



MATERIALISTIC AND ENVIRONMENTAL VALUES OF
YOUNG VOLUNTEERS IN NATURE CONSERVATION
PROJECTS

by

Birgitta Gatersleben, Jesse Meadows, Wokje Abrahamse and Tim Jackson

RESOLVE Working Paper 07-08





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Acknowledgements

The support of the Economic and Social Research Council (ESRC) is gratefully acknowledged. This work is part of the interdisciplinary research programme of RESOLVE - the ESRC Research Group on Lifestyles, Values and the Environment.

We are very grateful to Miles Sibley from BTCV for initiating this research and for helping us with data collection among BTCV volunteers.

ISSN 1755-7259

Abstract

In Western societies young people are constantly exposed to a materialistic ethos which promotes consumption profit growth (Kasser, 2005). At the same time, inner city environments and parent lifestyles have led to an increasing disconnection from natural environments (Kellert, 2002). This study explored whether young people who engage in nature based conservation activities have more affinity with nature, stronger pro-environmental values, and less materialistic values and lifestyles.

The study focussed on BTCV volunteers. BTCV is a charity set up in 1959, which aims to create a more sustainable future by inspiring people and improving places. In July 2007 questionnaires were distributed among BTCV volunteers and among non-volunteers visiting a local leisure centre or studying at the University of Surrey. This survey asked a range of questions on materialism, generosity, emotional affinity towards nature, environmental awareness, pro-environmental behaviour and well-being. A total of 99 questionnaires were completed by 16-25 year olds: 38 by BTCV volunteers and 61 by non-volunteers. The findings of the study can be summarised as follows:

Differences between BTCV volunteers and non-volunteers

- BTCV volunteers have a more positive attitude towards nature and have a less materialistic value orientation than non-volunteers. But there is no difference between the groups in environmental awareness, pro-environmental behaviour and well-being.
- BTCV volunteers are less materialistic than non-volunteers in terms of possessiveness but not in terms of generosity.
- BTCV volunteers are less likely to say they would buy a car or house if they won a million pounds in the lottery than non-volunteers, but they are no more or less likely to give money to charity or to friends and family.
- BTCV volunteers are more likely to spend time on outdoor activities and volunteering but they are no more or less likely to spend time on watching television, playing sports or playing computer games.

In addition it was found that

- Young people who feel more satisfied with their lives are more likely to have a positive attitude towards nature, a higher environmental awareness, and a less materialistic value orientation. They also report more pro-environmental behaviour. Well-being is not related to generosity.
- Those young people who say they are more satisfied with their lives spend more time playing sports and less time watching TV or playing computer games than those who feel less satisfied with their lives.
- Those young people who are more likely to behave pro-environmentally have a more positive attitude towards nature, a higher environmental awareness and a lower materialistic value orientation than those who are less likely to behave pro-environmentally.

- Those young people who say they would give at least some of their (imaginary) lottery winnings to charity have a higher environmental awareness and a more positive attitude towards nature. Those young people who say they would give at least some of the money to friends and family have a less materialistic value orientation.

The study findings support the idea that well-being and pro-environmental behaviour are positively related to attitudes towards nature and contact with nature and negatively to materialism. Young people who participate in volunteering activities related to nature conservation have different attitudes than those who do not. The findings suggest that they are particularly more likely to have an affinity with nature and significantly less likely to have an affinity with material possessions. The study does not show whether these views develop due to participation in BTCV activities or whether BTCV attracts young people who already have different views. More extensive longitudinal studies need to be conducted to provide conclusive answers to this

Key Words: young people, consumerism, environmental attitude, materialism, nature

1. Introduction

Young people in current Western societies are inundated with consumer opportunities and advertisement (Kasser, 2005). At the same time many of them are increasingly disconnected from natural environments (Kellert, 2002). As a consequence respect for nature and environmental concern are often perceived to be low whereas consumption aspirations are high.

A materialistic ethos currently dominates Western societies (Kasser, 2005). There is a clear focus within our societies on the acquisition of more money and goods. The extent to which people place value on increasing wealth and possessions does, however, vary. Those who have a stronger materialistic value orientation place more value on becoming wealthy, owning possessions and conveying status with possessions than those who do not. Research has shown that materialistic value orientations are related to well-being and pro-environmental behaviours. People who hold a stronger materialistic value orientation engage in less pro-environmental behaviour and report lower subjective well-being (Richins and Dawson 1992). This has been found for adults as well as adolescents (Cohen and Cohen, 1996; Kasser, 2005; Scheldon and McGregor, 2000).

Materialism is not the predominant value orientation for everybody. There are many people who place more value on sharing their money and possessions (Kasser, 2005). A study among 10 to 18 year olds by Kasser (2005) found that whereas materialistic value orientations are negatively related to self-reported pro-environmental behaviour, generosity is positively related to pro-environmental behaviour. Kasser (2005) also found that 10-18 year old boys score higher in materialism and lower in generosity than girls. When the young people were asked how they would spend an unexpected windfall of \$100 he found that those who had stronger materialistic value orientations were more likely to say they would buy stuff and less likely to say they would give it to charity and would save it. The reverse was true for generous people.

Whereas materialism is negatively related to wellbeing and pro-environmental behaviour, emotional affinity with nature tends to be positively related to wellbeing and pro-environmental behaviour. A wide range of studies has shown that exposure to natural environments, (as opposed to urban environments), can make people feel better, lower blood pressure, improve concentration levels, speed up hospital recovery and can help recovery from mental exhaustion (Frumkin, 2001; Hartig, Evans, Jamner, Davis & Garling, 2003; Kaplan & Kaplan, 1989; Travis & McAuley, 1998; Ulrich, 1991, 1983, 1984). Wells and Evans (2003) showed that the more contact with nature children experience the higher they score on tests of concentration and self-discipline. Bixler, Floyd and Hammutt (2002) showed that childhood play in natural environments (as opposed to built environments) promotes social interaction. And play in natural environments tends to be more imaginative and creative than play in built environments (Taylor, Wiley, Kuo and Sullivan, 1998).

There is a limited body of research which suggests that positive experiences with nature might be useful in promoting environmental concern and pro-environmental behaviours. For instance, the use of natural environments for restoration is positively related to environmental concern (Byrko, Hartig and Kaiser, 2007), as is the perceived restorativeness of natural environments (Hartig et al, 2001). Moreover, emotional affinity with nature is positively related to conservation actions (Kals, 1999; 2002). To date, however, there is very little research that examines the effects of nature on pro-environmental behaviour among young people.

This study examines the relationship between materialism, generosity, attitude towards nature, environmental awareness, pro-environmental behaviour and well-being among 16-25 year olds in the UK. This examines differences between a sample of 'normal' young people and those who conduct voluntary conservation work for an environmental charity. BTCV is a charity set up in 1959, which aims to create a more sustainable future by inspiring people and improving places. It has a history of environmental conservation volunteering throughout the UK and around the world. Their goal is to enrich the lives of people through involvement in their volunteering work, to improve biodiversity and local environment and to support active citizenship in community-based groups. The study aimed to explore whether young people who participate in BTCV activities differ significantly from people of a similar age group who do not participate, in their environmental and consumer values and behaviours and wellbeing. It was expected that BTCV volunteers will be less materialistic, more generous, have a more positive attitude towards nature, higher environmental awareness and report more pro-environmental behaviour and a greater wellbeing.

The study also examined which attitudinal and motivational variables are most strongly related to general well-being and self-reported pro-environmental behaviour across the whole sample of young people. It was expected that young people who have a stronger materialistic value orientation, who are less generous, who have more positive attitudes towards nature and who have a higher environmental awareness report higher well-being and more pro-environmental behaviour.

2. Method

2.1 Questionnaire

Two versions of the questionnaire were developed one for BTCV volunteers and one for non-BTCV volunteers. The only differences between the questionnaires were the questions at the end which asked BTCV volunteers specific questions about their volunteering work. The non-volunteers were asked if they had ever done any volunteering work and if yes what kind. A copy of the questionnaire can be found in Appendix A.

Both questionnaires consisted of seven parts. In part one the respondents were asked to indicate on a five point scale ranging from 1 = totally disagree to 5 = totally agree, how much they agree with five statements referring to attitudes towards the natural environment (e.g., I love nature; I like spending time in nature). Questions were based on work by Kals et al. (1999, 2001) on emotional affinity towards nature. In part 2 they were asked to what extent they agreed with five statements about environmental problems (e.g., humans are destroying the natural environment; people worry too much about environmental problems). These questions were based on the New Environmental Paradigm developed by Dunlap, Van Liere, Mertig and Jones (2000). Part 3 asked the respondents how likely it is (1 = very unlikely, 5 = very likely) that they would perform ten environmentally related behaviours (e.g., kill spiders and bugs that come into the house, give money to environmental organisations, recycle drink cans after use). In part 4 the respondents were asked how they would spend one million pounds if they won it in the lottery. Part 5 asked them to what extent they agreed with 11 statements about the importance of money and possessions in their lives (e.g., I would be happier if I owned lots of cool stuff; I enjoy giving things or money to charity). These questions were based on the work of Kasser (2005). Part 6 asked how satisfied respondents were with different parts of their lives (family, friendship, work/education, self, where they live and life overall; 1 = terrible, 7 = delighted). These questions were taken from Huebner (1997). The last part of the questionnaire focused on demographic aspects (age, gender,

education) and included questions about the amount of time they usually spend on a variety of activities (watch TV for 2 hrs or more, play sports, volunteer, go shopping; 1 = every day, 6 = never). This section also included the questions about volunteering activities.

2.2 Procedure and respondents

A total of 103 young people participated in the study. The study was conducted in July 2007. BTCV questionnaires came from young people aged 16-25 engaged in environmental volunteering in various locations (urban and rural) across England. All volunteers worked to contribute to real-life environmental projects. Some worked in small groups (usually around 10 or so) on traditional conservation tasks such as dry stone walling. Others worked on projects such as helping in an environmental education centre in inner city Leeds. A total of 42 questionnaires were completed by BTCV volunteers. An on-line questionnaire was developed for non-volunteers and a link to this questionnaire was distributed among students of the University of Surrey. Sixteen questionnaires were completed on-line. In addition two researchers from the University visited a local leisure centre where they approached young people and asked them to complete the questionnaire while they were there. A total of 45 questionnaires were completed at the leisure centre.

The age of the respondents varied between 16 and 25, on average they were 20 years old. There were an equal number of male and female respondents. The highest level of education the respondent had completed or were working on was evenly distributed; around a quarter of the respondents had completed (or were working on) their GCSE's, around a quarter had completed (or were working on) their A-levels, another quarter had completed (or were working on) a higher degree and a final quarter had completed or were working on a higher degree.

About 40% of the non BTCV volunteers had participated in volunteering work in the past. The majority of this work was for a local community or for a health-related charity. One person had been involved with tree surgery and one had worked for Greenpeace. But no other environmental charities were mentioned.

On average, the BTCV volunteers had been conducting volunteering work for about one year, although this ranged from one week to 3 years. The young people spend on average 16 hours a week doing volunteering work. This varied from 3.5 hours to 35 hours a week.

When asked to tick the boxes which indicate the reasons why they volunteered with BTCV the respondents indicated that the main reasons for volunteering were: having fun (ticked by 77% of the respondents), learning new stuff (77%), and developing their CV (77%). This was followed by protecting nature (ticked by 57%), and making new friends (49%). About a quarter of the respondents (24%) indicated they volunteered to look after their local neighbourhood and 29% said they had a different reason for doing the work (most often they mentioned gaining work experience).

There were no differences between BTCV volunteers and non-volunteers in age and gender. Not surprising due to the places where some of the data were collected (at the University) non-volunteers were more likely to be working on a postgraduate qualification (30%) than volunteers (10%). However, overall there were no differences between volunteers and non-volunteers in the percentage who had a degree (49% of the non-volunteers and 41% of the volunteers). Due to the way the data was collected there was a difference between the two groups in where they lived. Whereas the majority of non-volunteers lived in Surrey (and

particularly the Guildford area) the BTCV-volunteers lived in a variety of places (Devon, Cumbria, Wiltshire) but not in Surrey.

3. Results

The following chapter describes the results of the data analyses that were conducted. First a description is given of new variables that were created on the basis of the responses which were used for further data analyses. This was mainly done to reduce the number of variables for the analyses and get a clearer overview of the findings. Second it studies whether there are any differences between boys and girls and between young people who had and who did not have a first degree. The next section examines differences between BTCV volunteers and non-volunteers, both on the composite variables as well as on all individual items. The last section explores which variables are related to well-being and which variables are related to reported pro-environmental behaviour?

3.1 Data transformation

New variables were created to represent the general attitude towards nature of the respondents, their general environmental concern, their general pro-environmental behaviour, their general materialistic and generous values and their general well-being (see Table 1). This was done by calculating the mean score for each respondent across all the relevant variables (see Table 1). Before conducting these analyses several variables were transformed. In the questionnaire some items were positively and others negatively phrased to prevent order effects. For the data analyses however some of the answer options were reversed so that all items within one subject had the same meaning (e.g., a higher score on all nature items referred to a more positive attitude towards nature). See Appendix B for details.

All relevant items were used to compute the scales. However, one environmental awareness item was deleted from the data file: 'humans were meant to rule over the rest of nature'. Respondents appeared to find the question confusing. Several had added question marks or had not answered the question. The responses to this question also did not correlate with the responses to the other environmental awareness questions.

Table 1: Statistics of six new variables created for further data analysis.

	Nr of items in the scale	Alpha	Mean	Stddev
Nature	5	.79	4.05	.66
Environment	4	.71	4.08	.67
Materialism*	6	.87	2.95	.79
Generosity*	4	.66	3.86	.63
Behaviour	10	.75	3.61	.60
Well-being	6	.78	5.43	.85

Note 1. * A factor analysis was conducted to explore whether the 11 questions on materialism could be reduced to two underlying dimensions: materialism and generosity. The results of this analysis are presented in appendix B.

Note 2. Alpha refers to the intercorrelations between all variables and can range from 0 (no correlation at all) to 1 (perfect correlation).

Note 3. Standard deviation (Stddev) indicates the variance in the responses. The higher the score the more variation there was in the answers of the respondents.

3.2 Values, attitudes and behaviours among different demographic groups

T-tests were conducted to examine whether the values, attitudes, behaviours and well-being varied between respondent groups depending on their gender and level of education. No differences were found between those respondents who had completed or were working on a first degree and those who did not. Gender differences were found. Table 3 shows that girls were more likely to perform pro-environmental behaviours and they were slightly less likely to have materialistic values than boys did.

Table 2: Differences between males and females in attitudes towards nature, and environment, pro-environmental behaviour, materialism and well-being.

	Mean score for males	Mean score for females	t-test
Nature	4.02(.59)	4.13(.69)	0.78 (90), ns
Environment	3.96(.66)	4.20(.66)	1.71 (90), ns
Materialism	3.12(.83)	2.77(.69)	2.17 (90), $p < .05$
Generosity	3.75 (.68)	3.96 (.60)	1.57 (90), ns
Behaviour	3.45(.56)	3.77(.64)	2.61 (90), $p < .05$
Well-being	5.34(.82)	5.60(.84)	1.51 (90), ns

Note. T-tests indicate whether the differences in means scores are statistically significantly different and cannot be attributed to chance. The higher the t-value the stronger the difference between groups. The smaller the p-value the stronger the difference, the p-value has to be .05 or less.

3.3 Differences between BTCV volunteers and non- volunteers

Differences between BTCV volunteers and non-volunteers were first analysed using the composite variables discussed in the previous sections. More detailed analyses examining individual questionnaire items are presented in the following subsection.

T-tests were employed to examine whether the values, attitudes, behaviours and well-being of volunteers and non-volunteers differed significantly. Table 3 shows that BTCV volunteers had a more positive attitude towards nature than non-volunteers and that they tended to score lower on materialism than non-volunteers. There were no differences between the groups in their environmental attitudes or behaviours or in their well-being.

Table 3: Differences between BTCV volunteers and non-volunteers in attitudes towards nature and the environment, their material values, pro-environmental behaviour and well-being.

	Non-BTCV	BTCV	t-test
Nature	3.89(.67)	4.30(.57)	3.08(96), $p < .01$
Environment	4.07(.60)	4.11(.78)	0.30 (95), ns
Materialism	3.14(.81)	2.64(.65)	3.17 (95), $p < .01$
Generosity	3.80 (.64)	3.98 (.61)	1.38 (95), ns
Behaviour	3.55(.56)	3.72(.65)	1.36 (95), ns
Well-being	5.53(.82)	5.26(.88)	1.49 (92), ns

Note. T-tests indicate whether the differences in means scores are statistically significantly different and cannot be attributed to chance. The higher the t-value the stronger the difference between groups. The smaller the p-value the stronger the difference, the p-value has to be .05 or less.

To examine whether participation in BTCV work is related to differences in values and attitudes correlations were computed between the attitude, value and behaviour measures and the time spend doing volunteering work at BTCV (how many weeks/months respondents had been volunteering and how many hours a week they volunteer). If significant correlations are found it could be argued that BTCV participation influences attitudes and behaviours. However, no significant relationships were found. This suggests that these attitudes and behaviours do not depend on the length of time respondents had been working with BTCV.

3.4 Detailed analysis of differences between BTCV volunteers and non-volunteers

3.4.1 Nature

The majority of the respondents had a positive attitude towards nature; 80%-90% agreed or strongly agreed that they love nature, nature is not boring, nature makes them feel relaxed and they like spending time in nature. Seventy percent agreed that they like to learn more about nature. BTCV volunteers were significantly more likely to say that they love nature ($t = 3.81(96)$, $p < .01$), that being in nature makes them feel relaxed ($t = 2.06(94)$, $p < .05$), that they like spending time in nature ($t = 2.42(95)$, $p < .05$) and that they like to learn about nature ($t = 2.99(95)$, $p < .01$). They were no more or less likely to say that nature is boring.

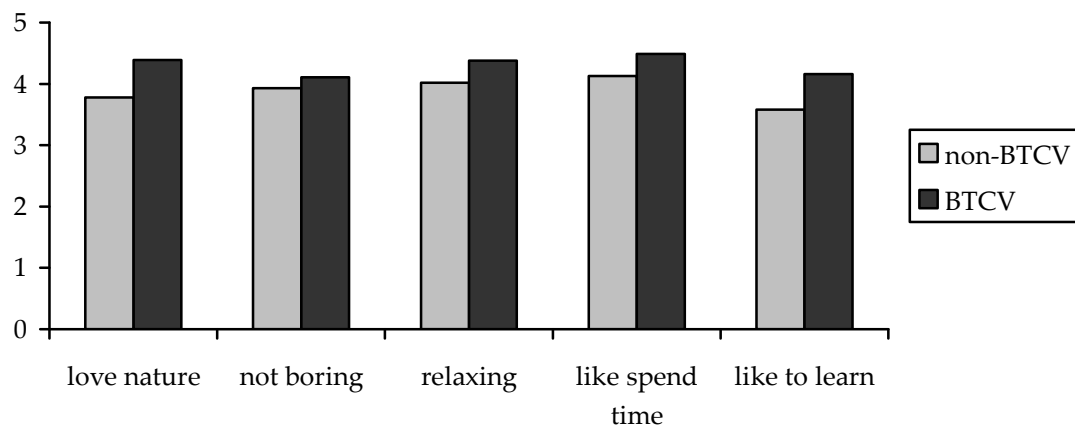


Figure 1: Differences between BTCV volunteers and non-volunteers in attitudes towards nature.

3.4.2 Environment

Environmental concern was high among the respondents. This awareness did not differ between BTCV volunteers and non-volunteers. Around 85% of the respondents agreed that humans are destroying the natural environment and that humans should have more respect for nature. Only nine percent agreed that threats to the environment are not their business. Only 12% agreed that people worry too much about environmental problems. Twenty-one percent agreed that humans were meant to rule over the rest of nature and 55% disagreed.

3.4.3 Pro-environmental behaviour

Around 80% of the respondents said it was likely or very likely that they would recycle drink cans, use both sides of a sheet of paper, turn the tap off while brushing their teeth, switch the

light off when leaving a room and put small bits of paper in the rubbish bin rather than throw them in the streets. About 50% said they would not kill spiders and bugs that come into the house (35% would). Few respondents (14%) were likely to become vegetarian. Where responses to these behaviour questions were fairly similar among the respondents, reported likeliness to conduct political behaviours varied much more. Thirty-five percent of the respondents said it is likely that they would give money to an environmental organisation, but 25% said it is unlikely. About 50% would not take a job with an organisation they knew was harming the environment, but 15% would. And sixty-five percent would sign a petition to support tougher environmental laws, but 16% would not.

The only difference between BTCV volunteers and non-volunteers is that BTCV volunteers indicated that it is less likely that they would kill a spider or bug that has come into their house ($M = 2.35$) than non-volunteers did ($M = 3.12$ (1 = unlikely, 5 = likely), $t = 2.84$ (93), $p < .01$).

3.4.4 Winning the lottery

When the respondents were asked how they would spend the money if they won a million pounds in the lottery they gave a variety of answers. These answers were clustered into eight categories. The respondents were most likely to say they would spend the money on a house (mentioned by 61%), or to buy luxuries for themselves (most commonly a holiday and clothes, mentioned by 61%). About a quarter to a third of the respondents said they would buy a car (32%), give (some of) it away to family or friends (27%), give (some of) it to charity (28%), or use it to pay off debts or invest for the future (27%). A smaller number of respondents would use it for education or to set up a business (14%) and three respondents said they would use it to make their (or their parents) house more energy efficient (3%).

BTCV volunteers were less likely to say they would buy a house with the money (45%) than non-volunteers (70%; $\Phi^1 = -.25$). BTCV volunteers were also less likely to say they would buy a car (13%) than non-volunteers (43%; $\Phi = .32$). There were no differences between the groups on any of the other categories.

3.4.5 Materialism

Overall, the respondents were neither materialistic nor non-materialistic. The respondents were most likely to agree that they would like to have a nice house filled with all kinds of cool stuff ($M = 3.56$) and that they would be happier if they could afford to buy more things ($M = 3.40$). On the other hand they were also likely to agree that they enjoy sharing things with other people ($M = 4.15$) and that it is important to them that they work to make the world a better place ($M = 3.92$).

Figure 2 shows that BTCV volunteers were less likely than non-volunteers to say that they would be happier if they could afford more things; that they would like to own things to impress people; that they would feel happier if they owned more; and that they would like to make lots of money. They were more likely to say that it is important to them that they work to make the world a better place. For the other variables, which mainly related to generosity, no significant differences were found between the two groups.

¹ Phi is a non-parametric correlation which can range from 0 (no relationship between variables) to 1 = perfect relationship between variables.

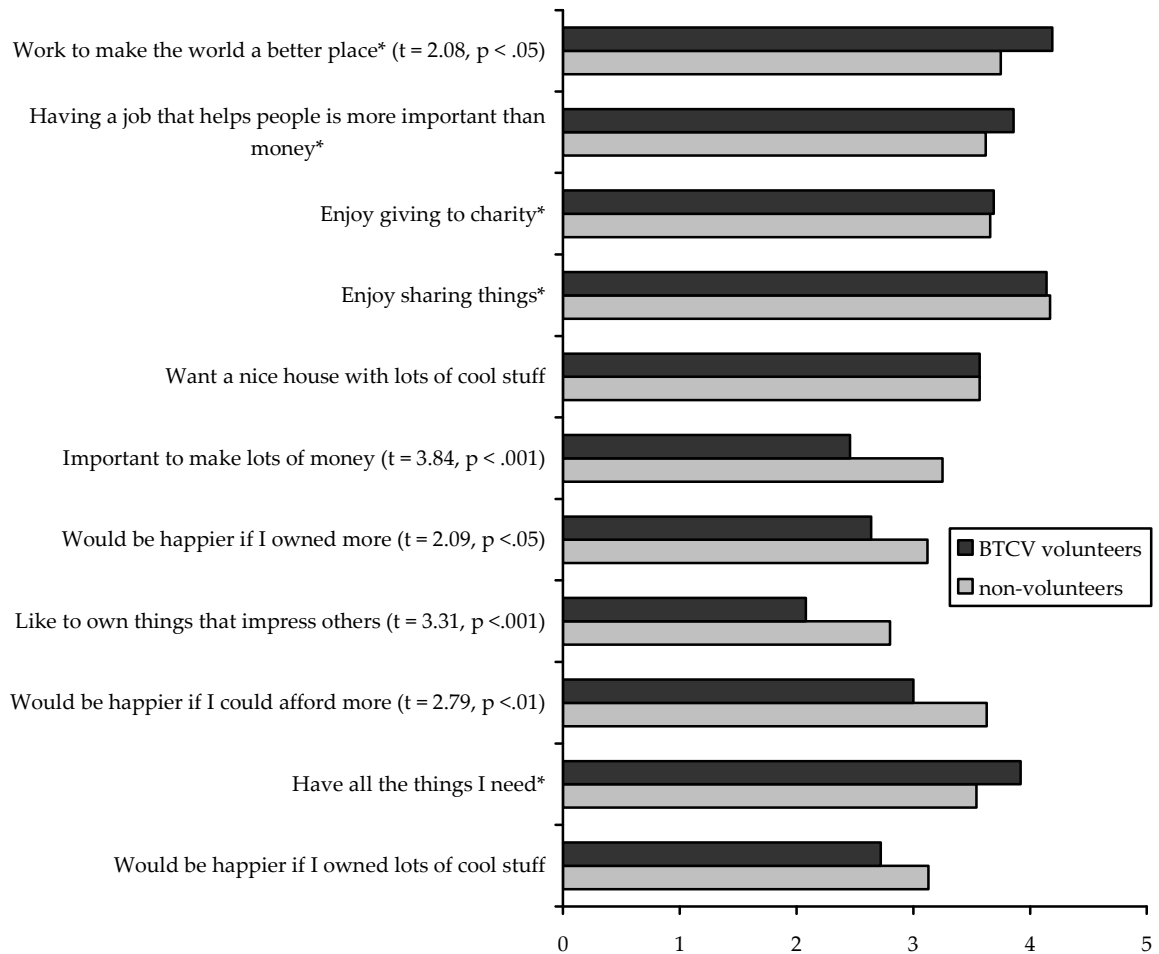


Figure 2: Differences between BTCV volunteers and non-volunteers in materialism (Note. Some items were reversed so that a higher score signifies a more materialistic value orientation; * = reversed).

3.4.6 Well-being

Overall the respondents were mostly satisfied to pleased with their lives ($M = 5.57$; 1 = terrible, 7 = delighted). They appeared to be most satisfied with family ($M = 5.77$) and friendships ($M = 5.76$), followed by where they live ($M = 5.31$), with themselves ($M = 5.12$) and with their school/work experience ($M = 5.08$). There were no differences between BTCV volunteers and non-volunteers.

3.4.7 Activities

The respondents were most likely to spend time watching television; 2-4 times a week on average for more than two hours. They were least likely to spend time playing computer games and conducting voluntary activities. Figure 3 shows that BTCV volunteers were significantly more likely to spend time on volunteering work and outdoor activities than non-volunteers, but not on any of the other activities.

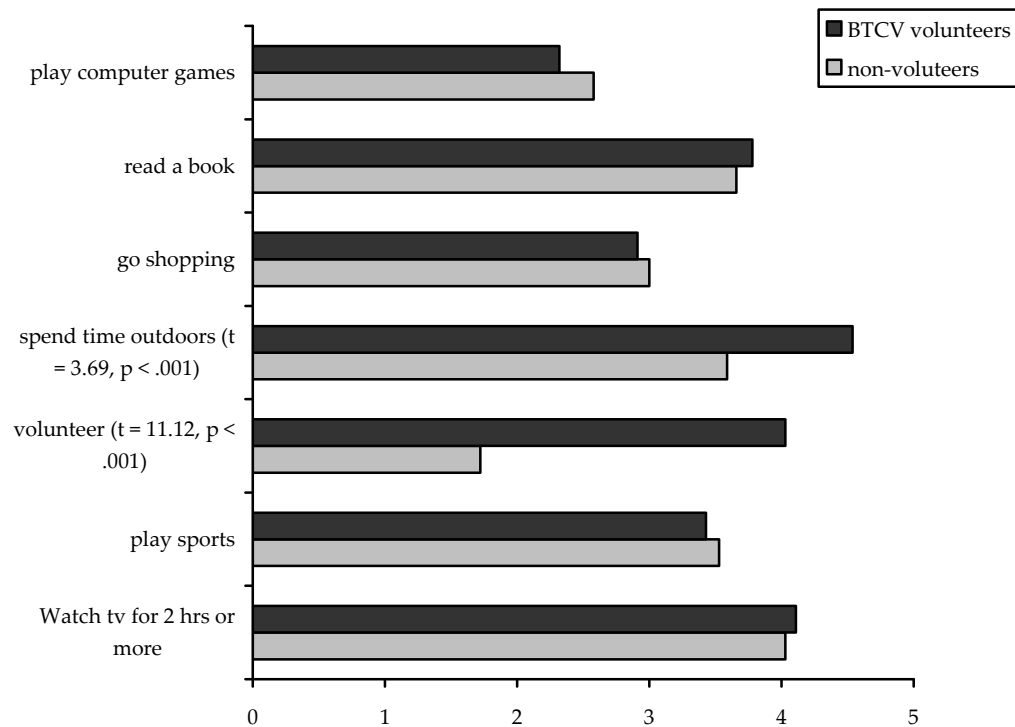


Figure 3: Differences between BTCV volunteers and non-volunteers in time spent on a range of leisure activities (Note that all behaviour questions at the end of the questionnaire were recoded so that for each activity a higher score signified that the respondent spend more time on this activity).

3.5 Explaining well-being

A series of correlations were computed to examine the extent to which well-being is related to values, attitudes and behaviour. Table 4 shows that young people who have a more positive attitude towards nature, a higher environmental awareness, a less materialistic value orientation and who report more pro-environmental behaviour are more satisfied with their lives. There is no relationship between well-being and generosity.

Table 4: Relationship between life satisfaction and values and attitudes.

	r	P
Attitude towards nature	.39	P < .001
Environmental awareness	.33	P < .001
Materialism	-.32	P < .001
Generosity	.12	ns
Pro-environmental behaviour	.33	P < .001

Note. r can range from 0 (no relationship) to 1 (perfect relationship), p should be less than .05 and indicates whether the correlation is statistically significant and not due to chance, ns = not significant.

It was also examined whether the respondents' well-being is related to their leisure activities. Table 5 shows correlations between reported well-being and time spent on the seven different leisure activities. As can be seen those young people who spend less time watching television, more time playing sports, more time reading books and less time playing computer games are more satisfied with their lives.

Table 5: Relationship between life satisfaction and time spent on seven leisure activities.

	R	P
TV	-.36	P < .001
Sport	.23	P < .01
Volunteering	-.18	Ns
Outdoor	-.07	Ns
Shopping	-.06	ns
Reading	.21	P < .01
Computer games	-.28	P < .001

Note. r can range from 0 (no relationship) to 1 (perfect relationship), p should be less than .05 and indicates whether the correlation is statistically significant and not due to chance, ns = not significant.

Table 6 shows findings of a regression analysis which is based on the correlations in table 5. This analysis examines the relationship between the seven different leisure activities together and reported well-being. The analysis found that 23% of the variance in reported well-being can be explained by examining time spent on the leisure activities. But only three leisure activities contribute significantly. This analysis suggests that in order to examine the relationship between leisure activities and well-being one only needs to look at time spent on television watching, playing sports and playing computer games. Book reading, volunteering work, outdoor activities and shopping do not add significantly to explaining well-being.

Table 6: Relationship between life satisfaction and time spent on seven leisure activities (results of a regression analysis).

	B	Error B	Beta	t	Sign
(Constant)	6.08	.54		11.18	P < .001
TV	-.15	.06	-.27	2.44	P < .05
Sport	.19	.07	.31	2.85	P < .01
Volunteering	-.05	.06	-.09	.80	Ns
Outdoor	-.14	.08	-.21	1.69	Ns
Shopping	.01	.09	.01	.12	Ns
Reading	.08	.06	.15	1.38	Ns
Computer games	-.12	.05	-.24	2.44	P < .05

Note. R = .54, adj R² = .23 (F = 4.64 (7, 80), p < .01).

3.6 Explaining consumer behaviour

Correlations were computed between reported pro-environmental behaviour and attitudes and values. Table 7 shows that young people who indicate they behave more pro-environmentally have a more positive attitude towards nature, a higher environmental awareness, a lower materialistic value orientation and they are more generous.

Table 8 gives the results of a regression analysis based on these same variables. It shows that 50% of the variance in self-reported pro-environmental behaviour can be explained by the variables, which is quite high for this type of analysis. The strongest predictor of pro-environmental behaviour is environmental awareness, but attitude towards nature and generosity also help explain behaviour. The table also shows that if these variables are taken into account materialism does not add significantly to explaining pro-environmental behaviour.

Table 7: Relationship between reported pro-environmental behaviour and values and attitudes.

	R	P
Attitude towards nature	.58(**)	P < .001
Environmental awareness	.65(**)	P < .001
Materialism	-.28(**)	P < .001
Generosity	.55(**)	P < .001

Note. r can range from 0 (no relationship) to 1 (perfect relationship), p should be less than .05 and indicates whether the correlation is statistically significant and not due to chance, ns = not significant.

Table 8: Relationship between reported pro-environmental behaviour and values and attitudes (results of a regression analysis).

	B	Error B	Beta	T	Sign
(constant)	.30	.45		0.66	Ns
Attitude towards nature	.23	.08	.25	2.78	P < .01
Environmental awareness	.35	.08	.39	4.49	P < .001
Materialism	-.02	.06	-.03	0.33	Ns
Generosity	.26	.08	.28	3.56	P < .001

Note. R = .72, adj R² = .50 (F = 33.19 (3,93), p < .001).

T-tests were conducted to examine whether young people with different attitudes and values would spend their lottery money differently. Overall it was found that 46 respondents indicated they would spend at least some of the money on others (family, friends, charities), 53 respondents did not. Those who did had a lower score on materialistic value orientations (M = 2.50, stddev = .57) than those who did not (M = 2.79, stddev = .60; t = 2.48 (96), p < .05). More specifically, it was found that those who said they would give money to charity (N = 28) have a higher environmental awareness (M = 4.39, stddev = .57) than those who did not (M = 3.95, stddev = .67; t = 3.02 (96), p < .01). Moreover, they had a more positive attitude towards nature (M = 4.26, stddev = .58) than those who did not intend to give money to charity (M = 3.96, stddev = .68; t = 2.02 (97), p < .05). Those who said they would give money to family and friends (N = 27) had a lower score on materialism (M = 2.43, stddev = .65) than those who did not (M = 2.74, stddev = 2.74, stddev = .56; t = 2.34 (96), p < .05).

Only one respondent indicated he or she would not spend any money on him or herself but would give it all away. All the other respondents spend at least some of the money on themselves (buy a house, a car, throw a party, buy new clothes, invest for later, pay off debts). Those respondents who intended to buy a car (N = 32) had less positive attitude towards nature (M = 3.75, stddev = .70) than those who did not intend to buy a car (M = 4.19, stddev = .60; t = 3.16 (97), p < .01). They also had a more materialistic value orientation (M = 2.92, stddev = .66) than those who did not intend to buy a car (M = 2.53, stddev = .53; t = 3.20(96), p < .01). There was no relationship between values and attitudes and the extent to which respondents intended to buy a house, spend the money on shopping or partying, invest the money for the future or pay off debts.

4. Conclusion

The study findings appear to support the idea that young people who participate in volunteering activities have different attitudes than those who do not. BTCV volunteers have

a more positive attitude towards the natural environment and they have less materialistic value orientations. They do not, however, have a higher environmental awareness nor do they indicate they behave more pro-environmentally. The study does not show whether these views develop due to participation in BTCV activities or whether BTCV attracts young people who already have different views. The fact that no correlations were found between attitudes and values and duration of volunteering work suggests it might be the latter. However, the small sample size does not allow us to draw firm conclusions on the basis of the data. More extensive longitudinal studies need to be undertaken to provide conclusive evidence for this.

The study also shows that across all respondents more positive attitudes towards nature and less materialistic value orientations are related to a higher well-being and more pro-environmental behaviour as well as more generosity. This would suggest that an organisation like BTCV, which aims to foster or reinforce such values and attitudes, has an important role to play in promoting the health and well-being of young people and their environment.

References

- Bixler, R.D., Floyd, M.E., Hammutt, W.E. (2002). Environmental socialisation: Qualitative tests of the childhood play hypothesis. *Environment and Behavior*, 34, 6, 795-818.
- Byrka, K., Hartig, T. and Kaiser, F. (2007). Restoration in nature and environmental concern as motivations for environment friendly behaviors. Paper presented at Biannual conference of German Society of Environmental Psychology, Bayreuth Germany, 9-12 September 2007.
- Cohen, P. and Cohen, J. (1996). *Life values and adolescent mental health*. Mahwah, NJ: Erlbaum.
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G., and Jones R.E, (2000). Measuring endorsement of the New Environmental Paradigm; a revised NEP scale. *Journal of Social Issues*, 56, 3, 524, 442.
- Frumkin, H. (2001). *Beyond Toxicity. Human Health and the Natural Environment*. *American Journal of Preventive Medicine*, 20, 3, 234-238.
- Hartig, T., Evans, G. W., Jamner, L. J., Davis, D. S. & Garling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology*, 23, 109-123.
- Hartig, T., Kaiser, F. and Bowler, P. (2001). Psychological restoration in nature as a positive motivator for ecological behaviour. *Environment and Behavior*, 33, 4, 590-607.
- Huebner, E. S. (1997). Life satisfaction and happiness. In G. Bear, K. Minke, & A. Thomas (Eds.), *Children's needs - II* (pp. 271-278). Silver Spring, MD: National Association of School Psychologists.
- Kals, E., Schumacher, D. and Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior*, 31(2), 178-202.
- Kals, E. and Maes, J. (2001). Sustainable development and emotions. In: Schmuck, P. and Schultz, W. (eds). *Psychology of sustainable development*. Kluwer, p 97-122.

- Kaplan, R. & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge: Cambridge University Press.
- Kasser, T. (2005). Frugality, generosity and materialism in children and adolescents. In Kriston Anderson Moore and Laura H. Lippman (eds). *What children need to flourish. Conceptualizing and measuring indicators of positive development*. Springer, p. 357-374.
- Kellert, S.R. (2002). Experiencing nature. *Affective, Cognitive and Evaluative Development*. In: P.H. Kahn and S.R. Kellert (eds) *Children and Nature: Psychological, Sociocultural, and Evolutionary Investigations*, MIT Press (2002), pp. 117–151.
- Richins M.L. and Dawson, S. (1992). A consumer values orientation for materialism and its measurement. Scale development and validation. *Journal of Consumer Research*, 19, 303-316.
- Scheldon, K.M. and McGregor, H. (2000). Extrinsic value orientation and the tragedy of the commons, *Journal of Personality*, 68, 383-411.
- Taylor, A.F., Wiley, A., Kuo, F.E. and Sullivan, W.C. (1998). Growing up in the inner city: Green spaces as places to grow. *Environment and behaviour*, 30, 1, 54-77.
- Ulrich, R., Simons, R., and Miles, M. (2003). Effects of environmentsl simulations and television on blood donor stress. *Journal of Architectural and Planning Research*, 20, 1, 38-47.
- Ulrich, R. (1984). View through a window may influence recovery from surgery, *Science*, 224, 420-421.
- Wells, N.M. and Evans, G.W. (2003). Nearby nature; A buffer of life stress among rural children. *Environment and behaviour*, 35, 3, 311-330.

Appendix A. Questionnaire

Questionnaire on young people and the environment

This questionnaire is part of a project conducted by The University of Surrey and BTCV. The project aims to find out what young people think about the environment and their own lives.

Please could you spend a little time completing this questionnaire? There are no right or wrong answers, we just want to know your opinion. You don't have to give your name and address so please feel free to say what you think.

For most questions you will be asked to tick ONE box to indicate how much you agree with a statement. For instance

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1. I like wearing a watch.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you do not like wearing a watch, but you also don't really hate wearing a watch you would tick the box 'disagree'

Thank you very much for your help with our study!!

How do you feel about nature? Please indicate to what extent you agree with the following statements about you. For each question please tick ONE box.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1. I love nature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Spending time in nature is boring.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Being in nature makes me feel relaxed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I don't like spending time in nature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I like to learn about nature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please continue on the next page!

How you feel about the environment? Please indicate how much you agree with each statement below. Please tick ONE box for each statement.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
6. Threats to the environment are not my business.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Humans are destroying the natural environment (plants and animals).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Humans should have more respect for nature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Humans were meant to rule over the rest of nature (plants and animals).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. People worry too much about environmental problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How likely is it that you would do the following things? For each behaviour please tick ONE box.

	Very unlikely	Unlikely	Neither likely nor unlikely	Likely	Very likely
11. Kill spiders and bugs that come into the house	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Become a vegetarian	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Give money to environmental organisations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Sign a petition to support tougher environmental laws	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Take a job with a company you knew was harming the environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Recycle drink cans after use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Use both sides of a sheet of paper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Turn off tap while brushing your teeth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Switch off lights when you leave a room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Throw small bits of rubbish like wrappers or chewing gum on the streets rather than in a bin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please continue on the next page!

21. Imagine that you won one million pounds in the lottery, what would you spend the money on? Please list your top 3 choices:

1. _____

2. _____

3. _____

How much do you agree with these statements about your life? For each statement please tick ONE box.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
22. I would be happier if I owned nice things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I have all the things I really need to enjoy life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I'd be happier if I could afford to buy more things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I like to own things that impress other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. My life would be better if I owned things I don't have right now.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. It is important to make a lot of money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I want to have a really nice house filled with all kinds of cool stuff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I enjoy sharing my things with other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I enjoy giving things or money to charity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Having a job that helps people matters more than having a job that pays a lot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. It is really important to me that I work to make the world a better place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please continue on the next page!

How do you feel about your life in general? Please tick one box for each of the questions below.

33. I would describe my satisfaction with my family life as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

34. I would describe my satisfaction with my friendships as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

35. I would describe my satisfaction with my school/work experience as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

36. I would describe my satisfaction with myself as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

37. I would describe my satisfaction with where I live as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

38. I would describe my satisfaction with my overall life as:

- Terrible Unhappy Mostly dissatisfied Mixed Mostly satisfied Pleased Delighted

The following questions are about you.

39. How old are you?

40. Where do you live? City/Town: _____ Country: _____

41. Are you male female

42. Please tick (✓) to show any qualifications you have got. Please also tick any that you are working on at the moment.

- 1 + O levels/CSEs/GCSEs (any grades)
 5+ O levels, 5+ CSEs (grade 1)
 5+ GCSEs (grades A-C), School Certificate
 1+ A levels/AS levels
 2+ A levels, 4+ AS levels
 Higher School Certificate
 First Degree (eg BA BSc)
 Higher Degree (eg MA, PhD, PGCE, post-graduate certificates/diplomas)

How many times a week, on average, do you do the following?

	Every day	5-6 times a week	2-4 times a week	Once a week	Less than once a week	I never do this
43. Watch TV for 2 hours or more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Play sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. Volunteer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Spend time outdoors (in park or woods)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Go shopping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. Read a book	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Play computer games	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

These last questions are for BTCV volunteers only

50. How many weeks/months have you been volunteering for BTCV?

_____ weeks/months

51. How many hours per week do you volunteer? _____ hours per week.

52. What kind of volunteering work do you do?

53. Why did you volunteer with BTCV? (Tick any and all that apply)

- | | | | |
|--------------------------|--------------------------------|--------------------------|----------------------------------|
| <input type="checkbox"/> | Fun | <input type="checkbox"/> | Learn new stuff |
| <input type="checkbox"/> | Friends | <input type="checkbox"/> | Look after my local neighborhood |
| <input type="checkbox"/> | Protect nature | <input type="checkbox"/> | Develop my CV |
| <input type="checkbox"/> | Other, please write down _____ | | |

How much do you agree with the following statements? For each statement please tick ONE box.

	Totally disagree	Disagree	Neither agree not disagree	Agree	Totally agree
54. I enjoy volunteering at BTCV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55. Since volunteering at BTCV I have become more aware and active on green issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

You have come to the end of this questionnaire.

Please put it in the envelope provided, and hand it back to the person who gave it to you.

Appendix B.

B.1 Transformation of variables

The following variables were recoded in order to be able to develop the scales. In the questions on nature two items were transformed (e.g., spending time is boring) so that a higher score on all of these variables signified a more positive attitude towards nature. Three questions on the environment were transformed (e.g., threats to the environment are not my business) so that a higher score on all items signifies a more positive attitude towards the environment. Three behaviours were transformed (take a job with a company you knew was harming the environment) so that all behaviours were pro-environmental. And finally, one question on materialism were transformed (e.g., I have all the things I really need to enjoy life) so that a higher score on all questions signifies a more materialistic attitude.

B.2 Results of Factor analysis examining the dimensions underlying materialistic value orientations.

Two factors were found with Eigenvalues of more than 1. Together these explained 57% of the variance in the respondents' answers. All items with a factor loading of .50 or more in the table below (in bold) were used to interpret the meaning of the factor and to develop the new variables.

Table 1. Two factors underlying materialistic values.

	Factor 1 Materialism 37%	Factor 2 Generosity 20%
Happier if owned nice things	.83	.04
Happier if I could buy more	.81	.21
I have all I need (reversed)	.76	-.18
Important to make lots of money	.74	-.17
Like to own things that impress people	.73	-.26
I'd like a big house with lots of cool stuff	.72	.29
Life would be better if own more	.65	-.27
Work to make a better place	-.23	.77
Enjoy giving to charity	.06	.75
Having a job that helps people	-.30	.61
Enjoy sharing things	.13	.56

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.a Rotation converged in 3 iterations.

B.3 Correlations between attitudes and values

To examine whether the values and attitudes of the respondents were related a series of correlations were computed. Table 2 shows that attitudes towards nature are positively related to environmental attitudes and generosity and negatively related to materialism. Environmental awareness is positively related to attitudes towards nature and generosity and negatively to materialism. Materialism and generosity are negatively related. Although all these correlations are significant, the fact that they share only between 4% (r^2 environmental awareness and materialism = .04) and 28% of the variance (r^2 attitude towards nature and environmental awareness = .28) indicates that they do measure distinct concepts.

Table 2. Correlations between values, behaviours and well-being

	nature	environment	materialism	generosity
Nature	1	.53(**)	-.40(**)	.37(**)
environment	.53(**)	1	-.20(*)	.44(**)
materialism	-.40(**)	-.20(*)	1	-.25(*)
generosity	.37(**)	.44(**)	-.25(*)	1

Note 1. Correlations can range from 0 = no relationship to 1 = perfect relationship

Note 2. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).