Journal of Environmental Management (1990) **31**, 157–162

The Analysis of Ecological Attitudes in Town and Country

Stephen M. Williams

Institute for Health Studies, 2 Boxted Road, Colchester CO4 5HG, U.K.

and Rosaleen McCrorie

Department of Psychology, University of Ulster at Coleraine, Northern Ireland BT52 1SA, U.K.

Received 15 *February* 1989

Ecological attitudes of 11-year old children were investigated by means of a modified short version of a standard questionnaire. Children ($N=200$) from urban and rural backgrounds in Northern Ireland were compared, and the rural children found to have a higher degree of environmental consciousness, perhaps deriving from the relative simplicity of their environmental background. There was little evidence of a gender difference in environmental attitudes previously reported in an older age group, but a distinctive gender pattern of *greater* affect about environmental problems combined with *less* commitment to take action about them was found to characterize not only girls in general, but particularly urban girls. Presumably, these subgroups are more aware than others of the economic benefits typically accompanying environmental problems. In the sample as a whole, affect about the environment was not correlated at all with commitment to action to preserve it.

Keywords: ecological attitudes, children, questionnaire.

1. Introduction

It is orthodox in social psychology to analyse the concept of "attitude" into three components: affect towards; cognition about; and behavioural commitment to the object of the attitude. By "attitude" is also meant something relatively lasting rather than some transient whimsical opinion. The orthodox view is that attitudes arise from classical or instrumental conditioning and social learning. Thus, an ecological attitude such as that to pesticides might be formed by social learning from seeing our parents use pesticides, from classical conditioning when we once spilled a pesticide on ourselves and became ill, and from instrumental conditioning from the year we did not use any pesticide and lost our garden crop as a result. From the beginning, the possibility of measuring attitudes and using them to predict behaviour has appeared to the applied-minded psychologist. It could not be long before the great surge of interest in the interaction between the

0301-4797/90/060157+06 $03.00/0

physical environment and people led to the construction of attitude scales in this area. Maloney *et al.* (1975) developed a 45-item Ecological Attitude survey which comprised three subscales of "Affect", "Cognition", and "Commitment". Fortunately, in view of the known tendency of subjects to perseverate (repeat the same response on successive items) they took the precaution to mix items from the different subscales through the questionnaire. Since this paper was published, the increasing public awareness and alarm about environmental issues has led other investigators to develop other scales. For example, Weigel and Weigel (1978) have brought general attitude-measurement theory to bear on the construction of an Environmental Concern scale, though Van Liere and Dunlap (1981) have questioned whether their measurement instrument constitutes an important improvement. Also, Albrecht *et al.* (1982) have presented a New Environmental Paradigm scale for measuring environmental concern and have examined its reliability, validity, and dimensionality in a more general and scientifically sophisticated way than its predecessors. Nevertheless, because the Maloney *et al.* (1975) questionnaire has been used most extensively, has three subscales of intuitive integrity, and includes questions suitable for a young sample, it was used in the present study.

Not all the items of their questionnaire are as appropriate in a European and a child context as an American adult one, and a 20–item subset was chosen for this work in Northern Ireland. The population of Northern Ireland is one and a half million, spread through six counties, but heavily concentrated in the Greater Belfast region. Beyond the simple aim of developing norms for work in a different part of the world, this study sought for possible influences on ecological attitudes of urban/rural background and gender. Pilot work and consultation with teachers confirmed the level of the questionnaire was appropriate to a young sample. Its broad rationale is given by Maloney and Ward's (1973) depiction of the ecological crisis and attack on those content merely to theorize about it:

> "... the solution to the ecological crisis does not lie in traditional technological approaches but rather in the alteration of human behavior. In short, the ecological crisis is a crisis of maladaptive behavior ... we must go to the people in an attempt to understand these behaviors. We must determine what the population knows regarding ecology, the environment, and pollution; how they feel about it; what commitments they are willing to make; and what commitments they do make. These are the necessary antecedent steps that must be made before an attempt can be made to modify critically maladaptive behavior." (p. 584).

There is a long-standing debate about the relationship of attitudes to the behaviours they denote. With regard to the environment specifically, one might speculate to what extent interest in groups like Greenpeace and Friends of the Earth is allied to environmental problems (see Hummell, 1977). Positive behaviours are not necessarily allied to deep environmental concern, for example a motorist who pays for a pollution control device on his or her car may be making nothing but a token gesture (O'Riordan, 1976).

Such evidence as there is suggests that, despite many initiatives on environmental education that have been mounted in recent years, public environmental knowledge remains "painfully low" (Arcury and Johnson, 1987). This study confirmed that the major correlates of environmental awareness are education, income, and sex. It also stressed the need for developing environmental knowledge scales that can be used across a wide variety of research. The present study bore in mind the Jesuit maxim that one who is yours at 7 years is yours for life. By questioning young children, it is possible to appraise other variables by thus partially eliminating the effects of income and education. It is also possible to work with a relatively high average level of environmen-

tal concern because it is well documented that there is an inverse relation between age and environmental concern, due partly to a secular trend as well as to a genuine effect of ageing (Honnold, 1984). Further evidence that younger age groups are the critical ones to explore is given by Jaus (1984) who found that a mere 2 hours of environmental education in the third grade had a positive effect on environmental attitudes (as compared with a control group) 2 years later. This result is consistent with the finding of Blum's (1987) cross-cultural study that such environmental knowledge as ninth/tenth graders possess emanates from the mass media rather than the educational institution.

2. Method

During January 1987, 50 boys and 50 girls were tested from both a rural co-educational school near Ballycastle, County Antrim and from an urban one in Belfast. No criterion except typicality and co-operativeness was used to choose the schools, which were high-ability grammar schools. In other words, most children had passed the Transfer Examination taken at age 11 years. One day was spent by the second author in each school. The average age of the children was 11·7 years and did not vary greatly as all were in the same grade. As it happens, it was discovered that all 200 had previously been involved in local conservation campaigns. However, no children had previously been asked about the issues raised. The subjects were drawn from seven different classes (for the same age group) in the two schools. Any completed questionnaires surplus to the target 50 were discarded randomly. The children were tested in their class groups during school time. They remained silent until the slowest child in the class had finished. The period of filling in the questionnaire never exceeded a quarter of an hour. Their teachers were present. Before administering the test, an explanation of its content and how to answer was given to each group. At this stage, the children were permitted to ask questions and any misunderstandings were cleared up. It was made clear that this was a research project not connected with assessment in any way. On completion of the tests, staff and children were thanked for their help. In both schools, discussions developed centering around the issues raised in the questionnaire. After analysis of the 200 questionnaires, the schools were re-visited and all participants told of the main results.

The 20 questions were chosen, after close consultation with the staff in the two schools, as being suited to the intellectual and environmental background and experience of the children. This smaller questionnaire, which fitted onto one side of a sheet of paper was tested on a group of children within the required age group (first year of secondary school) and known to the second author; these children all understood and completed the questionnaire with no apparent difficulty. In the main study, no demographic variables other than age and sex were recorded.

The questions relating to Affect about the environment were:

1. People worry too much about additives in food.
2. It worries me to think that much of the food we eat is treated with chemicals.
3. It makes me angry to think that the government does not do enough about pollution.
4. "The world will be dead in 40 years time if we do not do enough about our environment". This statement does not bother me.
5. I become angry when I think about the harm being done to plant and animal life by pollution.
6. I am not bothered by loud noise.
7. When I see the results of pollution I get angry.

The questions relating to Cognition about the environment were:

1. I would be willing to ride a bike or take a bus in order to reduce air pollution.
2. I would not join a club concerned solely with environmental problems.
3. I would be willing to use an alternative means of transport in order to do something about pollution.
4. It is the government's job to improve things, not mine.
5. I would give money to help improve the environment.
6. I would stop buying something made by a company that causes pollution.
7. I would be prepared to give out leaflets or literature about environmental problems.

The questions relating to Commitment regarding the environment were:

1. I have never bought something simply because it caused less pollution.
2. I would never write to an M.P. about environmental problems.
3. I am prepared to do something positive about environmental problems.
4. I like to buy goods that are packed in containers that can be re-used.
5. I would go to a meeting to help improve the environment.
6. I have never taken part in an anti-litter campaign.

The order of the 20 items was mixed and balanced across subscales to avoid order artefact. It can be seen that the questions were strictly statements requiring agreement or disagreement with what was asked. Answers of "true" or "false" were used to construct a mark out of seven on the subscale (the score on the third subscale was multiplied by 7/6 to preserve comparability). The scoring was based on the Maloney *et al.* (1975) scale, with one point being given for each pro-environmental answer. The structure of the questionnaire was aimed to cancel out acquiescence and social desirability response bias.

3. Results

It was found that "affect" did not correlate significantly with "commitment" although "cognition" did correlate about 0·3 with both the others. No real sign of bimodality (suggesting contentiousness) was found for any of the three subscales. It seems that this sample of children is aware of the trade-off between environmental despoliation and economic growth which Ramsey and Rickson (1976) show to be important in generating inconsistency between environmental knowledge/affect and commitment. A complete three-way ANOVA was carried out using home environment (Urban/Rural) and Gender as the between-subject independent variables, Subscale Score as the within-subject independent variable. As shown by Table 1, rural children showed significantly higher whole-scale scores than Urban children ($F = 6{\cdot}69$, $P < {\cdot}01$). The Table also shows that scores on the three subscales were significantly different ($F = 30{\cdot}1$, $P < {\cdot}001$). It can be seen by comparing Male rows with Female rows that the profile on the three subscales differed significantly across sexes ($F = 34{\cdot}0$, $P < 0{\cdot}001$) in that females tended to be higher on "affect" and "cognition" but lower on "commitment". This difference in profile interacted with the Urban/Rural variable ($F = 22{\cdot}8$, $P < {\cdot}001$) in that it was far more marked in the Urban sample than in the Rural sample. No other term in the analysis of variance was significant; in particular, the main effect of gender fell short of significance.

4. Discussion

The finding that people's feelings about the environment are uncorrelated with their

TABLE 1. Mean performance (maximum = 7) in each condition of the survey

		Affect	Cognition	Commitment	Average
Urban	Male	4·22	3·62	5·02	4·29
	Female	5·80	4·36	3·01	4·39
	Both	5·01	3·99	4·01	4·34
Rural	Male	5·00	4·22	4·34	4·52
	Female	5·34	4·94	4·46	4·91
	Both	5·17	4·58	4·40	4·72
Total	Sample	5·09	4·29	4·21	4·53

behavioural commitment to do anything about it may be found intriguing. In some ways, it seems reminiscent of a finding that people of low socio-economic status who suffer the effects of air pollution most do less to campaign against it (Swan, 1970). The finding that children from a rural background have better ecological attitudes does not seem to have been anticipated in the previous literature. Rural children have a slightly greater affinity with the environment, know more about its behaviours, and, if female at least, are involved in more pro-environmental problems. The discrepant score of the rural males on commitment seemed to be low to the experimenter because they are "tied to the land" and so perhaps not consciously aware of it. In the discussion which followed the administration of the questionnaire, many of them expressed a mild form of confusion in that they were being asked to think about things they took for granted. For example, knowing the difference between types of fertilizer and the inherent advantages and disadvantages of their use, they were caught in a dilemma answering the question about this, particularly as it was they who, in adult life, would in practice have to take decisions about fertilizer use.

However, the sex difference in profile across the scales matches very well the work of Gifford *et al.* (1982). They, too, state that, while females express greater affect about the environment, males have more commitment. On the other hand, they find that males have more knowledge about the environment, in contrast to the pattern here. The finding that the sex difference is significantly more marked in an urban sample seems to be a refinement of their work. However, the absence of a main effect of gender contrasts with their work (though in this study the F for gender did show a $P<0{\cdot}1$). Gifford *et al.* (1982) discuss their sex differences in terms of the differential socialization of women stemming largely from sex-role stereotyping. It should be noted, however, that their subjects were university students rather than 11-year-olds, which could explain the mild discrepancy in the results.

The results show similar scores for "cognition" and "commitment". This similarity appears in the combined results, but is especially true in the case of rural children, supporting the argument that rural subjects being involved with the environment know about the problems and know what they are doing is right, rather than making responses which suggest they say they do things which they think are right. Gifford *et al.* (1982) also reported that environmental education students not only know more about the environment, but reported more commitment than did other students.

Cone and Hays (1980) suggested, with evidence, that behaviour can be modified to produce environmentally constructive outcomes. For example, air pollution can be reduced by reinforcing car-pooling behaviour. However, there is no evidence which suggests that changing one behaviour will result in a general change in environmental

behaviour. It might be suggested, then, that providing individuals with relevant information and education regarding environmental issues and the effects of their behaviour upon the environment will result in the formation of a more environmentally aware individual, and one who is prepared to modify his entire behaviour in a pro-environmental direction.

Clearly, those from a rural background may be more aware of issues like the environment-friendliness of different fertilizers, while those from an urban background may have more negative experiences of litter and graffiti. The case seems strong for the tailoring of environmental education programmes according to the environmental background of pupils.

References

Albrecht, D., Bultena, G., Holberg, E. and Nowak, P. (1982). The New Environmental Paradigm: measuring environmental concern. *Journal of Environmental Education* **13**, 39–43.

Arcury, T. A. and Johnson, T. P. (1987). Public environmental knowledge: a statewide survey. *Journal of Environmental Education* **18**, 31–37.

Blum, A. (1987). Students' knowledge and beliefs concerning environmental issues in four countries. *Journal of Environmental Education* **18**, 7–13.

Cone, J. D. and Hayes, S. C. (1980). *Environmental Problems/Behavioral Solutions*. Monterey, CA: Brook Cole.

Gifford, R., Hay, R. and Boros, K. (1982). Individual differences in environmental attitudes. *Journal of Environmental Education* **14**, 19–23.

Honnold, J. A. (1984). Age and environmental concern: some specification of effects. *Journal of Environmental Education* **16**, 4–9.

Hummell, C. F. (1977). The effects of induced cognitive sets in viewing air pollution scenes. Unpublished doctoral dissertation, Colorado State University.

Jaus, H. H. (1984). The development and retention of environmental attitudes in elementary school children. *Journal of Environmental Education* **15**, 33–36.

Maloney, M. P. and Ward, M. O. (1973). Ecology: let's hear from the people. An objective scale for the measurement of ecological attitudes and knowledge. *American Psychologist* **28**, 583–585.

Maloney, M. P., Ward, M. O. and Braucht, C. N. (1975). A revised scale for the measurement of ecological attitudes and knowledge. *American Psychologist* **30**, 787–790.

O'Riordan, T. (1976). Attitudes, behavior and environmental policy issues. In *Human Behavior and Environment: Advances in Theory and Research*. (I. Altman and J. F. Wohlwill eds) Vol. 1. New York: Plenum.

Ramsey, C. E. and Rickson, R. E. (1976). Environmental knowledge and attitudes. *Journal of Environmental Education* **8**, 10–18.

Swan, J. A. (1970). Response to air pollution: a study of attitudes and coping strategies of high school youths. *Environment and Behavior* **2**, 127–152.

Van Liere, K. D. and Dunlap, R. E. (1981). Environmental concern: does it make a difference how it is measured? *Environment and Behavior* **13**, 651–676.

Weigel, R. and Weigel, J. (1978). Environmental concern: the development of a measure. *Environment and Behavior* **10**, 3–16.