ARTICLE

Green Label

Investigating Environmental Labelling as a Communication Tool in Hungary

Balázs Tamás Fekete,*[iD] Judit Sass**

*   Doctoral School of Sociology and Communication Science, Corvinus University of Budapest; Institute of Psychology, Faculty of Humanities and Social Sciences, Pázmány Péter Catholic University, Hungary
E-mail: balazs.fek[at]gmail.com
**   Institute of Psychology and Mental Health, University of Pannonia, Hungary
E-mail: sass.judit.gabriella[at]htk.uni-pannon.hu

Empirical research suggests that labelling individuals as environmentally conscious based on their past behaviours can strengthen their attitudes to the environment and promote further eco-friendly actions, resulting in positive spillover effects. This study aims to test the effectiveness of environmental labelling as a communication tool for energy conservation and domestic product consumption. The online survey of 668 Hungarian participants used an experimental design. Although the effects were weak, even brief exposure to labelling messages resulted in statistically significant changes in environmental attitudes, while no significant effect was found on behavioural intentions. We hypothesise that repeated exposure to similar messages could reinforce attitudes and result in behavioural change. Additionally, the study sought to identify social groups that may serve as target audiences for environmental labelling related to domestic product preferences. Cluster analysis suggests that individuals with conservative views and a preference for right-wing political parties may be particularly responsive to this communication tool. We must add that the non-probabilistic snowball sampling method and the resulting overrepresentation of young, urban and liberal individuals limits the generalisability

of the findings for the broader Hungarian population, so further research based on nationally representative samples is needed to validate these results.

Keywords: pro–environmental behaviour, environmental attitudes, environmental labelling, social labelling, energy conservation, domestic product consumption

Introduction

The primary goal of this research was to test the effectiveness on a Hungarian sample of a specific communication tool grounded in behavioural science, namely *environmental labelling*. The second goal of the study was to identify segments of Hungarian society that could serve as target groups for such messages.

This research was novel in three ways compared to previous studies on environmental labelling, which have been conducted in Western Europe and the United States with no research on this topic in Central and Eastern Europe, including Hungary. Given that this region has a completely different historical, economic and political background, it is not evident that the results obtained in the 'West' would hold true here as well. Regional differences are well demonstrated by research data showing that the populations in Central and Eastern European countries generally regard climate change as a less cardinal issue, and political polarisation on the topic is much weaker than in Anglo-Saxon and Western European countries (McCright et al., 2016).

Second, in previous studies on the method, experimental manipulation was typically used to make participants choose a pro-environmental solution or feel environmentally conscious, and then environmental labelling was applied (Cornelissen, 2007; Cornelissen et al., 2007; Lacasse, 2016). In contrast, we applied the tool to specific, past pro-environmental behaviours that individuals had engaged in, to ensure that the lessons learned from the research could be as applicable to social marketing practices as possible.

Third, in addition to testing the effectiveness of environmental labelling, we also sought to identify the potential target group for this communication tool, again with a focus on the practical applicability of the research. Based on empirical research, labelling is particularly effective in the case of moderate values and attitudes (Carrico et al., 2015; Eby et al., 2019; van Vugt, 2001). Therefore, we aimed to identify segments of Hungarian society, based on demographic and political dimensions, that do not reject efforts related to climate change but exhibit lower-than-average environmental commitment and are closely associated with pro-environmental behaviours that serve as the subject of labelling.

Literature review

Pro–environmental behaviour and positive spillover

In the international literature, the phenomenon of behaviour change being followed by additional activities related to a similar goal (in this case environmental protection) is referred

to as *positive spillover.* According to certain theories, positive spillover is not directly caused by the behaviour itself; rather, the effect is moderated by an intermediate factor, such as environmental identity or environmental attitude, through the processes of self-perception (Bem, 1972) and the drive for cognitive consistency (Festinger, 1957). The construct's popularity among environmental psychology researchers and its practical relevance stems from the fact that positive spillover enables the realisation of the greatest possible ecological benefit by promoting a single pro-environmental activity (Henn et al., 2020; van der Werff et al., 2013).

However, observing someone's past actions with positive environmental impacts can only lead to positive spillover if the activity has a high diagnostic value with regard to environmental protection – meaning the individual must clearly associate it with the concept of sustainability (Henn et al., 2020). This is not always the case, as people engage in many activities that could be considered pro-environmental but do not associate them with environmental protection. This may be because the behaviour is very common in a given community or because it is motivated by factors unrelated to environmental protection (Cornelissen et al., 2008; Raghubir & Menon, 2005). The communication tool of environmental labelling attempts to bridge this gap by labelling individuals as environmentally conscious based on their past actions. Empirical results show that environmental labelling increases the diagnostic value of environmental protection behaviour, strengthens the individual's environmental identity and attitudes, and thereby increases the likelihood of further pro-environmental behaviours being adopted (Cornelissen et al., 2007; Fekete, 2022a; Lacasse, 2016).

Communication techniques encouraging pro-environmental behaviour

Traditional social marketing approach

Since traditional social marketing operates under the premise that people make rational decisions and behave accordingly in their daily lives, it typically employs educational, information-based strategies that rely on logical arguments.

Empirical results indicate that information sharing alone is not particularly effective in encouraging pro-environmental behaviour (Cornelissen et al., 2007; Schultz, 2002). For instance, a communication campaign in the Netherlands about global warming significantly increased public knowledge on the topic, but its impact on behaviour was negligible (Staats et al., 1996).

The limited effectiveness of information-based strategies can be explained by several psychological phenomena. One such phenomenon is *psychological reactance,* which suggests that when individuals feel their freedom of choice is being restricted, they may react by behaving in opposition to what is intended to restore their autonomy (Brehm & Brehm, 1981; Reich & Robertson, 1979). Such responses may arise to messages that frame pro-environmental behaviour as a moral obligation, since 'people do not like being told what to do' (Cornelissen, 2007, p. 72). Another disadvantage of this type of communication is that it may implicitly convey that most people are not concerned with environmental protection, which, as a descriptive social norm, can have the opposite of the intended effect

(Cialdini, 2003). Moreover, discussing collective benefits is likely to trigger associations with individual costs. Since the benefits of pro-environmental actions are long-term, while the costs are immediate, this can easily lead to decisions contrary to environmental awareness (Albarracín & McNatt, 2005).

Behavioural social marketing approach

The common basis of behavioural science techniques is that people have limited information-processing capacity, which is why they apply various simplifying processes for perception and information processing. Empirical research shows that when cognitive resources are focused elsewhere or are limited due to fatigue, information overload, or time pressure, there is a higher likelihood of heuristic information processing (Gilbert et al., 1990; Petty & Cacioppo, 1986). In such situations, we are more likely to make decisions automatically, influenced by external cues. Several researchers argue that in everyday life, when commuting, managing households, or making daily consumer choices, we often experience cognitive overload, leading to superficial, heuristic information processing and automatic, often irrational decision-making. Based on this argument, it is reasonable to assume that when making everyday decisions related to environmental protection (e.g. energy consumption, waste management and product selection), cognitive overload and heuristic processing are more of a rule than an exception. In such cases, it is not the conscious weighing of long-term environmental consequences that guides our behaviour, but rather the internal and external environmental cues, often in an automatic, unconscious manner (Cornelissen, 2007; Kahneman, 2012).

Tversky and Kahneman (1974) demonstrated that human decision-making is not only irrational or automatic but also frequently prone to predictable errors, which they termed *cognitive heuristics.* In 2008, Thaler and Sunstein introduced the concept of *choice architecture,* aimed at leveraging behavioural science heuristics and phenomena to encourage people toward decisions that, in their own judgment, put them in a better position. These so-called *nudges* subtly influence decision-makers in a predetermined direction while preserving their freedom of choice and without using significant economic incentives (Thaler & Sunstein, 2008). In this approach, environmental marketing is intended to increase the likelihood of pro-environmental behaviour by using *subtle techniques* or *nudges* that influence heuristic, automatic information processing (Cornelissen, 2007).

The social labelling method

Social labelling is a persuasive technique in which a person's traits or values are assigned a socially relevant label. Empirical results suggest that this can lead to a self-fulfilling prophecy through the processes of self-perception (Bem, 1972) and cognitive dissonance (Festinger, 1957), increasing the likelihood that the individual will behave consistently with the label (Cornelissen et al., 2007; Eby et al., 2019; Lacasse, 2016). This tool can be seen as a form of nudge because, while it preserves freedom of choice, it attempts to steer people's decisions in a certain direction using behavioural science techniques (Eby et al., 2019;

Thaler & Sunstein, 2008). For labelling to work effectively, the label must not conflict with the person's original values. Research has shown that labelling is most effective when the person's attitudes or values are moderately strong, as those with already strong values are likely to behave consistently with those values regardless of labelling (Carrico et al., 2015; Eby et al., 2019; Fielding & Hornsey, 2016; van Vugt, 2001).

In the field of sustainability, studies on the effectiveness of social labelling (or environmental labelling) have shown mixed but promising results. Several studies have demonstrated the significant effect of environmental labelling on environmental attitudes and, in some cases, pro-environmental behaviour (Cornelissen et al., 2007; Eby et al., 2019; Lacasse, 2016).

In one such study, Cornelissen and his colleagues (2007) tested whether labelling individuals as 'environmentally conscious' after non-environmentally motivated actions would increase the likelihood of further pro-environmental actions. The results indicated that environmental labelling led to more environmentally friendly product choices compared to the control group, although the difference was only significant when participants' cognitive capacity was occupied. The researchers argued that everyday shopping situations are similar to the *cognitive distraction* condition in that experiment, as 'most of our daily decisions occur as part of a continuous and overlapping stream of mental activities', suggesting that environmental labelling could be an effective tool in real-life situations as well (Cornelissen et al., 2007).

In another study, Lacasse (2016) used an experimental design to manipulate participants' self-perception, with one group feeling that they frequently engaged in pro-environmental behaviour and the other group feeling that they rarely did so. Subsequently, the group who were made to believe they engaged in more pro-environmental actions received a message labelling them as 'environmentalists'. The results showed that the labelled group exhibited significantly stronger environmental identity, attitudes and concern compared to the control group.

Eby et al. (2019) labelled participants as 'green', 'trendy', or 'financially conscious' based on their household habits. The results showed that groups labelled with non-environmental labels donated significantly less to environmental causes compared to the non-labelled group. However, the effect of environmental labelling was not significant across the full sample, except when political preferences were considered. Interestingly, while left-leaning Democrat voters were more concerned about the environment and donated significantly more to environmental causes than right-leaning voters, labelling had no effect on them. In contrast, among Republicans, who generally showed lower environmental awareness, environmental labelling had a significantly positive impact (Eby et al., 2019). This result reinforces previous findings that labelling is most effective with moderately strong values (Carrico et al., 2015; van Vugt, 2001).

In summary, social labelling appears to be effective in an environmental context, as all empirical studies in the field have shown some significant effects. The method is more effective when participants' environmental attitudes and values are of moderate strength and when their cognitive capacity is somewhat occupied (Bosmans & Warlop, 2005; Carrico et al., 2015; van Vugt, 2001; Cornelissen et al., 2007). Researchers argue that most of society has only moderate environmental commitment, and most everyday decisions related to transportation, household management and shopping are made with limited cognitive

capacity, using heuristics (Kahneman, 2012). As a result, environmental labelling could also be a useful tool in everyday life (Cornelissen et al., 2007; Eby et al., 2019).

The method has several advantages over traditional social marketing practices. Classical environmental messages typically emphasise people's laziness, irresponsibility and ignorance, which negatively impact self-image and implicitly reinforce the social norm of environmental neglect (Cialdini, 2003). Such messages, which include prescriptive norms, can also trigger psychological reactance, leading to behaviour opposite to that desired (Brehm & Brehm, 1981). In contrast, environmental labelling has a positive effect on self-esteem, to which people respond more favourably (Reich & Robertson, 1979), and like the nudge method, it does not restrict personal freedom of choice (Cornelissen et al., 2007; Thaler & Sunstein, 2008). Some evidence suggests that techniques that influence self-perception can lead to long-term attitude changes (Albarracín & McNatt, 2005). Furthermore, empirical findings suggest that the method is particularly effective in targeting societal segments with moderate pro-environmental activity, which should be the primary goal of environmental marketing (Eby et al., 2019).

Methodology

Energy conservation and purchase of domestic products as activities underpinning environmental labelling

In this research, we aimed to apply the communication tool of environmental labelling to specific pro-environmental actions that individuals had carried out in the past. Our goal was to ensure that the results would be applicable to the practice of social marketing. To achieve this, we needed actions with a positive ecological impact that were relatively widespread among the Hungarian population but were primarily motivated by factors other than sustainability. These actions could then serve as the basis for environmental labelling (Cornelissen et al., 2007; Lacasse, 2016). Based on previous quantitative research in this field (Hámori & Horváth, 2009; Magyar Termék Nonprofit Kft., 2017; Varga et al., 2024), as well as our own qualitative preliminary research (Fekete, 2022b), energy conservation and the consumption of domestic products meet both criteria. Efforts to conserve energy are widespread among the Hungarian population. According to a representative survey conducted in 2022, 67% of the Hungarian population planned to reduce their energy consumption. The proportion of those already practising energy conservation could be even higher, as the question specifically referred to plans to reduce consumption, which implies that those who were already fully focused on energy conservation might not have selected this option. Moreover, the data collection occurred before the government's limitations on utility cost reductions, which likely further increased the prevalence of energy-conscious behaviour (Varga et al., 2024). Previous research (Schäfferné, 2007; Stanley & Lasonde, 1996), as well as our own qualitative preliminary findings (Fekete, 2022b) make it clear that energy-saving practices are primarily motivated by financial considerations rather than environmental concerns.

The consumption of domestic products is also a common practice in Hungarian society. Previous quantitative studies indicating that 50%–75% of the population prefers

domestic products to some extent (Hámori & Horváth, 2009; Magyar Termék Nonprofit Kft., 2017). While domestic products generally have a smaller ecological footprint due to shorter transportation distances, individuals mostly choose them in order to support the national economy, through national pride, and for perceived higher product quality, with the environmental aspect appearing relatively weakly (Berács & Malota, 2000; Fekete, 2022b; Hámori & Horváth, 2009). Furthermore, the preference for domestic products is especially prevalent among individuals with conservative and right-wing worldviews (Malota, 2003; Papp-Váry & Zahorecz, 2017; Nagy-Pető et al., 2023) who tend to exhibit slightly lower than average levels of environmental commitment (Cruz, 2017; Mónus et al., 2022; Schneider & Medgyesi, 2020). Since environmental labelling has been shown to be particularly effective with moderately strong attitudes and values (Carrico et al., 2015; Eby et al., 2019), the environmental labelling of domestic product consumption presents a highly promising area for further research.

Research objectives and hypotheses

The primary objective of this research was to test the method of environmental labelling in relation to specific pro-environmental actions on a Hungarian sample. The secondary objective was to identify segments of Hungarian society that could serve as target groups for such messages.

In an online survey, we used an experimental design through which participants were randomly assigned to either an experimental group or a control group. The experimental group received a message reinforcing their past pro-environmental behaviour by applying environmental labelling related to a specific action (purchasing domestic products or energy conservation), while the control group did not receive any such message. Based on the experimental results detailed in the theoretical introduction, we expected environmental labelling to strengthen participants' environmental attitudes and their intention to engage in pro-environmental behaviours (Cornelissen et al., 2008; Cornelissen et al., 2007; Eby et al., 2019; Lacasse, 2016). Accordingly, we formulated the following hypotheses:

> **H1:** Environmental labelling will result in stronger attitudes towards environmental conservation and weaker attitudes towards environmental utilisation in the labelled group compared to the non-labelled group.
> **H2:** Environmental labelling will lead to greater concern for environmental issues and an increased sense of importance regarding climate change in the labelled group compared to the non-labelled group.
> **H3:** Environmental labelling will result in stronger pro-environmental behavioural intentions in the labelled group compared to the non-labelled group.

The secondary goal of the research was to identify social groups – using demographic and ideological variables – for whom the communication method under study may be particularly effective. For this purpose, we formulated specific hypotheses related to ideological and political variables. Additionally, we complemented the results of the hypothesis

testing with a cluster analysis that was conducted using relevant attitudinal, behavioural, demographic and ideological variables. Since energy conservation is common across the entire country and previous research had not reported relevant demographic or political divides (Naár, 2022; Schäfferné, 2007; Varga et al., 2024), the formation of target groups was only feasible for messages related to the preference for domestic products.

Previous quantitative research suggests that individuals with a conservative ideological orientation and those who favour right-wing parties are not dismissive of environmental issues, but exhibit only moderate commitment (Cruz, 2017; Mónus et al., 2022; Schneider & Medgyesi, 2020). Furthermore, since the preference for domestic products is associated with ethnocentrism and national pride, and this preference has been shown to correlate with conservative ideological self-identification (Balabanis et al., 2001; Malota, 2003), we hypothesised that there was a more than average likelihood of these individuals preferring Hungarian products (Malota, 2003; Papp-Váry & Zahorecz, 2017; Nagy-Pető et al., 2023). Based on this, we assumed that individuals with a conservative ideological orientation and those who favour right-wing parties may be specific target groups for environmental labelling applied after past domestic product consumption. Accordingly, we formulated the following hypotheses:

H4: Conservative ideological orientation will show a negative relationship with attitudes towards environmental conservation and a positive relationship with the preference for domestic products.

H5: Voters for right-wing parties will have weaker attitudes towards environmental conservation and a stronger preference for domestic products compared to voters for left-liberal parties.

Procedure

Data collection and ethical considerations

For this research we developed a quantitative questionnaire package. Data collection was conducted online using Qualtrics software. Although the sampling employed the non-probabilistic snowball method due to limited financial resources, strong efforts were made to create a balanced and diverse sample. Students studying psychology and teacher education at Pázmány Péter Catholic University and Eszterházy Károly Catholic University assisted in recruiting participants. The students participated voluntarily in exchange for bonus points towards their end-of-year practical exams. Each student was required to recruit 10 participants based on predetermined demographic criteria (gender, age, region and educational level). Beyond this, the online questionnaire was not shared on any social media platforms. Data collection took place between 27 November and 18 December 2023. The questionnaires took between 15 and 25 minutes to complete.

The research was approved by the Research Ethics Committee of the Institute of Psychology at Pázmány Péter Catholic University. The ethical approval reference number

is: 2023_86. Participants had to be at least 18 years old to take part in the study and received no financial compensation.

Experimental design

We employed an experimental design to examine the effectiveness of environmental labelling based on a study by Lacasse (2016). Participants were randomly assigned to either an experimental group or a control group. Both groups completed an online questionnaire containing identical questions, members of the experimental group, however, received a reinforcing message using environmental labelling after the first question block, while the control group did not receive any messages.

At the beginning of the questionnaire, respondents were asked about their habits regarding purchasing domestic products and energy conservation. Since only the preference for domestic products is relevant for target group formation (as previously outlined), we aimed to ensure that as many participants as possible encountered a message related to this. Participants in the experimental group who showed some preference for domestic products thus received a message related to purchasing domestic products, regardless of their responses to the energy conservation question. Respondents who did not prefer domestic products but showed some attention to energy conservation received a message related to energy conservation. Those who neither preferred domestic products nor practised energy conservation did not receive any message. It is important to note that each respondent saw at most one message. Respondents in the control group, of course, did not receive any message.

Participants (n = 30) who exhibited neither energy conservation nor a preference for domestic products were excluded from the experimental design, as these 'extremely indifferent' responses would have biased the results and artificially increased the differences between the experimental and control groups. Therefore, a total of 30 (4.49%) participants were excluded from the experimental design, and the hypotheses related to environmental labelling were tested on a final sample of 638 participants: 306 (45.81%) in the control group and 332 (49.70%) in the experimental group.

The labelling messages used in the experimental condition were adapted from the intervention messages developed by Lacasse (2016) with modifications to align with the Hungarian socio-cultural context and the specific behaviours examined. The messages were as follows:

Message A – Domestic product preference condition
It seems that buying domestic products is important to you. By doing so, you not only support the Hungarian economy and local producers, but also contribute to reducing environmental pollution through shorter transportation routes.

Message B – Energy conservation condition
It seems that saving energy is important to you. This not only helps reduce your utility costs, but also contributes to protecting the environment.

Sample

A total of 680 participants completed the questionnaire. Due to high scores on the social desirability scale, the responses of an additional 12 participants had to be removed from the database, leaving a final sample of 668 for the analysis. As detailed in the 'Experimental Design' section, 30 participants were excluded from the experimental comparison. The control group consisted of 306 participants, while the experimental group included 332 participants. Beyond the hypothesis tests comparing the control and experimental groups, the responses of these 30 excluded participants were also considered in the remaining parts of the analysis.

The demographic characteristics of the sample are presented in detail in Table 1. The average age of respondents in the total sample was 40.74 years (SD: 15.96; min.: 18 years; max.: 88 years), and this did not differ significantly between the control group (M = 41.26 years; SD: 15.57; min.: 18 years; max.: 79 years) and the experimental group (M = 41.06 years; SD: 16.20; min.: 18 years; max.: 88 years).

Table 1:
Demographic characteristics of the sample

	Total sample		Control group		Experimental group	
	%	N	%	N	%	N
Total	100	668	100	306	100	332
Gender						
Male	43.11	288	45.10	138	40.06	133
Female	56.89	380	54.90	168	59.94	199
No answer	0.60	4	0.00	0	0.60	2
Age categories						
18–24	26.50	177	23.86	73	25.90	86
25–34	12.72	85	13.73	42	12.35	41
35–44	13.62	91	12.75	39	14.76	52
45–54	28.89	193	32.35	99	27.71	94
55+	18.11	121	17.32	53	18.98	68
No answer	0.15	1	0.00	0	0.30	1
Region						
Transdanubia	25.45	170	24.51	75	27.11	90
Great Plain and North	29.79	199	32.68	100	28.01	99
Central Hungary	42.96	287	41.18	126	43.37	161
No answer	1.80	12	1.63	5	1.51	5
Education						
8 years or less	3.89	26	2.61	8	5.12	18
Vocational school	9.43	63	10.13	31	8.73	32
High school	34.73	232	36.27	114	33.13	118
University studies in progress	16.92	113	16.34	51	15.66	62
University degree	32.34	216	31.37	99	35.24	117
No answer	2.69	18	3.27	10	2.11	7

Source: Compiled by the authors.

The respondents' ideological self-identification is summarised in Table 2. A total of 39% of respondents identified as having a liberal orientation, while 25% considered themselves conservative, indicating a significant overrepresentation of individuals with a liberal worldview within the sample.

In summary we can conclude that despite the non-probabilistic snowball sampling method, the sample is balanced and diverse. However, it is important to note that young people, women, university students and graduates, residents of Budapest, and individuals with a more liberal orientation are overrepresented in the sample compared to their national proportions, which reduces the generalisability of the results. We have to add that the survey was conducted before the formation of the Tisza Party, which has since become the leading opposition force.

Table 2:
Ideological and political characteristics of the sample

	Total sample		Control group		Experimental group	
	%	N	%	N	%	N
Total	100	668	100	306	100	332
Ideological self-identification						
Conservative	25.00	141	26.69	67	24.57	71
Centrist/neutral	36.17	204	39.44	99	32.87	95
Liberal	38.83	219	33.86	85	42.56	123
No answer	15.57	104	17.97	55	12.95	43
Party preference						
Fidesz-KDNP	14.67	98	16.01	49	13.55	45
Opposition coalition parties	8.23	55	7.84	24	9.04	30
Magyar Kétfarkú Kutya Párt	7.19	48	5.88	18	8.43	28
Mi Hazánk Mozgalom	2.69	18	3.92	12	1.81	6
Other parties	1.35	9	1.63	5	0.90	3
Undecided	33.08	221	31.37	96	35.24	117
No answer / would not vote	32.78	219	33.33	102	31.02	103

Source: Compiled by the authors.

In terms of demographic factors, the composition of the experimental and control groups is balanced. Although individuals with a liberal ideological orientation are slightly more prevalent in the experimental group, the difference in party preference is not significant.

Instruments

Domestic product preference and energy conservation

At the beginning of the questionnaire, respondents were asked about their habits regarding domestic product preference and energy conservation using 4-point Likert scales. Those participants who indicated any frequency of domestic product preference or who at least

generally pay attention to energy conservation were asked an open-ended question about their reasons for doing so.

Environmental attitude questionnaire

To assess participants' environmental attitudes, we used the short version of the 'Environmental Attitude Questionnaire' developed by Milfont and Duckitt (2010), who based their approach on a two-dimensional model of environmental attitudes: the 'Conservation' dimension reflects classic ecological, environmentally conscious beliefs; the 'Utilisation' dimension represents an economic, instrumental approach, largely opposed to the former (Milfont & Duckitt, 2010; Wiseman & Bogner, 2003). According to this research, the two higher-order dimensions can be divided into 12 first-order factors or subscales. From the original 120-item questionnaire, Sutton & Gyuris (2015) developed a shortened 37-item version. The results showed that the 37-item shortened version is a reliable and valid measurement tool (Sutton & Gyuris, 2015).

In this research, we used 10 of the 12 subscales that were relevant to the research objectives. The subscales used were as follows: 'enjoyment of nature', 'support of conservation policies', 'environmental activism', 'anthropocentric concern', 'personal conservation behaviour', 'ecocentrism', 'anthropocentrism', 'confidence in science and technology', 'human dominance over nature' and 'human utilisation of nature'. Thus, a 10-subscale, 30-item questionnaire was administered.

The items used in the research were translated into Hungarian using and supplementing the translation applied by Dóra Medvés (2012). The Hungarian version we translated was back-translated into English by an independent professional translator, who compared it with the original English questionnaire and confirmed that the two versions were equivalent in content, making the questionnaire applicable.

Since the original factor structure of the questionnaire has not been validated on a Hungarian sample, we used principal component analysis to explore the interrelations and structure of the questionnaire items in the study's sample. The resulting five subscales and their reliability indicators are summarised in Table 3. As the Cronbach's alpha values for all five components are higher than 0.70, the reliability of the subscales can be considered satisfactory.

Table 3:
Reliability indicators of the subscales
of the shortened 'Environmental Attitude Questionnaire'

Subscales after principal component analysis	Number of items	Cronbach's alpha
1. Preservation	11	0.84
2. Utilisation	10	0.73
3. Environmental activism	3	0.76
4. Confidence in science and technology	3	0.85
5. Enjoyment of nature	3	0.79

Source: Compiled by the authors.

Social desirability scale

The social desirability effect refers to respondents' tendency to give more socially acceptable answers or to hide negative traits in order to present themselves in a better light (Milfont, 2009). To mitigate this bias, we included three statements measuring social desirability within the Environmental Attitude Questionnaire (e.g. 'I have never lied in my life'). These statements were selected from the social desirability subscale of the 'Need for Closure Questionnaire', developed by Webster and Kruglanski (1994) and translated by Csanádi, Harsányi and Szabó (2009). Respondents who scored 18 or more points out of a possible 21 were excluded from the study.

Other environment–related questions

In addition to the complex and differentiated 'Environmental Attitude Questionnaire', we wanted to include simpler, more direct questions to assess the sample's attitudes towards environmental protection. For this purpose, we adapted two general questions using five-point Likert scales from a sociological research (Schneider & Medgyesi, 2020). One question addressed concerns about environmental issues, while the other assessed the perceived importance of climate change.

Pro–environmental behaviour and behavioural intent scales

To measure pro-environmental behaviour and behavioural intent, we developed our own tools, drawing on two existing scales: Kaiser and Wilson's (2004) General Ecological Behaviour Scale and Milfont and Duckitt's (2004) Ecological Behaviour Scale. Based on the findings of our qualitative preliminary research (Fekete, 2022a), we selected 18 pro-environmental activities across the domains of energy saving, environmentally conscious consumer behaviour, waste management/reduction and volunteering in environmental activities. Respondents were asked to indicate the frequency with which they engaged in each activity on a five-point Likert scale (1 = never, 5 = very often).

In addition to asking about the pro-environmental behaviours, respondents were asked how likely it was they would engage more frequently in the actions listed on the 'Pro-environmental Behaviour Scale' in the future. A five-point Likert scale was used (1 = 'not likely at all' and 5 = 'very likely).

Results

Hypotheses related to the environmental labelling method

Since the variables examined did not follow a normal distribution, we used the non-parametric Mann–Whitney test to test the hypotheses. Results are summarised in Table 4.

Table 4:
Results of hypothesis testing for the Environmental Labelling Method
(*significant difference at the 0.05 level)

		Mann–Whitney U	Z	Effect size
Environmental Attitude Questionnaire – Preservation Dimension	Preservation subscale	45,603	–2.23*	–0.09
	Environmental activism subscale	47,823	–1.28	–0.05
	Enjoyment of nature subscale	49,374	–0.63	–0.02
Environmental Attitude Questionnaire – Utilisation Dimension	Utilisation subscale	46,408	–1.89	–0.07
	Confidence in science and technology	46,403	–1.89	–0.07
Other Environmental Questions	Environmental concern	43,918	–3.11*	0.12
	Importance of climate change	46,032	–2.24*	0.09
Pro-environmental Behavioural Intention Scale		50,529	–0.12	0.00

Source: Compiled by the authors.

The first hypothesis (H1) proposed that environmental labelling would lead to stronger conservation-related attitudes and weaker utilisation-related attitudes in the labelled group compared to the non-labelled group. This hypothesis was only partially supported. The labelled group scored significantly higher than the control group on the 'Conservation subscale' (U = 45,603; Z = –2.23; p = 0.03), although the effect size was weak (r = –0.09). In contrast, there was no significant difference between the groups on the 'Environmental activism' (U = 47,823; Z = –1.28; p = 0.20) or 'Love of nature' (U = 49,374; Z = –0.63; p = 0.53) subscales. Similarly, while the labelled group scored lower on the 'Utilisation' (U = 46,408; Z = –1.89; p = 0.06) and 'Confidence in science and technology' (U = 46,403; Z = –1.89; p = 0.06) subscales, these differences were not significant, indicating that this hypothesis was only partially supported.

The second (H2) hypothesis was supported as the labelled experimental group expressed significantly greater concern for environmental issues (U = 43,918; Z = –3.11; p = 0.00; r = 0.12) and considered climate change to be a more important issue (U = 46,032; Z = –2.24; p = 0.03; r = 0.09) than the control group. However, the strength of the difference was weak in both cases.

The third hypothesis (H3) was not supported, as there was no significant difference in pro-environmental behavioural intentions between the labelled and non-labelled groups (U = 50,529; Z = –0.12; p = 0.91).

Hypotheses related to ideological orientation and party preference

To test the hypothesis related to ideological orientation, we used the non-parametric Spearman correlation calculation, results shown in Table 5.

The hypothesis related to ideological self-identification was confirmed (H4), as conservative ideological orientation was found to significantly negatively correlate with attitudes towards environmental conservation ($r = -0.17$; $p = 0.00$), while showing a significant positive correlation with attitudes towards environmental utilisation ($r = 0.24$; $p = 0.00$) and domestic product preference ($r = 0.21$; $p = 0.00$). In all cases, the correlations were weak in strength.

Table 5:
Results of correlation analyses with conservative self-identification
(*significant correlation at the 0.05 level)

	r (Spearman correlation coefficient)
Environmental Attitude Questionnaire – Preservation Subscale	−0.17**
Environmental Attitude Questionnaire – Utilisation Subscale	0.24**
Domestic Product Preference Scale	0.21**

Source: Compiled by the authors.

For the hypothesis related to party preference, to ensure a sufficient sample size for group comparisons, we combined voters of smaller parties into two groups. The 'right-wing party voters' group included supporters of Fidesz-KDNP [Hungarian Civic Alliance – Christian Democratic Nationalist Party] and the Mi Hazánk Mozgalom [Our Homeland Movement], while the 'left-wing-liberal party voters' group consisted of supporters of the parties running on the joint opposition list in the 2022 election and the Magyar Kétfarkú Kutyapárt [Hungarian Two-Tailed Dog Party]. The non-parametric Mann–Whitney test was used to compare differences between the two groups, with the results summarised in Table 6.

Table 6:
Results of hypothesis testing based on party preference

	Mann–Whitney U	Z	Effect size
Environmental Attitude Questionnaire – Preservation Subscale	4,138	−3.93**	−0.27
Environmental Attitude Questionnaire – Utilisation Subscale	3,377	−5.55**	−0.38
Domestic Product Preference Scale	4,150	−4.15**	−0.28

Source: Compiled by the authors.

The hypothesis related to party preference (H5) was also confirmed, as right-wing party voters scored significantly lower on the 'Conservation' subscale (U = 4,138; Z = –3.93; p = 0.00; r = –0.27) and significantly higher on the 'Utilisation' subscale (U = 3,377; Z = –5.55; p = 0.00; r = –0.38) and the Domestic Product Preference Scale (U = 4,150; Z = –4.15; p = 0.00; r = –0.28) than left-wing-liberal party voters.

In summary, we can conclude that conservative ideological orientation and right-wing party preference were negatively associated with attitudes towards environmental conservation, while showing a positive relationship with attitudes towards environmental utilisation and domestic product preference.

Cluster analysis

To identify more specifically the potential target group for environmental labelling based on domestic product preference, we conducted a hierarchical cluster using the so-called Ward method. The analysis included the scales measuring domestic product preference and energy conservation, the subscales of the shortened Environmental Attitude Questionnaire, the Pro-Environmental Behaviour Scale, as well as relevant demographic and ideological variables. Several respondents who did not provide answers to the demographic and ideological questions could not be included in the cluster analysis. Consequently, the cluster analysis was performed on a sample of 563 individuals. After examining the dendrogram and analysing different cluster solutions, we decided on a four-cluster solution. The distribution of respondents among the four clusters is shown in Figure 1.

The first cluster was named the Eco-Conscious Group, as the respondents in this cluster stood out in both their environmental attitudes and their pro-environmental behaviours.

In terms of demographic composition, this segment is overrepresented by middle-aged individuals (72% are over 45 years old), women (68%), those with a university degree or currently pursuing university studies (61%), and those living in at least average financial
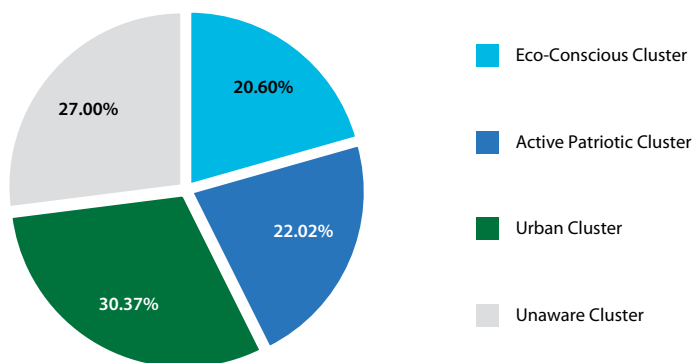

Figure 1:
Distribution of clusters within the sample
Note: The basis of the research are respondents who provided valid answers to all questions used, n = 563.
Source: Compiled by the authors.

circumstances (46%). Ideologically, the majority are liberal (49%). Interestingly, this is less reflected in party preference, as while Fidesz-KDNP voters are underrepresented compared to the full sample (9%), support for opposition parties is also low (6%). This is the smallest cluster, comprising 21% of the respondents included in the analysis.

The second cluster was labelled the Active Patriotic Group, characterised by strong domestic product preference alongside moderate environmental commitment. Buying domestic products and reducing consumption is more typical in this cluster than average, while activities like cycling or reducing meat consumption are less common. Middle-aged and older individuals (especially those over 55, who make up 29%) are overrepresented in this cluster, as are men (59%), those living outside Budapest or Pest County (82%), and those with lower educational attainment (56%). Over half of the group identify as conservative (52%) and religious (57%), which marks a significant difference compared to the other clusters. Accordingly, right-wing parties, such as Fidesz-KDNP (29%) and Mi Hazánk Mozgalom (6%), are overrepresented in this segment. This cluster comprises 22% of the sample.

The third cluster was named the Urban Group, as the proportion of Budapest residents is by far the highest here (43%), and urban pro-environmental activities, such as cycling, reducing meat consumption and buying second-hand clothes, are the most popular. This segment is almost the perfect inverse of the Active Patriotic cluster. Respondents scored above average on the subscales measuring ecological thinking and below average on the subscales that relativise the importance of environmental protection. Respondents in this cluster also scored high on most behaviour-related subscales, except for domestic product preference, reducing consumption, and composting, which is less compatible with urban living. In the Urban cluster, young people (especially those aged 18–24, who make up 39%), women (70%), Budapest and Pest County residents (58%), those with university degrees or currently studying at university (62%), and those living in above-average financial conditions (58%) are overrepresented. The majority of the group are liberal (55%) and non-religious (68%). Opposition parties (19%) and the Kétfarkú Kutyapárt (Hungarian Two-Tailed Dog Party) (12%) enjoy significantly higher support in this cluster. This is the largest cluster, comprising 30% of the sample.

The fourth cluster, called the Unaware Group, is the easiest to describe. Respondents in this group scored significantly below average on both the attitude subscales reflecting ecological thinking and all pro-environmental behaviour subscales. Young people (especially those aged 18–24, who make up 41%) and Budapest or Pest County residents are also overrepresented in this cluster. However, unlike the Urban segment, men (55%) and those with lower educational attainment (58%) are in the majority here. In terms of ideological self-identification, the group positions itself more towards the centre compared to the full sample. In terms of party preference, the group is mixed, with both Fidesz-KDNP (22%) and the Kétfarkú Kutyapárt (10%) enjoying higher support than in the full sample. The Unaware cluster is the second largest, comprising 27% of the sample.

It should also be noted that, due to the non-representative nature of the sample, the validity of the target group segmentation results may be limited, and further research is needed to confirm these findings.

Discussion

Two main objectives were defined before the research was conducted. First, to test the tool of environmental labelling on a Hungarian sample in the contexts of domestic product consumption and energy conservation. Second, to identify social segments that could serve as the target audience for environmental labelling focusing on domestic product consumption.

The findings confirmed the relevance of the two selected activities. According to self-reported data, more than 90% of respondents generally pay attention to energy conservation, while more than 70% favour domestic products to some extent. These results align with previous empirical research in the field (Hámori & Horváth, 2009; Magyar Termék Nonprofit Kft., 2017; Varga et al., 2024). The open-ended questions supported the assumptions from both the literature (Malota, 2003; Schäfferné, 2007; Stanley & Lasonde, 1996) and the preliminary research (Fekete, 2022b), suggesting that these activities are primarily motivated by factors other than environmental protection. Nearly 70% of respondents who paid attention to energy conservation stated that financial savings are their primary motivation for rationalising energy consumption, while only slightly more than one-third mentioned environmental considerations. The connection between domestic product preference and sustainability appeared even weaker, as only one-tenth (11%) of those who favoured domestic products mentioned environmental protection as a reason for their purchasing habits. In summary, we can conclude that the quantitative research results confirmed the assumption that energy conservation and domestic product consumption are widespread in Hungarian society, but in most cases, they are not driven by environmental considerations. As a result, both activities are suitable as the basis for the communication tool of environmental labelling.

Regarding the main research questions, it is noteworthy that the hypotheses regarding the effectiveness of the communication tool were only partially confirmed. The messages containing labelling, although only to a small degree, statistically significantly strengthened the ecological thinking-related attitudes, environmental concerns and perceived relevance of climate change among the experimental group, but they had no effect on pro-environmental behavioural intentions. It is important to emphasise that the observed changes in attitudes were associated with only weak effect sizes, which suggests that the immediate practical impact of the intervention is limited. These findings highlight the need for caution when interpreting the results and underscore the importance of further research to explore how such messages might influence behaviour under different conditions. However, findings from environmental psychology and behavioural science provide several indications that support the assumption that this method may prove more effective in everyday contexts.

Previous research on the effect of environmental labelling on pro-environmental behavioural intentions has yielded mixed results. Some studies have shown that similar experimental manipulations significantly increased the likelihood of pro-environmental behaviour (Cornelissen et al., 2008), while other studies, like the present research, were unable to clearly demonstrate the effect of labelling on behaviour (Eby et al., 2019), or only did so when the cognitive capacity of the participants was overloaded with other tasks (Cornelissen et al., 2007). The literature suggests that the moderate effectiveness of the tool can be explained by the fact that, in the absence of an explicit cognitive distraction task, the participants systematically processed the message, interpreting it as a manipulation attempt,

which neutralised the effectiveness of the labelling. Since in everyday life, people's mental capacity is highly overloaded, it is reasonable to assume that this negative effect would not or only minimally occur in practical applications (Cornelissen et al., 2007; Kahneman, 2012). Furthermore, research on positive spillover suggests that self-perception of past activities (or in this case, labelling) first impacts attitudes and identity. Several researchers speculate that over time, attitudes strengthened by labelling in practical situations may also lead to behaviour change (Poortinga et al., 2013; Truelove et al., 2014; van der Werff et al., 2013). Moreover, based on classical findings in persuasion research, we can assume that the effectiveness of the tool would be significantly enhanced if the stimulus were presented more frequently and in a more visual form, as familiar stimuli are processed more easily and automatically, and positive feelings are associated with them, which increases their persuasive power (Petty & Cacioppo, 1986; Reber et al., 2004; Zajonc, 1968).

The second goal of the research was to identify social groups for whom the method of environmental labelling could be particularly effective and relevant. As with previous studies (Naár, 2022; Schäfferné, 2007; Varga et al., 2024), this research did not identify significant social differences regarding energy conservation, so the focus of target group identification was on domestic product consumption. Consequently, we sought groups that are not dismissive of environmental issues, rather characterised by moderate activity and commitment in this area, as the literature suggests that labelling is most relevant in such cases (Carrico et al., 2015; Eby et al., 2019; van Vugt, 2001). Additionally, these groups needed to favour domestic products, as this is the only way to engage them with the messages used. Consistent with both international and Hungarian research (Cruz, 2017; Dunlap & McCright, 2008; Mónus et al., 2022; Schneider & Medgyesi, 2020; Van Liere & Dunlap, 1980), it appears that individuals with conservative ideological orientations and right-wing party preferences meet these criteria, as they tend to have weaker environmental attitudes and activity, but stronger preferences for domestic products.

To further specify the target group, a hierarchical cluster analysis was conducted, which identified the Active Patriotic segment. This group is not dismissive of environmental issues but has weaker-than-average environmental attitudes. While they exhibit a strong preference for domestic products, they display below-average pro-environmental activity. The demographic and ideological composition of the cluster supports and complements the conclusions drawn from hypothesis testing. The results indicate that the potential target group for environmental labelling related to domestic product consumption is overrepresented by conservative and right-wing individuals, those living in rural areas, men, people over 40, and those with lower educational attainment. Although this cluster comprises just over one-fifth of the sample, it is likely that in a nationally representative sample, the proportion of people with similar attitudes and habits would be much higher.

In summary, the test of environmental labelling in the context of domestic product consumption and energy conservation yielded encouraging results. Although no significant effect was found for pro-environmental behavioural intention, even brief exposure to the messages containing labelling caused statistical changes, albeit weak ones, in environmental attitudes. Previous research has given reason to assume that environmental labelling could prove more effective in everyday contexts. Findings suggest it works better under cognitive load (Cornelissen et al., 2007), and may lead to positive spillover through identity

reinforcement (Poortinga et al., 2013; Truelove et al., 2014), and benefits from repeated and emotionally favourable presentation (Petty & Cacioppo, 1986; Zajonc, 1968). All of which suggests that in cognitively demanding real-life situations, environmental labelling, when applied strategically and repeatedly, may contribute to stronger attitudinal change and more consistent pro-environmental behaviour. Although Cornelissen (2007) has already demonstrated that labelling can be more effective under cognitive load, further research is needed to replicate and extend these findings in new behavioural domains and cultural contexts. Testing this effect in the specific field of environmental communication – such as domestic product consumption and energy saving – would provide more targeted insights into the practical applicability of the method.

The social relevance of the communication tool is further amplified by the finding that environmental labelling related to domestic products can effectively engage individuals in sustainability issues, particularly those with only moderate environmental activity, making them worth encouraging further.

As far as the main limitations of the research are concerned, the potential distorting effect of social desirability must be acknowledged, as individuals may present themselves in a more favourable light than in reality (Milfont, 2009). Although respondents who scored extremely high on the social desirability scale embedded in the Environmental Attitude Questionnaire were excluded from the study, it is still possible that this phenomenon may have influenced the results to some extent.

Despite efforts to achieve a larger sample size and a more diverse pool of respondents, the non-probability snowball sampling method means that this sample cannot be considered representative. In the study, which was based on the responses of 668 participants, young people, women, university students and graduates, Budapest residents, and individuals with more liberal views were overrepresented compared to their proportion nationally, which limits the generalisability of the findings. Therefore, to validate and generalise the present findings, future research should be conducted using stratified or nationally representative sampling methods. Moreover, it is worth noting that most previous studies in this field have also relied on non-probabilistic samples (e.g. Cornelissen et al., 2007; Cornelissen et al., 2008; Eby et al., 2019), which makes the use of representative sampling in future research even more essential. In addition, given the absence of prior research on environmental labelling in Central and Eastern Europe, comparative studies across countries in the region would be valuable in identifying cultural and structural similarities or differences that may influence the effectiveness of such communication tools.

Although the size and composition of the experimental and control groups were relatively balanced, the experimental group was slightly larger, and there was a marginally higher proportion of women, university graduates and self-identified liberals, which may have influenced the results.

It is important to highlight that since the data collection, the Hungarian political landscape has radically changed due to the rise of the Tisza Party. Further research is needed to explore the attitudes of this new party's voters.

References

Albarracín, D. & McNatt, P. S. (2005). Maintenance and Decay of Past Behavior Influences: Anchoring Attitudes on Beliefs Following Inconsistent Actions. *Personality and Social Psychology Bulletin, 31*(6), 719–733. Online: https://doi.org/10.1177/0146167204272180

Balabanis, G., Diamantopoulos, A., Mueller, R. D. & Melewar, T. C. (2001). The Impact of Nationalism, Patriotism, and Internationalism on Consumer Ethnocentric Tendencies. *Journal of International Business Studies, 32*(1), 157–175. Online: https://doi.org/10.1057/palgrave.jibs.8490943

Bem, D. J. (1972). Self-Perception Theory. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (pp. 1–62). Academic Press. Online: https://doi.org/10.1016/S0065-2601(08)60024-6

Berács, J. & Malota, E. (2000). Fogyasztói etnocentrizmus: Etnocentrizmus és országeredet-imázs kapcsolata a termékválasztásban. *Vezetéstudomány, 31*(4), 25–38.

Bosmans, A. M. M. & Warlop, L. (2005). How Vulnerable Are Consumers to Blatant Persuasion Attempts? *Advances in Consumer Research,* 32, 506. Online: https://doi.org/10.2139/ssrn.869978

Brehm, S. S. & Brehm, J. W. (1981). *Psychological Reactance. A Theory of Freedom and Control.* Academic Press.

Carrico, A. R., Truelove, H. B., Vandenbergh, M. P. & Dana, D. (2015). Does Learning about Climate Change Adaptation Change Support for Mitigation? *Journal of Environmental Psychology, 41*, 19–29. Online: https://doi.org/10.1016/j.jenvp.2014.10.009

Cialdini, R. B. (2003). Crafting Normative Messages to Protect the Environment. *Current Directions in Psychological Science, 12*(4), 105–109. Online: https://doi.org/10.1111/1467-8721.01242

Cornelissen, G. (2007). *Rendering Sustainable Consumer Behavior More Sustainable. Psychological Tools for Marketing Pro-Social Commitment.* PhD Dissertation. Katholieke Universiteit Leuven.

Cornelissen, G., Dewitte, S., Warlop, L. & Yzerbyt, V. (2007). Whatever People Say I Am, That's What I Am: Social Labeling as a Social Marketing Tool. *International Journal of Research in Marketing, 24*(4), 278–288. Online: https://doi.org/10.1016/j.ijresmar.2007.05.001

Cornelissen, G., Pandelaere, M., Warlop, L. & Dewitte, S. (2008). Positive Cueing: Promoting Sustainable Consumer Behavior by Cueing Common Environmental Behaviors as Environmental. *International Journal of Research in Marketing, 25*(1), 46–55. Online: https://doi.org/10.1016/j.ijresmar.2007.06.002

Cruz, S. M. (2017). The Relationships of Political Ideology and Party Affiliation with Environmental Concern: A Meta-Analysis. *Journal of Environmental Psychology, 53*, 81–91. Online: https://doi.org/10.1016/j.jenvp.2017.06.010

Csanádi, A., Harsányi, Sz. G. & Szabó, É. (2009). Lezárási igény kérdőív: A Need for Closure Scale magyar verziójának tesztelése egyetemista mintán. *Alkalmazott Pszichológia, 11*(1–2), 55–81.

Dunlap, R. E. & McCright, A. M. (2008). A Widening Gap: Republican and Democratic Views on Climate Change. *Environment: Science and Policy for Sustainable Development, 50*(5), 26–35. Online: https://doi.org/10.3200/ENVT.50.5.26-35

Eby, B., Carrico, A. R. & Truelove, H. B. (2019). The Influence of Environmental Identity Labeling on the Uptake of Pro-Environmental Behaviors. *Climatic Change, 155*(4), 563–580. Online: https://doi.org/10.1007/s10584-019-02501-x

Fekete, B. (2022a). A környezetbarát cselekedetek pszichológiai háttere és ösztönzésének lehetőségei. In T. Dezső & I. Pócza (Eds.), *Batthyány Lajos Alapítvány Doktori Ösztöndíjprogram Tanulmánykötet 2020/2021* (pp. 154–174). BLA Tudástár.

Fekete, B. (2022b). A fenntarthatóság rejtett motivációinak kvalitatív vizsgálata a magyar lakosság körében. In T. Dezső & I. Pócza (Eds.), *Batthyány Lajos Alapítvány Doktori Ösztöndíjprogram Tanulmánykötet 2021/2022* (pp. 140–152). BLA Tudástár.

Festinger, L. (1957). *A Theory of Cognitive Dissonance.* Stanford University Press.

Fielding, K. S. & Hornsey, M. J. (2016). A Social Identity Analysis of Climate Change and Environmental Attitudes and Behaviors: Insights and Opportunities. *Frontiers in Psychology, 7*. Online: https://doi.org/10.3389/fpsyg.2016.00121

Gilbert, D. T., Krull, D. S. & Malone, P. S. (1990). Unbelieving the Unbelievable: Some Problems in the Rejection of False Information. *Journal of Personality and Social Psychology, 59*(4), 601–613. Online: https://doi.org/10.1037/0022-3514.59.4.601

Hámori, J. & Horváth, Á. (2009). A hazai élelmiszerek megítélésének és preferenciájának vizsgálata. *Élelmiszer, Táplálkozás és Marketing, 6*(2–3), 87–94.

Henn, L., Otto, S. & Kaiser, F. G. (2020). Positive Spillover: The Result of Attitude Change. *Journal of Environmental Psychology, 69*. Online: https://doi.org/10.1016/j.jenvp.2020.101429

Kahneman, D. (2012). *Thinking, Fast and Slow*. Penguin Books.

Kaiser, F. G. & Wilson, M. (2004). Goal-directed Conservation Behavior: The Specific Composition of a General Performance. *Personality and Individual Differences, 36*(7), 1531–1544. Online: https://doi.org/10.1016/j.paid.2003.06.003

Lacasse, K. (2016). Don't Be Satisfied, Identify! Strengthening Positive Spillover by Connecting Pro-Environmental Behaviors to an "Environmentalist" Label. *Journal of Environmental Psychology, 48*, 149–158. Online: https://doi.org/10.1016/j.jenvp.2016.09.006

Magyar Termék Nonprofit Kft. (2017). *A vevők többségének számít, hogy magyar élelmiszert vásároljon.* Online: https://amagyartermek.hu/hirek/a-vevok-tobbsegenek-szamit-hogy-magyar-elelmiszert-vasaroljon/300/

Malota, E. (2003). A hazai termékek preferálása. *Marketing és Menedzsment, 2*(3), 28–37.

McCright, A. M., Dunlap, R. E. & Marquart-Pyatt, S. T. (2016). Political Ideology and Views about Climate Change in the European Union. *Environmental Politics, 25*(2), 338–358. Online: https://doi.org/10.1080/09644016.2015.1090371

Medvés, D. (2012). *A környezettudatosság pszichológiai meghatározói. A társas érték, a kognitív korlátok és a társadalmi dilemma.* PhD Dissertation. Debreceni Egyetem.

Milfont, T. L. (2009). The Effects of Social Desirability on Self-Reported Environmental Attitudes and Ecological Behaviour. *The Environmentalist, 29*, 263–269. Online: https://doi.org/10.1007/s10669-008-9192-2

Milfont, T. L. & Duckitt, J. (2010). The Environmental Attitudes Inventory: A Valid and Reliable Measure to Assess the Structure of Environmental Attitudes. *Journal of Environmental Psychology, 30*(1), 80–94. Online: https://doi.org/10.1016/j.jenvp.2009.09.001

Mónus, F., Béres, T. & Sipos, F. (2022). Egyetemi hallgatók környezettudatossága a materializmus, az élettel való elégedettség, a politikai, illetve a pandémiával kapcsolatos nézeteik függvényében. *Metszetek, 11*(1), 70–97. Online: https://doi.org/10.18392/metsz/2022/1/5

Naár, A. (2022). *A magyar háztartások villamosenergia-fogyasztási magatartásmintázatainak feltárása a fenntarthatóság kontextusában.* PhD Dissertation. Magyar Agrár- és Élettudományi Egyetem.

Papp-Váry, Á. & Zahorecz, B. (2017). A származási hely (made-in) marketingkommunikációs stratégiái – és miként élhetnek velük a magyar márkák? In R. Richárd & T. Czeglédy (Eds.), *Geopolitikai stratégiák Közép-Európában tanulmánykötet* (pp. 459–472). Soproni Egyetem Kiadó.

Petty, R. E. & Cacioppo, J. T. (1986). *Communication and Persuasion. Central and Peripheral Routes to Attitude Change*. Springer.

Poortinga, W., Steg, L. & Vlek, C. (2008). Values, Environmental Concern, and Environmental Behavior: A Study into Household Energy Use. *Environment and Behavior, 36*(1), 70–93. Online: https://doi.org/10.1177/0013916503251466

Poortinga, W., Whitmarsh, L. & Suffolk, C. (2013). The Introduction of a Single-Use Carrier Bag Charge in Wales: Attitude Change and Behavioural Spillover Effects. *Journal of Environmental Psychology, 36*, 240–247. Online: https://doi.org/10.1016/j.jenvp.2013.09.001

Raghubir, P. & Menon, G. (2005). When and Why Is Ease of Retrieval Informative? *Memory & Cognition, 33*(4), 821–832. Online: https://doi.org/10.3758/BF03193077

Reber, R., Schwarz, N. & Winkielman, P. (2004). Processing Fluency and Aesthetic Pleasure: Is Beauty in the Perceiver's Processing Experience? *Personality and Social Psychology Review, 8*(4), 364–382. Online: https://doi.org/10.1207/s15327957pspr0804_3

Reich, J. W. & Robertson, J. L. (1979). Reactance and Norm Appeal in Anti-Littering Messages. *Journal of Applied Social Psychology, 9*(1), 91–101. Online: https://doi.org/10.1111/j.1559-1816.1979.tb00796.x

Schäfferné, D. K. (2007). Az energiatakarékosság környezetvédelmi szempontú megközelítése a hétvégi házak fűtési rendszereiben. *Környezetvédelmi és Területfejlesztési Szemle, 14*(1), 81–92.

Schneider, M. & Medgyesi, M. (2020). Környezettel és környezetvédelemmel kapcsolatos lakossági attitűdök változása Magyarországon. In T. Kolosi, I. Szelényi & I. Tóth (Eds.), *Társadalmi Riport 2020* (pp. 375–396). TÁRKI.

Schultz, P. W. (2002). Knowledge, Education, and Household Recycling: Examining the Knowledge-Deficit Model of Behavior Change. In T. Dietz & P. Stern (Eds.), *New Tools for Environmental Protection. Education, Information, and Voluntary Measures* (pp. 67–82). National Academy Press.

Staats, H. J., Wit, A. P. & Midden, C. J. H. (1996). Communicating the Greenhouse Effect to the Public: Evaluation of a Mass Media Campaign from a Social Dilemma Perspective. *Journal of Environmental Management, 46*(2), 189–203. Online: https://doi.org/10.1006/jema.1996.0015

Stanley, L. R. & Lasonde, K. M. (1996). The Relationship between Environmental Issue Involvement and Environmentally-Conscious Behavior: An Exploratory Study. *Advances in Consumer Research, 23*(1), 183–188.

Sutton, S. G. & Gyuris, E. (2015). Optimizing the Environmental Attitudes Inventory: Establishing a Baseline of Change in Students' Environmental Attitudes. *International Journal of Sustainability in Higher Education, 16*(1), 16–33. Online: https://doi.org/10.1108/IJSHE-03-2013-0027

T. Nagy-Pető, D., Szakály, Z. & Kiss, V. Á. (2023). A helyi termékekkel kapcsolatos fogyasztói elvárások összehasonlító vizsgálata. *Marketing & Menedzsment, 57*(1), 49–57. Online: https://doi.org/10.15170/MM.2023.57.01.05

Thaler, R. H. & Sunstein, C. R. (2008). *Nudge. Improving Decisions about Health, Wealth, and Happiness*. Yale University Press.

Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T. & Vandenbergh, M. P. (2014). Positive and Negative Spillover of Pro-Environmental Behavior: An Integrative Review and Theoretical Framework. *Global Environmental Change, 29*, 127–138. Online: https://doi.org/10.1016/j.gloenvcha.2014.09.004

Tversky, A. & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science, 185*(4157), 1124–1131. Online: https://doi.org/10.1126/science.185.4157.1124

Van der Werff, E., Steg, L. & Keizer, K. (2013). The Value of Environmental Self-Identity. *Journal of Environmental Psychology, 34*, 55–63. Online: https://doi.org/10.1016/j.jenvp.2012.12.006

Van Liere, K. D. & Dunlap, R. E. (1980). The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations, and Empirical Evidence. *Public Opinion Quarterly, 44*(2), 181–197. Online: https://doi.org/10.1086/268583

Van Vugt, M. (2001). Community Identification Moderating the Impact of Financial Incentives in a Natural Social Dilemma: Water Conservation. *Personality and Social Psychology Bulletin, 27*(11), 1440–1449. Online: https://doi.org/10.1177/01461672012711005

Varga, A., Ágoston, Cs., Buvár, Á., Szabó, Á. Z. & Dúll, A. (2024). Környezetvédő cselekedetek és ezek gátló tényezői a magyar felnőtt lakosság körében. *Észak-magyarországi Stratégiai Füzetek, 21*(1), 27–35. Online: https://doi.org/10.32976/stratfuz.2024.3

Webster, D. M. & Kruglanski, A. W. (1994). Individual Differences in Need for Cognitive Closure. *Journal of Personality and Social Psychology, 67*(6), 1049–1062. Online: https://doi.org/10.1037/0022-3514.67.6.1049

Wiseman, M. & Bogner, F. X. (2003). A Higher-Order Model of Ecological Values and Its Relationship to Personality. *Personality and Individual Differences, 34*(5), 783–794. Online: https://doi.org/10.1016/S0191-8869(02)00071-5

Zajonc, R. B. (1968). Attitudinal Effects of Mere Exposure. *Journal of Personality and Social Psychology, 9*(2), 1–27. Online: https://doi.org/10.1037/h0025848