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MEASURING THE UPPER-ELEMENTARY SCHOOL CHILDREN'S ENVIRONMENTAL ATTITUDES: A DESCRIPTIVE STUDY IN CLUJ AREA, ROMANIA

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ABSTRACT

In Romania, the number of environmental education studies on young children is not sufficient. This is mainly because scales for measuring the pro-environmental behaviour of young children are quite limited and are not quite common. This small-scale empirical study aims to supplement scarce research on children's attitudes to the environment. The research included 51 children aged 9-10, receiving elementary education in Romanian urban area. The study was carried out in September 2012. Results show that in general children have developed pro-environmental attitudes, with girls displaying slightly higher means on all the scales, but with no significant differences computed. The most positive attitudes are in the area of nature appreciation, recycling and animal rights and protection. Although limited in its conclusions, the present study provides a significant contribution to the field for further studies to be conducted in Romania on the pro-environmental attitudes and potential behaviours of elementary school children.

Keywords: *CATES, pro-environmental behaviours, elementary school children*

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INTRODUCTION

There is an intimate link between the physical environments that children occupy and the quality of their lives (Bartlett, Hart, 2002). The means for realizing children's right to a supportive physical environment as stated in the UNCRC (1989) is further developed by other environmental agreements. Early as 1992, the United Nations Conference on Environment and Development recognized children as important actors in the environment protection and improvement. Furthermore, the Habitat Agenda (1996) pointed not only to the right to decent, liveable neighbourhoods and settlements, but also to the continuous improvement of these. Since then, topics like global warming, water/air pollution or sustainable environments have become present in the public debate and pointed the need of raising awareness on environment protection (Castillo *et al.*, 2002).

In the public discourse, messages on environmental degradation (e.g. global warming, depletion of stratospheric ozone layer, pollution of sea and rivers, noise and light pollution, desertification) are constantly uploaded. Like adults, children too are exposed to such messages and become concerned about their environment and the future environments in which they live in (Fleer, 2002). Thus, developing an understanding of children's environmental attitudes and behaviours becomes an essential component of providing for a healthier planet. However, most of the research in the area concentrated on adults; when children's attitudes were considered, the focus was on how children comprehend nature and on the investigation of underlying moral reasoning in relation to the emergence of different ecological beliefs (Evans *et al.*, 2007).

Allport (1935) defined attitude as "A mental and neural state of readiness, which exerts a directing, influence upon the individual's response to all objects and situations with which it is related" (p. 810). According to Schultz and Zelezny (2000), "attitudes of environmental concern are rooted in a person's concept of self and the degree to which an individual perceives him or herself to be an integral part of the natural environment" (p. 368). Children begin to recognize and develop certain attitudes towards the environment in early childhood. Yet little is known about the content of their environmental attitudes and behaviours. Furthermore, if children do not develop positive attitudes towards environmental issues in their early years, it is more likely that they may not develop such attitudes at all (Basile, 2000). As it can be very difficult to alter negative environmental attitudes that were formed in the early years of childhood (Davis, 2009; Siraj-Blatchford, 2009), it is utterly imperative to support the development of positive attitudes towards environmental issues starting from preschool and elementary level (Fleer, 2002).

In Romania, the topics regarding the knowledge of the environment are included in the process of teaching-learning-assessment starting with elementary school. Within the school curricula for the 1st and 2nd grade, the focus of environment education is two-fold: first, exploration and

understanding of the proximal environment; and second, development of positive attitudes towards environment. Starting with the 3rd and 4th grade, the focus is on broadening the children's horizon, to integrate them into the environment, and to develop a civic sense for the conservation of the natural environment.

METHOD

Aim

The focus of this study was to measure the environmental attitudes and behaviours of children. The study revolved around the attitudes of children enrolled in the 3rd grade in Cluj-Napoca area (Romania). Based on the school curricula, we assumed that the children have already some (pre)conception about the environment. Therefore, we aimed to see what was children's level of knowledge at the beginning of the 3rd grade, before learning about the main effects of human activities on the natural environment.

Sources of data

Data were collected in the first week of school from September 2012. The convenience sample was recruited from one school from Cluj-Napoca, centrally located. Two classes were approached. The total number of third graders reached 51. Questioning children and especially young children always raises some methodological and ethical issues that need to be addressed accurately. Having few alternatives, we choose questioning them in the classroom during their daily learning schedule. The reasons were as follows: (a) considering the age of the respondents, most of them are enrolled in educational process; the ones who are not, are already special cases and should be treated as such. Our investigation tried to asses what is happening with the 'typical' child; (b) children aged 9-10 are subjects in an inquiry because they have the essential abilities to understand and answer questions (Borgers, de Leeuw, Hox, 2000); and (c) grouping respondents in classes has the advantage of applying a large number of questionnaires in a shorter period of time.

Sample profile

There were slightly more male children in the sample (58.8% compared to 41.2%). The vast majority of them were living in urban areas (96.1%).

Measures

A translated version of the Children's Attitudes Toward the Environment Scale (CATES) developed by Musser and Malkus (1994) was used. CATES is a 25-item scale that one can use to assess the degree to which children's attitudes are pro-environmental. For each item, respondents choose one box according to their position. Each item has an individual score from one to four (four is most pro-environmental); children do not see any scoring numbers but rather see boxes. Each score represents the score that the child receives and is representative of the placement of the boxes on the original scale sheet. By adding the scores, five specific scores are generated: Recycling *(4 items)*, Conservation *(6 items)*, Animal Rights and Protection *(6 items)*, Nature Appreciation *(4 items)*, and Pollution *(4 items).* All items can be summed to create a single environmental attitude score that reflects beliefs, thoughts, and affects. The total score obtained ranges from 24 to 100 and a higher score indicates the level of pro-environmental behaviours.

The internal-consistency reliability of the scale initially ranged from .70 to .85. With no other following studies identified, it is difficult to say how the Cronbach's alpha coefficient really behaves and how reliable is this measure. The Cronbach's alpha for this sample was .63 for the overall scale, demonstrating quite low high internal validity.

Demographics. Basic demographic information was obtained on gender (male/female) and on residency (urban/rural).

Procedure

When administering the CATES, children were asked to "Please indicate which of two different groups of children you are most likely in, for each item. Mark the big box if you feel a lot like the children in that group or the little box if you feel only a little like the children in that group". The questionnaire was completed individually by every child. The average time needed for full completion was one hour. A formal agreement from the school manager and from the head-class teacher was obtained before the actual empirical research. Respondents were told that their responses would be treated anonymously and that they keep the option of refusing to fill in the questionnaires.

Data analysis

Data were analyzed using the SPSS version 14 for Microsoft Windows. Bivariate correlation was run in order to test for significant association between dimensions. A .05 and .01 level of statistical significance was set. Also, mean comparison was run to test for significant differences. Response frequencies for the survey questions were determined and displayed in graphic formats.

RESULTS

First, we wanted to evaluate how the five specific environmental attitudes and behaviours act together. The correlations matrix among the five scale dimensions indicates several significant correlations (Table 1). The significant positive correlations among the dimensions illustrate that as one specific pro-environmental behaviour increases, there is a corresponding increment in the other pro-environmental dimension. The highest correlation coefficients are for A*nimal rights and protection* and *Pollution* (r_{49}=.382, p =.006), indicating that those who display positive behaviours toward animals are more concerned about pollution issues, and for *Nature appreciation* and *Pollution* (r_{49}=.360, p=.010), showing that those who value the natural environment as it is are also more aware of the pollution issues that affects the natural environment. There are no significant negative correlations observed.

Table 1. Correlation matrix between CATES dimensions

	Recycling	***Conservation***	***Animal Rights and Protection***	***Nature Appreciation***	***Pollution***
Recycling		.221	.336*	.165	.329*
Conservation			.241	.262	. 314*
Animal Rights and Protection				.200	.382**
Nature Appreciation					. 360**
Pollution					

NOTE: * p<.05, **p<.01

Characteristics of pro-environmental behaviours

The average score of each dimension was calculated to examine the characteristics of pro-environmental behaviours for the third graders. The findings of this study revealed quite positive attitudes and behaviours toward the environment, with averages over the 3rd quartile for the majority of scales. The highest means are obtain for *Nature appreciation* (M=3.62), *Recycling* (M=3.36) and *Animal rights and protection* (M=3.25). This means that children claim positive behaviours when asked about these issues. The lowest mean score is for *Pollution* (M=2.96) which could be related to the abstract meaning of the concept (Figure 1).

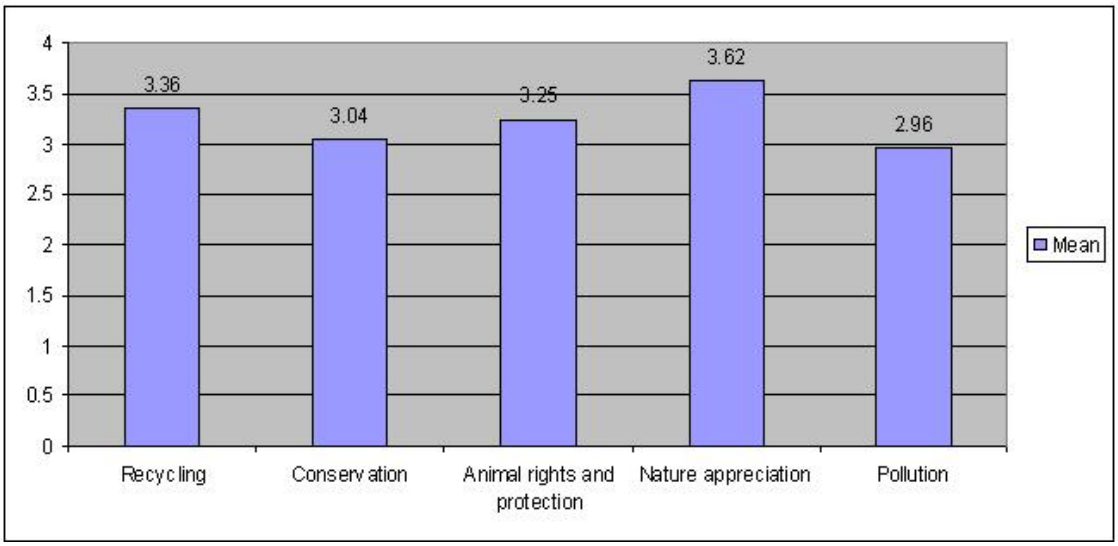

Fig. 1. Mean of components of pro-environmental behaviour (N = 51)

Demographics and pro-environmental attitudes

Because of the sample profile, we were not able to generate complex profiles of the respondents, but our main research question was focused on describing the content of potential environmental attitudes they might have. Although there are no significant differences according to gender ($p>.05$), the descriptive analysis allows discussion of certain environmental attitudes displayed by respondents. In all the scales, girls tend to have more positive environmental beliefs compared to boys. Figure 2 reveals the computed profiles for the two subsamples.

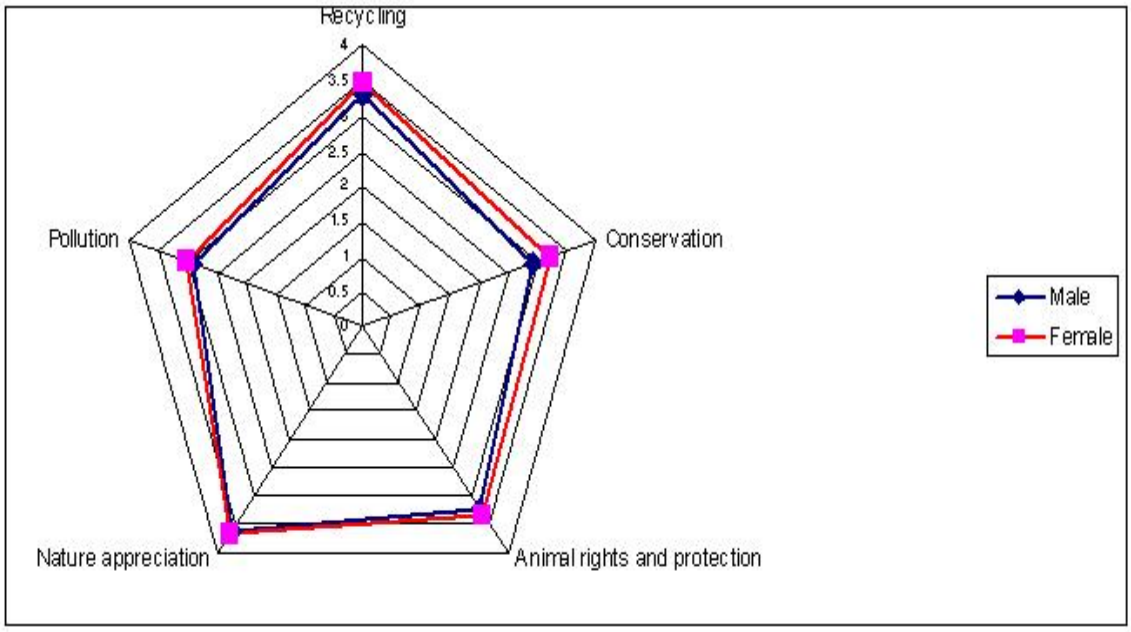

Fig. 2. *Profile of male and female 3rd graders (N = 51)*

CONCLUSION

A pro-environmental behaviour is a behaviour that has a reduced impact on the environment (e.g. switching off lights, turning off water and heat, recycling and using sustainable modes of travel) and has received much recent attention in the academic and policy literatures (Reid, Sutton, Hunter, 2010). Environmental problems have increased dramatically with factors such as population growth, urbanization, tourism and industrialization (Gülay, Campus-Denizli, 2011).

At the same time, it is accepted that the most important measure to be taken against environmental problems is early environmental education (Davis, 1998). In order to have a sustainable environment, it is important that teachers at all levels should give their students maximum exposure to environmental education (Khawaja, 2003).

Limitations of the study

However, due to the nature of the study, there are several limits so the results should be read carefully. Given the limited number of available studies on children's attitudes toward the environment in a Romanian context, evidence of the distribution of the dimensions that were offered here remains inconclusive. In addition, the small sample of respondents and the convenience sampling procedure impedes the generalization of the results. Further cross-sectional studies with larger samples are needed. In addition, qualitative studies should be done in order to cross-validate and strengthen the generated conclusions, to explore, and to understand the environmental beliefs of different cohorts. Therefore, we plan that at the end of the current school year, after the children were exposed to an environmental educational program, we will apply another set of questionnaires to see whether and how their perceptions and attitudes towards the environment have changed.

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