

TOURISTS' KNOWLEDGE OF A VISITED ENVIRONMENT AND THE IMMEDIATE INFLUENCE ON THIS KNOWLEDGE OF COMPLETING AN INTERPRETIVE NATURE TRAIL: BESKYDY PROTECTED LANDSCAPE AREA, WEST CARPATHIANS

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Abstract: The aim of this article is to assess the relation between visitors' knowledge, visits to educational trails, and the leisure-time activities of the visitors within the protected area. This study was undertaken on the educational trail "Radegast" in the Beskydy Protected Landscape Area, Czech Republic. Visitors' knowledge about the given area primarily depends on their interest both in nature and in history. Previous visits to the educational trails play a significant part in such education. Cyclotourism along the educational trail was identified as an activity indicating acquired knowledge.

Key words: environment, geography, tourism, West Carpathians, Czech Republic

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1. INTRODUCTION

Large-scale protected areas are one of significant types of recreation area (Newsome et al., 2013). In the case of Carpathians this holds doubly true, as – with the exception of the Black Sea coastline – these are among the most significant areas in terms of concentration of the tourist industry in Romania, Poland, Slovakia, and the eastern part of the Czech Republic (Varsavova & Barancok, 1999; Kurzyca et al., 2009; Popescu & Petrisor, 2010;

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Erdeli & Dinca, 2011; Klauco et al., 2012; Svec et al., 2012; Barbu et al., 2013; Kroupova et al., 2014; Navratil et al., 2014; Bâca, 2015; Cappucci et al., 2015; Štrba, 2015). In this context, conflicts between conservational and touristic uses of these areas occur (e.g. Young et al., 2007). To prevent such disagreements, environmentally-friendly activities are supported when visiting these areas (Leslie, 2012; Nicholls & Kang, 2012). Educating visitors (Munro et al., 2008; Leung, 2012) and increasing environmental awareness (Ballantyne et al., 2011) seem to be of crucial importance. These include a whole range of activities, such as publications and websites, electronic educational resources, visitor centres, self-guided trails, and guided touring (Newsome et al., 2013). Even though the information provided may sometimes be biased (Braithwaite & Leiper, 2010) and the consequent behaviour of the visitors does not show, in the long term, any significant changes towards more environmentally friendly action (Hughes, 2013), their importance for environmental awareness is indisputable (Angelini et al., 2011), and under the conditions pertaining in CEE countries, interpretive nature trails are indisputably one of the most widespread types of environmental education within touristic regions (Foret & Klusacek, 2011; Foret et al., 2014).

In view of the fact that the number of interpretive nature trails is constantly rising (Dantzler et al., 2008), and that the literature largely concentrates on how guided tours influence environmental awareness (Madin & Fenton, 2004; Munro et al., 2008; Powell & Ham, 2008; Jacobs & Harms, 2014), the objective of this article is to assess the recreational behaviour within, and knowledge of, the visited area, assessing, above all, (1) the relation of behaviour to the level of a visitor's knowledge before visiting the interpretive nature trail, and (2) the change in the level of knowledge after visiting the interpretive nature trail.

METHODS

Study area

The Beskydy Protected Landscape Area was declared in 1973 and, encompassing 1,160 sqkm, is the largest protected area in the Czech Republic (Cetkovský et al., 2007). It stretches across the indented highlands of the West Carpathians and contains indigenous mountain primeval forest with rare species of animals and plants, meadow biocoenosis with species of all types, pseudokarstic phenomena, and aesthetically valuable landscapes created by the coexistence of man and nature. The interpretive nature trail "Radegast" was built between 2000 and 2001 and completely reconstructed in 2007, including the appearance and content of the information boards. It is nine kilometres long and there are nine stops with information boards describing its natural values, history, and the points of interest of the Radhošť ridge, which is also part of national geopark „Podbeskydí”.

Research approach

The data needed to meet the aim of this article was collected via questionnaire survey from a sample of visitors to the "Radegast" interpretive nature trail. These questionnaires were filled in face-to-face from June to September 2013. To secure the random character of the selection, visitors were questioned during both weekends and working days (Petrick et al., 2001), and the technique of treating the n-th visitor (Madin & Fenton, 2004) was applied – in our case every fifth visitor (yet only one per group provided there were more than 5 visitors in one group) – until 100 questionnaires were obtained. This questioning took place before the visitor set out on the trail loop. Every visitor who filled in the questionnaire received a printed, four-digit alphanumeric code. These visitors were asked to fill in the questionnaire again at the same spot when exiting the trail.

Questionnaire

In its first part, the questionnaire included questions concerning knowledge (Hughes & Saunders, 2005). These questions involved information mentioned on the information boards along the educational trail. There were six multiple-choice questions in total with four possible answers, one of which was the correct answer. The second part of the questionnaire was filled in just before starting the interpretive nature trail and requested basic demographic data about the respondent, including their sex and age. Furthermore a tool to measure the level of participation in individual recreational activities was applied, referring to hiking, cyclotourism, leisure-time and sport activities (e.g., swimming, tennis, etc.), wellness, nature observation, sightseeing, visitation to museums, galleries, historical festivals, etc.; games with children, relaxing, entertainment, and shopping. The level of participation was measured along a scale of one to five, one being “I don’t take part in the activity” and five being “I primarily take part in this activity”. Another activity studied was the number of educational trails visited in the course of the previous year using the categories “none”, “one”, and “two or more”.

Data processing and analysis

To assess the relation of points gained from giving correct answers and detected by independent variables, Spearman’s rank correlation coefficient was applied with a level of significance of $p < 0.05$.

The test of the hypothesis of the first objective was carried out using logistic binomial regression with logit link and forward selection of variables. Only the questionnaires filled in before starting the interpretive nature trail were included within the analysis. Before performing the analysis, two separate groups of respondents were selected – (1) respondents with a highly below-average value of answers, i.e., the ones who obtained 0 or 1 points, and (2) respondents with a highly above-average values of answers, i.e. the ones who obtained 6 points. Predictors of the respondents’ affiliation in the group with a highly below-average value of answers were tested. Other measured variables in the questionnaire entered the model as independent variables, these being sex (as binary), age (as ordinal), and all activities (each as a ratio). The Hosmer-Lemeshow test and Cox and Snell's Pseudo R^2 were used as measures of model fit. The test of the hypothesis of the second objective was carried out using nonparametric regression. The explained variable was the difference between points obtained in the first attempts at the questionnaire and in the second tries following completion of the trail. The independent variables used were the same as in the evaluation of the first objective. The one-way ANOVA and Tukey post-hoc test for unequal n was applied for the subsequent tests of the differences among the selected groups of respondents.

Results and Discussion

The average value of the points obtained before the visit was 2.9 (standard deviation = 1.51; median = 3). This value is positively linked to the performance of hiking, nature observation, sightseeing, and a higher number of educational trails visited over the previous year. On the other hand, it is negatively linked to work activities, cyclotourism, and to no visits to the educational trail in the previous year (Table 1).

Using logistic regression, the affiliation of a respondent to the group with highly below-average values of answers on the basis of the respondent’s low values of participation in the activities of nature observation and sightseeing when visiting the protected areas is shown in Table 2. Our model has an adequate fit, as the Hosmer-Lemeshow test criterion is 5.078 with p-value 0.650.

Table 1. Spearman's Rank Order Correlations for the number of points obtained and observed independent variable, n = 100 (Data source: Own research)

Items	Spearman's Rank Order Correlations
wellness	0.036
sightseeing	0.390
work activities	-0.240
visiting museums, galleries, historical festivals, etc.	0.067
shopping	-0.154
entertainment	0.062
relaxation	0.101
nature observation	0.367
cyclotourism	-0.224
leisure-time and sport activities (swimming, tennis, etc.)	-0.157
hiking	0.235
games with children	0.019
female	0.040
age	0.123
no interpretive trail	-0.202
one interpretive trail	-0.105
two and more interpretive trails	0.255

Table 2. Model of the dependency of affiliation to the group of respondents with the minimum of points before completing the trail (Data source: Own research)

	Estimate	Standard Error	Wald Statistics	p
intercept	5.231	1.739	9.047	0.003
sightseeing	-1.163	0.504	5.314	0.021
nature observation	-0.732	0.359	4.167	0.041

The value of pseudo R^2 is 0.55 as well, approximately corresponding to the value 0.90 for linear R^2 (Henshner et al., 2005), thus showing a rather high level of dependency of low value answers on these two predictors of behaviour chosen by the model.

This result is highly remarkable, as we must consider that it refers to the sample of visitors to the protected area who had already decided on visiting the interpretive nature trail; these visitors were presumably already more environmentally conscious than the average visitor to the protected area. Knowledge of the area before visiting thus depends on the visitor's own interest in environmental education (Poudel & Nyaupane, 2013; Jacobs & Harms, 2014), which is reflected in their behaviour in the protected area (Clark, 1997; Prah & Kolnik, 2007).

After the visit, the average number of correct answers was 5.68 (standard deviation = 0.75; median = 6). Such a shift is big, and although it has been mentioned in other studies too (Powell & Ham, 2008; Jacobs & Harms, 2014), we suppose that the effect of handing out codes to identify the visitor was reflected here (the respondents naturally supposed that they were going to be asked once more). The average value of the change of points obtained before and after completing the educational trail follows the above mentioned results and amounts to 2.78 (standard deviation = 1.49; median = 3).

We tried to identify the predictors of these changes by nonparametric regression. Using the forward selection method, two predictors were chosen by the model, which were significantly involved in explaining the change in number of points obtained after completing the trail compared to the number of points obtained after the visit. It was higher among cyclotourists, while among hikers it was lower (Table 3).

Table 3. Model of the dependency of the difference in number of points before and after the visit to the educational trail

	Estimate	Standard Error	Wald Statistics	p
intercept	1.294	0.218	35.382	0.000
wellness	-0.074	0.041	3.308	0.069
cyclotourism	0.134	0.049	7.427	0.006
hiking	-0.151	0.053	8.037	0.005

This result must be interpreted with respect to the initial number of points obtained before visiting the trail. Cyclotourists obtained a lower number of initial points, so the rise was bigger among them than among the hikers, who had a higher number of initial points. Provided that we pull out from the overall file the ones with a higher level of activity in cyclotourism and the ones with a higher level of activity in hiking, we gain two groups of respondents – cyclotourists and hikers ($n_{\text{cyklo}} = 20$; $n_{\text{hiking}} = 41$). For the two groups the difference regarding the number of points obtained before and after the visit was assessed. In both cases the hikers' level of knowledge was shown to be higher than that of the cyclotourists (Figure 1).

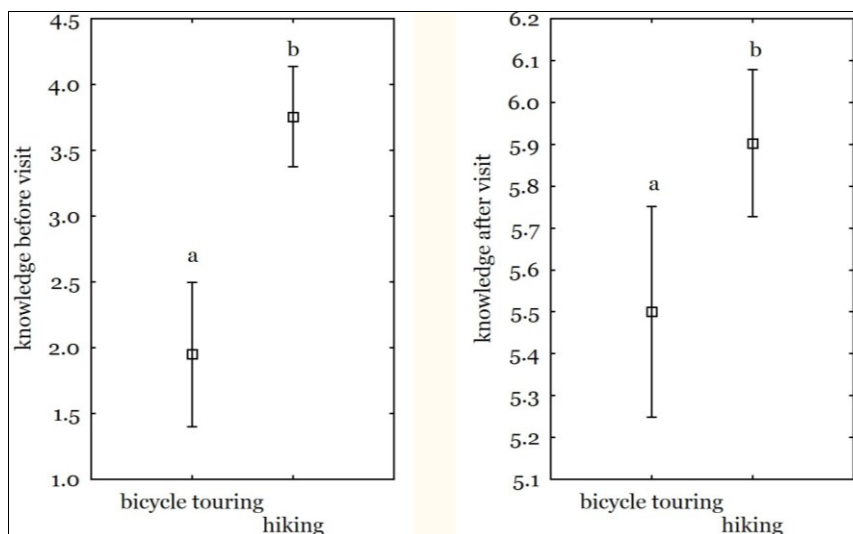


Figure 1. Average values and 0.95 confidence intervals of the points obtained before and after completing the educational trail for cyclotourists and hikers. The averages marked with the same letter do not significantly differ (Tukey's HSD post hoc test for unequal n; $p > 0.05$), $n = 61$

From the information acquired we can deduce that there is a significant dissimilarity between cyclotourists, here perceived as tourists who prefer cycling to walking when on holiday and performing recreational activities, and hikers (Carothers et al., 2001; Lamont, 2009). It might be related to the different motivations of cyclotourists and hikers when visiting protected areas (Needham et al., 2004). With cyclotourism, its environmentally friendly (Dickinson & Robbins, 2009) and economically significant (Lumsdon, 2000) way of travelling is often emphasized. It is becoming apparent, though, that cyclotourists cover a diversified group (Ritchie et al., 2010) in which the mass-type of tourists oriented more towards entertainment and relaxation than toward learning and self-education prevail (Navratil et al., 2011).

CONCLUSION

The visitors' knowledge about the given area principally depends on their own interest both in nature and in history. Previous visits to the educational trails play a significant role in this education. Cyclotourism was identified as an activity explaining the amount of knowledge acquired by completing the educational trail. Neither the influence of sex nor age was proved regarding the knowledge of the environment before or after completing the educational trail.

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