing because it also implies abstention behaviours [17]. The researchers try to detect one or more sides of the environmental behaviour. Some studies have analysed the water saving behaviours, operated through actions such as: taking a shower instead of taking a bath, closing the tap water while brushing the teeth, etc. [16]. Other studies have measured the frequency of a series of behaviours such as turning off the light in unoccupied rooms and reusing plastic bags [17]. Specialised literature lacks complete definitions of the concept. A General Environmental Behaviour (GEB) Scale was used in most studies on this topic. Among the behaviours envisaged by this scale we could mention: the use of economic light bulbs, the use of the washing machine only when the tank is full of laundry, avoiding the prewashing programme, maintaining a chilling ambiance in the house during winter, turning off the engine when the traffic lights are red, the use of recycled paper, etc. [18]

In general, two types of environmental attitudes are used to predict the environmental behaviour: the attitudes towards the environment and the attitudes towards the environmental behaviour. The integration proposals contain three elements, each of them being illustrated through distinct items: factual knowledge on the environment ("Poisonous metals are introduced in the food chain through the phreatic water"), social and moral values regarding the environment ("The value of Earth does not depend on people; it is valuable in itself") and the intention to experiment environmental behaviours ("I would rather go shopping without a car"). The factual knowledge is seen as a precondition of any attitude, while the intention mediates the behaviour in itself [20].

The New Environmental Paradigm is one of the recent approaches in studying the attitudes laying at the basis of the environmental behaviour. It represents a one-dimensional tool with the following sides: the nature's balance, the growth limits and people's attitude towards nature. The fact that NEP highlights the moral aspect of the environmental attitudes has raised a series of

critiques [20]. Considered a weak tool in its original version, NEP has been improved and the revised version is more efficient in detecting the attitudes towards the environment [1].

4. Our study

4.1. Method

Participants: 197 students in psychology, in the 2nd and 3rd years of study, and from two different specialisations have completed a tool aimed at realizing a set of simple environmental behaviours. The average age of the students was 21 years old and 4 months, but mostly 21 years old. In a further exploratory phase, 85 high school students, grades XI and XII, from two high schools and four different classes have completed a NEP-R (New Ecological Paradigm Revised) translated version regarding the environmental values.

Materials: 9 items (see Table 2) regarding simple behaviours of environment protection were constructed based on previous studies in order to measure the dependent variable [18].

In the future, I intend to....

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1. Sort out garbage.
 2. Save paper sheets.
 3. Drive a (another) less polluting car.
 4. Save energy.
 5. Deposit used batteries only in specially designed places.
 6. Plant a tree.
 7. Use biodegradable bags.
 8. Use energy saving light bulbs.
 9. Encourage other people to protect the environment.
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Table 2: Items regarding the environmental behaviour

The answers were introduced in a 6-point Likert Scale in order to avoid the central tendency: 0 – *I am sure I won't do that*; 1 – *I am almost sure I won't do that*; 2 – *I am inclined to believe that I WON'T do that*; 3 – *I am inclined to believe that I will do that*; 4 – *I am almost sure I will do that*; 5 – *I am sure I will do that*. The reason we chose to use a small number of unstandardized items was that the multiple behaviours mentioned in the published studies are not accessible to the Romanian students (e.g. “I buy solar panels”). The small number of items facilitated the subjects' involvement in the task. Through the pair of items 4 and 8 we aimed to detect the questionnaires filled in disinterestedly. The Cronbach' alpha coefficient calculated after the application was of 0.81, which

indicates a very good internal consistency of the dimension followed by all items.

For exploring the environmental attitudes of the students we used the revised version of the NEP (New Environmental Paradigm) Scale [1] translated into Romanian. A 6-point Likert Scale was used for the answers. The Cronbach' alpha coefficient was 0.71, with no possible improvement through the deletion of items. No other information regarding the subjects' age or sex was required in making the students feel at ease with regard to the confidentiality of their answers.

Five different situations were constructed to separate the independent conditions. In the first situation, the control group received only the questionnaire regarding the environmental behaviours. For the second group, interrogative suggestions were also used in the form of a written text [2][21][22][23].

Isn't it true?

Considering the global warming phenomenon, isn't it true that we should reduce our energy consumption? The products manufactured by men finally pollute the environment. [...] Modern societies cut down the woods, our source of oxygen. Isn't it true that we should be more careful when using paper and replant trees?

Isn't it true this is your responsibility as much as it is mine?

A third group received suggestions that stimulate an ideo-sensory and ideo-affective response [11][2]:

I invite you to imagine the following:

Close your eyes. Remember the smell of exhaust gases. Inspire with thirst through your nostrils and remember as much as you can this smell [...] Try to keep this sensation for at least one minute... Close your eyes. Remember the sad image of a deforested wood, either seen on television or in real life. You can experiment a feeling of sadness when remembering this image. [...] Take your time to recognize that image seen before. Keep this picture in your mind for at least one minute.

A fourth group received other suggestions that mention environmental issues using terms with a moderate psychological impact [24]. The underlined words indicate those terms:

Our planet is in a *delicate* situation. First of all, global warming is a *risk* to us all. In the ecosystem there is, unfortunately, a *slow* fauna and flora *damaging* process. [...] Moreover, we are not fully aware that the water we drink is *touched* by a series of substances that are

harmful for our body. How long will we remain indifferent to this *sickening* process of the nature and our own species?

A fifth group received suggestions in an identical text, but with the moderate terms replaced with terms with an accentuated psychological impact [24].

Our planet is in a *calamitous* situation. First of all, global warming is a *danger* to us all. In the ecosystem there is, unfortunately, a *fast* fauna and flora *extinction* process. [...] At the same time, the air we breathe contains a *huge* quantity of toxins that *destroy* our health.[...] How long should we remain indifferent to this *destruction* process of the nature and our own species?

Procedure: We have prepared five different versions of the document to be presented to the subjects, a document containing only the questionnaire, and the other four with the corresponding text inserted before the questionnaire. Every group received an approximately equal number of copies for each version. The subjects were not told that in the room were distributed different questionnaires and were asked to observe the instructions in the paper. To minimize risks, we tried to group the subjects having the same version in the same row, in order to avoid them noticing the different versions and be tempted to question the research hypotheses. For their participation, the subjects were promised a bonus for their practical course grade. After each subject marked his/her answers, the questionnaires were randomly collected. No sorting operation was carried out. The NEP-R scales were applied in two different high schools, grades XI and XII. The subjects were explained that it was important to express their own opinion on the items and that there was no correct answer.

After applying the tools, we have completed two databases, one with items on the environmental behaviour of the students, and the other with the NEP environmental attitude scale completed by the high school students. 28 subjects were removed from the students database, either because of faulty questionnaire answering (i.e. all answers identical), or because of high, positive differences, between the answer to item 8 (“Use energy saving light bulbs”) and item 4 (“Save energy”). This difference served as an indicator for insincere or disinterested answers. The high school students’ database contains all the 85 subjects and only their individual answers to the 15 items. The even items

were re-reversed in order to be correctly compared. A “total” variable was re-coded in order to obtain a final reference for the pro-environmental attitude.

Hypotheses: There is no significant main effect of suggestive manipulation type on the answers to the environmental behaviour questionnaire. If this hypothesis is confirmed, we can suggest that the advertisements and commercials that rely on this type of influence might not have a significant effect on the short term. We additionally argued that the results measuring the adoption of environmental values (results NEP-R) will be lower among high school students, suggesting that the educational policies fail to instil these values and they are not found in the higher education cycle.

4.2. Results

Environmental behaviours: We operated a series of statistical calculations using the program SPSS v. 13.0. As far as the effect of the type of suggestive influence type is concerned, we applied the One-way ANOVA statistical test. No test succeeded in approaching the significance threshold of 0.05. Of the nine items, only the comparison in item 2 got closer to the significance threshold (“Save paper”) where $F_{(4,164)} = 1.28$; $p = 0.65$). Due to the very good Alpha coefficient, we could perform a similar calculation for the total score of these items. We could not identify any main effect of the type of influence on this newly calculated variable ($F_{(4,164)} = 1.213$; $p = 0.307$). We tested the normality of scores distributions for each item and the total score for all items. We selected the appropriate statistical test to calculate the significance of the averages difference. All individual items distributions proved to be abnormal, while the total score was normally distributed (Kolmogorov Smirnov $Z = 1.20$, $p > 0.05$). We carried out successive comparisons between the various experimental conditions and the control condition for each of the nine items and for the item total score. Overall, a total of 36 Mann-Whitney tests and 4 T-student tests for independent samples were carried out. Of all processing, no result reached a trustworthiness level of 95%. The scores that were close to this threshold are: the difference between control and the interrogative suggestion (isn’t it true?) for item 7 ($U = 453$, $Z = -1.79$, $p = 0.073$), and the difference between control and suggestion by using some accented terms in item 9 ($U = 421$, $Z = -1.85$, $p = 0.064$). The results suggest that there is no significant relationship

among the various types of suggestive influence and the stated intention to conduct environmental behaviours.

NEP-R: We calculated the average obtained by our group of high school students for each of the 15 items. Averages ranged from 0.66 to 4.15. As far as the total score for the pro-environmental attitude is concerned, the group of high school students obtained an average score of 45.27 compared to the theoretical maximum of 75. Among the items that illustrated the best a non-environmental attitude were the item 6 (The Earth disposes of a lot of natural resources as long as we learn to develop them), 14 (If things continue on the same direction we will experience a major environmental disaster) and 10 (The so-called environmental crisis has been overstated). Scores were normally distributed.

4.3. Discussions

The use of materials that suggest or impress and lead to a certain environmental behaviour is a common practice. These materials use various types of suggestive influences. We can understand suggestive influences by the dual patterns of behaviour, by enabling structures that escape partially or totally to the attention and reflexive system. Consequently, people should have a structure of meaning, an association in their impulsive system, which should include feelings of responsibility, environmental behavioural schemes, etc. If this association exists and is not conditioned by other factors, the various types of suggestive influences should immediately lead to the person's intention to behave environmentally friendly. We wanted to see if this hypothesis can be supported by empirical research. The results suggest that there is no significant relationship between these types of influences and the immediate intention of environmental behaviours. Our result is consistent with the previous research concerning the fact that a value component plays a key role in developing an environmental behaviour [20] [15] [1]. If this value component is not developed, the environmental behaviour cannot be influenced by mere suggestion. The structures of meaning and the associations in the impulsive system must comprise environment-oriented values, as well as an awareness of the population growth limit, the anti-anthropocentrism, the fragility of the natural balance, the possibility of an environmental crisis, and hypotheses on environmental behaviour [1]. Throughout our research, we have studied the Biology and Geography curricula for grades XI-

XII. In the curricula, values such as “developing curiosity and respect for all life forms, concern towards [...] the environment” are clearly formulated, but they are no longer translated in syllabi contents, but rather treated peripherally at the level of methodological suggestions [25]. This is also evident in the results obtained by applying the NEP-R on the group of 85 high school students. Although we do not have a series of precise standards, the result (close to the theoretical average of the scale) suggests that the aim to instil pro-environmental values at high school level is not fully achieved in education. Thus, it can be explained why, lacking these values, future students will no longer be influenced by mere suggestion based campaigns.

5. Conclusion

The results suggest that if pro-environmental values are absent, environmental behaviour cannot be influenced by mere suggestion. The results are consistent with previous research, placing environmental values as a key element in achieving environmental protection behaviours. In order to be effective, awareness raising campaigns should most likely address the relationship between man and nature and public education, and rely less on directly suggesting responsibility or danger.

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