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Original Research Paper

The Application of Advertisement Presentation Techniques To Environmental and Sustainable Development Education

Education

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Ioannis P. Kotsalas

Laboratory of Environmental Chemistry, Department of Chemistry, National and Kapodistrian University of Athens, Zografou Campus, GR157 84, Greece

ABSTRACT

One of the main aims of Environmental Education (EE) and Education for Sustainable Development (ESD) is the enhancement of students' attitudes towards the objectives of Sustainability strategy besides their critical thinking. In this research article we test the effectiveness of two different versions of the same presenting cognitive material related to the environment and the sustainable development, to Greek High school students. The presented issues are specifically related to solidarity, equality, peace, mutual respect between people, justice, environmental protection, pollution avoidance and sustainable consumerism. The first "steady" version contained only static text and images. The second version included attention capturing, impressive and sentimental techniques which are used in advertisements. The use of advertisement presentation methods, in teaching, resulted in the improvement of students' attitudes towards environmental friendly and sustainable approaches, more than the "steady" version.

Introduction

In order to effectively ameliorate the negative consequences of environmental degradation and unsustainable modes of development, it seems necessary to cooperate different scientific orientation groups, such as natural sciences (chemistry, physics, etc.), technical sciences (electrical engineering, informatics etc.), policy-making sciences (social, political etc.) including mass media and Psychology (Gifford, 2008).

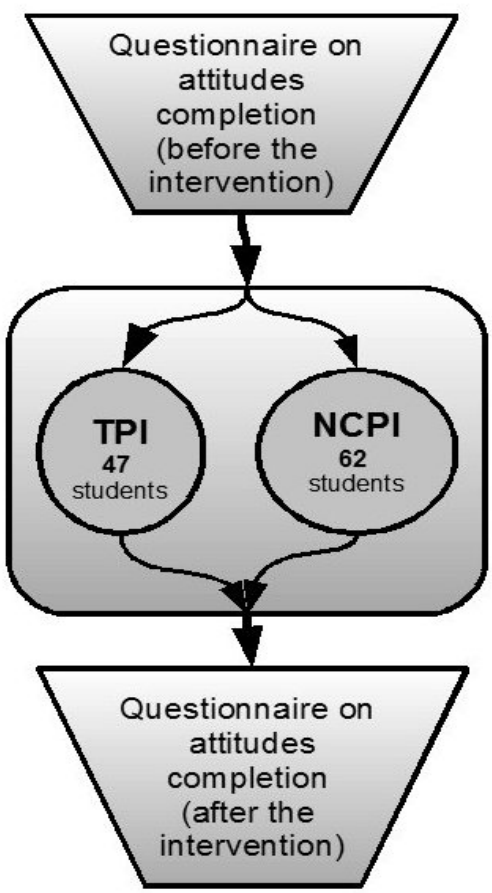

Figure 1: Research structure and number of participants of each part.

It is known that the methods involved in advertisement are often very sophisticated, developed with the support of disciplines such as Neuroscience, Psychology, Physiology etc. (Vander *et al.*,1994; Kandel *et al.*,1995; Guyton and Hall,1996; Milosavljevic and Cerf, 2008; Fisher *et al.*, 2010) in order to increase the effectiveness of the promoted information.

In the context of EE/ESD, one of the general ways to enhance critical thinking is by employing multi- and intra-disciplinary approaches within and outside formal education schemes (Thomas, 2009; Scoullos, 2010). This article describes the implementation of certain techniques, used by media experts, to enhance the efficacy of the messages, in order to advance the goals of EE and ESD. Also it is known that some advertisement and social media methods, fortunately not all of the them, surpasses the margins of what is widely understood as socially or ethically acceptable (Kotsalas and Scoullos, 2014). In present research we used non-contested advertisement techniques.

Research design and methods

In this research the influence of "steady" presentation *is compared to the* corresponding influence *of a presentation incorporating a combination of media techniques. Both types of presentation involve* environmental education (EE) *issues as well as issues related to formation of friendly attitudes f*or sustainable development (ESD). Research parts are shown in Figure 1 (abbreviations TPI and NCPI are explained below).

The research steps

The research sequence included the following six steps:

Step 1: Construction of the questionnaire to be used which contained 7 sentences (Table 1).

Step 2: Validation of the questionnaire.

Step 3: Questionnaire completion by the students before the educational intervention.

Step 4: Educational intervention with two different types of Powerpoint presentation.

Step 5: Questionnaire completion by the students after the educational intervention.

Step 6: Statistical analysis and results.

First step: construction of the questionnaire

The questionnaire was exploring the students' attitudes, critical thinking and awareness about fundamental issues of sustainable development and environment protection. Students were called to indicate the degree of importance

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of seven individual sentences, presented at Table 1, involving ethical governance, solidarity, justice, peace and over consumerism. Students asked to grade each sentence with a score ranging from 1 to 7; 1 for the least significant and gradually 7 for the most significant one. Changes in attitudes were tested by using the questionnaire before and after presentations (see Table 1).

Second step: validation and adaptation of the questionnaire

In this step of our research the validation and the reliability of the questionnaire took place. Validation was examined through the involvement of a group of experts-academics. Reliability was examined by using the *Cronbach-a factor* and *total correlation* (see SPSS software) of the questionnaires responses (Howitt and Cramer, 2005; Makrakis, 2005).

By using one number from 1-7, you may indicate how significant is the below referred concepts to you (7 for the most significant,…… , 1 for the least significant)		**Choose 1,2,3,4,5,6,7 only once**
S1	**Fair taxation for every citizen**	
S2	**Environmental care and pollution avoidance**	
S3	**Extravagance, splurge**	
S4	**Over consumerism**	
S5	**Solidarity**	
S6	**Less welfare-more weaponry**	
S7	**Ethical state governance**	

Table 1: The questionnaire

Third step: questionnaire distribution and completion before presentations

This step included the distribution and completion of the nameless questionnaire by different groups of students. A personal code completion on every questionnaire was necessary in order to match pre-intervention and post-intervention answers.

Fourth step: Educational intervention using Powerpoint type presentations

The fourth step was the presentation/lecture on the environmental and sustainable development issues using two different techniques for different groups. The two different types of presentation contained the same cognitive information but steady images and text were employed for the Control groups (CG) and more dynamic advertisement techniques were employed for the presentations to the Experimental groups (EG1).

Analytically, the **TPI**-traditional presentation/intervention, involving steady imagery and text was applied to Control groups (CG). The **NCPI-**non-contested presentation/intervention applied to EG1, comprised of non-contested, attractive, impressive video techniques, pleasant music and songs. Both types of interventions are described in Figure 2.

Fifth step: distribution of questionnaire and completion after the interventions

In this step the post-intervention completion of the initial questionnaire took place.

Sixth step: statistical analysis

First of all, the responses of "positive" sentences (S1, S2, S5, S7) were kept unchanged and we reversed "negative" sentences' scores. S3, S4, S6 were considered as negative sentences, since their concept was not in accordance with the scope of Sustainable Development. Therefore, we calculate the value **8-response** for the "negative" sentences (so 1 became 8-1=7, 2 became 8-2=6 and so on). Afterwards, we calculated the difference between the mean values of the responses before and after the interventions. Independent t-test gave significant statistical results between the two interventions (Gronbach's alpha was 0.715).

Participants and selection processes

The Control Groups CG-TPIntervention consisted of 47 B and C class High School students-valid questionnaires (53% males and 47% females-age mean value 14,65 years old) and Experimental Groups EG1-NCPIntervention consisted of 62 students-valid questionnaires (54% males and 46% females- age mean value 14,66 years old). CG and EG1 participants were not related to each other. The intervention lasted, approximately 2 months. The participants were coming from 3 High schools distributed in the wider Athens-Attica Metropolitan area. The selection process followed the cluster (whole classes) sampling methodology. An additional benefit of this approach is the fact that its application has a minimum disturbance in the smooth operation of the school.

	Intervention	**N**	**Mean**	**SD**
Postintervention mean – (minus) preintervention mean	**TPI**	**47**	**-0,35**	**0,96**
	NCPI	**62**	**0,16**	**1,31**

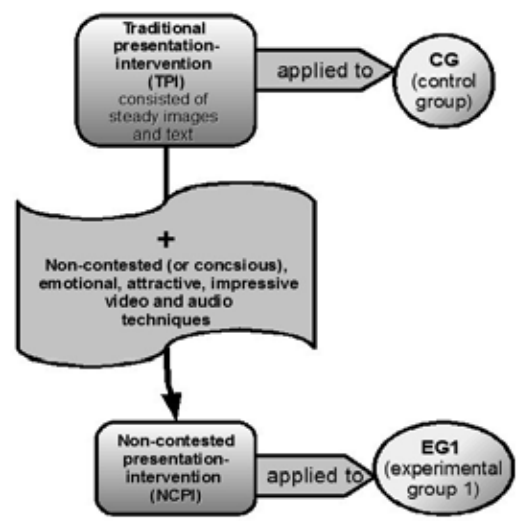

Figure 2 Description of interventions including the sequential steps applied to the control (CG) and the experimental (EG1) groups of students

Students of the age bracket of 14-15 years old are considered to be mature enough to participate in interventions where the level of intellect is adequate for making choices and shaping attitudes.

Results and discussion

The scope of this research is summing to the below hypothesis:

Hypothesis

Lectures on Sustainability and Environmental issues by using non-contested advertisement techniques (NCPI) could result in greater attitude improvement in comparison to traditional presentation-interventions (TPI).

The difference between post-intervention mean value mi-

nus pre-intervention mean value for NCPI presentation (Mean=0,16, SD=1,31) is statistical significant higher (t=-2,27, df=107, Sig. 2-tailed=0,025) than TPI one (Mean=-0,35, SD=0,96) (see Table 2). Levene's test indicates that equal variances assumed (Sig. 0,315), so Mean Difference (-0.52) is statistical significant (Table 3). Confidence Intervals of the difference expanded from -0,97 to -0,07. Mann-Whitney test U=1868,5 (Asymp. Sig. 2-tail=0,010). So Hypothesis is supported.

The results of Tables 2 and 3 indicate a range of different degree of improved environmental and sustainability attitude performance through NCPI (applied to EG1 group) than through TPI (applied to CG). All of the non-contested advertisement techniques that we used, targeted the emotional rather than the intellectual "locus" and this is why their impact on environmental friendly attitudes was statistically significant higher. In conclusion, it becomes apparent that video and music presentation (NCPI) gave better attitude changes than the steady images and text presentation (TPI).

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1,02	0,315	-2,27	107	0,025	-0,52	0,23	-0,97	-0,07

Conclusions

The main contribution of the present research concerns the use of selected media techniques by educators. We tested widely accepted, non-contested media techniques to enhance the attractiveness of environmental science lectures and support environment and sustainable development friendly attitudes. The results were definitely positive when it came to enhancing students' attitudes towards the protection of the environment and sustainable development. Therefore, the opportunity is offered to capitalize on well studied and applied "marketing techniques" in order to enhance the impact of environmental and sustainability messages targeting attitudes and expected behavioral changes.

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