

Nagy, Szabolcs

**Doctoral Thesis**

## Environmentally Conscious Marketing

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FACULTY OF ECONOMICS  
„BUSINESS THEORY AND PRACTICE”  
Doctoral School**

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**ENVIRONMENTALLY  
CONSCIOUS  
MARKETING**

PhD Dissertation Thesis Book

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## I. Background, fields and objectives of my research

The relationship between human beings and the nature has been in the focus of my interest since my childhood. More specifically, my first contact with environmental marketing dates back to the early 90s when I managed to participate in a USA-based EMLA (Environmental Management and Law Association) project on Hungarian National Parks as a university student. My long-lasting appeal to environmental marketing emerged from this project. It was later manifested in my participation in a research project focusing on the environmental consciousness of the Hungarian population conducted by the Department of Marketing, University of Miskolc. This research and the related literature that I have worked through were the basis of my first B.Sc. Dissertation on environmentally conscious consumption. Later the focal point of my interest shifted to the corporate sphere. So my second Dissertation (M.Sc.) was about environmentally conscious corporate behavior in theory and practice. Between 1996 and 1999, I took part and partially coordinated several researches on both corporate and public environmental consciousness as a PhD student. As a result, I have written several publications and made many presentations. These research projects played extremely important role in my PhD dissertation. It was also possible for me to further deepen, revise and update my theoretical environmental marketing knowledge with valuable practice as sales and marketing leader of a multinational company in the car industry between 1999 and 2002. From 2002 now on, as an assistant professor, I refreshed my knowledge-base with new researches focusing on environmentally conscious behavior. Presently I take part in the Miskolc Regional Waste Management Project, PR and Communication Strategy as an expert and project coordinator. Our task is to improve the environmental consciousness of the target groups, their willingness of participation in the selective waste collection, etc.

In order to eliminate or at least decrease environmental contamination it is absolutely necessary to change the environmental consciousness at the corporate, the public and also the governmental level. *To do so, it is of utmost importance to assess the present situation regarding consumption, competition and regulation. My PhD dissertation can be considered to be a serious support for decision-makers as it involves all the three above mentioned fields. In my opinion, environmental marketing has to have an integrating role among the corporate, public and governmental level.* All of these having considered, I extended the traditional 4P concept of marketing with environmental orientation in my dissertation, based on the analyses of the green consumer and corporate behaviour. *Therefore the main objectives of my dissertation, the meta-analyses of the literature and the related primer questionnaire surveys and secondary desk-top researches were the analyses of:*

- *the theoretical background and the evolution of environmentally conscious marketing,*
- *the role of governmental intervention,*
- *environmentally conscious consumer behaviour,*
- *environmentally conscious corporate behaviour, and*
- *environmentally conscious marketing management.*

## II. Applied complex scientific methodology

When writing my dissertation I used modern scientific-theoretical approach, namely the analytical thinking, i.e. I approximated different issues starting from the universal ending in the more concretes. My dissertation was backed up a previous meta-analysis of the literature, especially foreign literature as the Hungarian literature is still not so comprehensive. During the meta-analyses process/phase it was inevitable for me to use inter-disciplinary approach, which is valid for environmentally conscious marketing as it involves most of the results and methodology of economics, management-sciences, psychology, social-psychology, sociology, environmental law and behaviour-sciences. This conceptional elucidation, theoretical understanding as well as my desk-top research made it possible for me to conceptualize my primary research and to formalize my hypothesis. After the operationalization phase I did computer-aided mathematical-statistical analyses based on which I drew conclusions, tested working hypothesis, and formulated new hypotheses to identify new directions of my future researches. Where it was possible, I made models demonstrating and predicting the analyzed phenomenon, based on the knowledge synthesized.

This dissertation is the result of ten years' work of mine, enriched with five years' managerial (leader) experience in the field. My primary researches cover questionnaire surveys in each case. Among them the first one is dated back to 1998. It was focusing on the environmental consciousness of the Hungarian consumers, tutored by Dr. István Piskóti. The results of this survey were summarized in a 120 pages research report and in several publications. A little while later, in 1999, we targeted the corporate level, surveyed 141 companies located in Hungary to find out their environmental behaviour. This representative survey was also summarized in a research report, and several publications. In order to profoundly examine ECB, to update my previous researches, to explore temporal changes and to do international comparisons I concluded a questionnaire survey sampled 333 students studying marketing at the University of Miskolc in September, 2004. Moreover I used the research findings of the ISPA Waste Management Project, done in August 2004. This questionnaire surveys was based on phone interviews of 800 people living in the region covered by the project, while the representative corporate sample covered 50 companies located in the region.

In my whole dissertation and in my primary researches I used the theory of holistic approach as one of the most important messages of the concept of the sustainable development is that environmental issues are system-like and meshed. Wherever from approaching a single component of an issue – whatever it can be such as manufacturing, regulation or consumption - we can identify its relationships and connections with other components of the issue only when thinking systematically. It also means that first we must find the roots of a problem to solve it. Roots are characterized by motivations, therefore one of the focus points of my dissertation is motivation analyses. Importance of comparative-analyses, international and cross-cultural comparisons results from the global nature of environmental issues.

### III. Summary of my scientific results and the possible fields of application

I believe that my dissertation and the related researches enriched environmentally conscious marketing with new/original results in many fields. By the meta-analyses of the literature I managed to fill in the space which existed before in the field of the history of ECM, the reasons of its emerging and its typical approaches. Though many people dealt with the above mentioned separately, but no one has synthesised them or drawn consequences from them yet.

Based on different empirical findings and the results of my primary researches I concluded the driving force model of ECM, which demonstrates the driving forces, internal and external factors of environmentally conscious behaviour from the corporate viewpoint. I managed to distinguish three driving forces, which are the legal constraint, the power of competition and the consumer demand.

Although there is an extensive literature on the importance of governmental influence in the field of environmental protection, these were concentrated on a single part of the problem. My dissertation however integrated these single parts when examined the fields of state regulation, economic influential tools and the expectations of the citizens about governmental responsibility; while justified the utmost importance of the role of the government in forming ECB.

My researches focusing on ECB<sup>1</sup> enriched ECM<sup>2</sup> especially in the field of attitude, motivation and values. In these researches I managed to generate new knowledge by applying interdisciplinary approach and using the latest results of environmental-, social-psychology and behaviour-sciences. This knowledge can give useful practical tools to professionals wishing to apply the latest development of ECM. I comprised the empirical model of ECB based on the multi-component approach of attitudes, backed up by the most up-to-date theory in behaviour-sciences – the theory of planned behaviour, mixed with the probability approach which integrates the situational constraints of each kind of behaviour into the model.

My findings in the field of value research are considered to be unique of its class worldwide. I analysed the structure of the environmentally-oriented values in Hungary in the framework of a cross-cultural comparison, and drew conclusions which admittedly shall attract notice of not only the marketing professionals. My research was carried out concerning developing vs. developed countries, eastern vs. western, as well as Christian and Buddhist cultures. The structure of the Schwartz value items in Hungary is unique, not similar to that of any other countries involved in the comparison as environmental and egoist values were grouped in two separated factors while altruist and traditional values were mixed up in a third one.

My dissertation and its related researches have enriched environmentally conscious marketing with new/original results in many fields. By the meta-analyses of the literature I managed to fill in the space which existed before in the field of the history of ECM, the reasons of its emerging and its typical approaches. Though many people dealt with the above mentioned separately, but no one has synthesized them or drawn consequences from them yet.

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<sup>1</sup> ECB – Environmentally Conscious Behavior

<sup>2</sup> ECM - Environmentally Conscious Marketing

however integrated these single parts when I examined the fields of state regulation, economic influential tools and the expectations of the citizens about governmental responsibility; while justified the utmost importance of the role of the government in forming ECB.

In the motivation section I have succeeded in defining the most significant primary and selective motives of the university students' behaviour. Having known these motives, marketers can influence their behaviour easily.

Having analysed the relationship between demographic variables and ECB by synthesizing the research findings available in the literature with my own primary research' experiences I have drawn a conclusion with great practice potential that demographic variables are not suitable for predicting ECB, therefore their use in market segmentation must be avoided even if it seems to be the most economical and easy segmentation method. I suggest that psychographic variables should be used instead.

More than ten years' own research activity made it possible for me to measure ECB in Hungary in different time periods, to make comparisons in time and to make statements concerning the tendency in changing ECB. To do so, I have chosen the sample of age-group 20-25 years' old people in 1998 and 2004. The comparison of the two samples unveiled that the level of ECB has significantly been decreased in this age-group from 1998 to 2004. This must be a fact that marketers must not neglect.

Spreading of environmentally benign products has not yet occurred in Hungary. I explored those factors which are behind this phenomenon by using factor analyses. Having synthesized the opinion of those who are the demand (consumers) and supply (corporations) sides, I have drawn to a conclusion that the root-cause of this problem is not unequivocally the higher price of green products but the different viewpoints of the two sides. On the other hand the most significant impedimental factors concerning each side are the ones the given side should change most easily, so these factors are consumer habituation and the less information available on green products.

My dissertation also involves several fields that cannot be neglected in ECM such as ECM models, associations concerning environmentally friendly products, environmentally conscious picture of me, situational behavioural constraint and last but not at least the green 4Ps, which is considered to be the environmentally conscious marketing mix. These parts contain a lot of useful theoretical and practical information which may hopefully add new knowledge to the development of theory and practice of ECM in Hungary.

## **Thesis concerning the emerging of ECM**

During the meta-analysis of the literature I have explored that almost every ECM expert, i.g. Ottman (1998), Coddington (1993), Wasik (1996), Peattie (1992), Kuhre (1999), agrees on that there is causality between traditional marketing and environmental issues. Looking back to its history, emerging of environmental concept in developed countries was predicted by several factors such as visible signs of environmental contamination, spreading of green movements and launching green products. Environmental factor became more and more important at companies (Corbett and Wassenhove, 1993) as damages to the environment and other negative effects made a lot of people be worry about the environment. White (1967) as early as the 60s pointed out that the principle of the human dominancy over nature led to the environmental issues in the Western civilisation, in the Christian countries. In 1978 a new paradigm emerged instead of the dominant social paradigm, which was called New Environmental Paradigm (NEP) by its mental fathers, Dunlap and Van Liere (1978). NEP is made up of three distinct dimensions which are balance of nature, limits of growth and anthropocentrism (Dunlap and Jones, 2002). NEP as alternative social paradigm is considered to be the philosophical breeding-ground of ECM. Though ECM was in the limelight in the late 80s and early 90s, its emergence dates back earlier. The American Marketing Association held the first

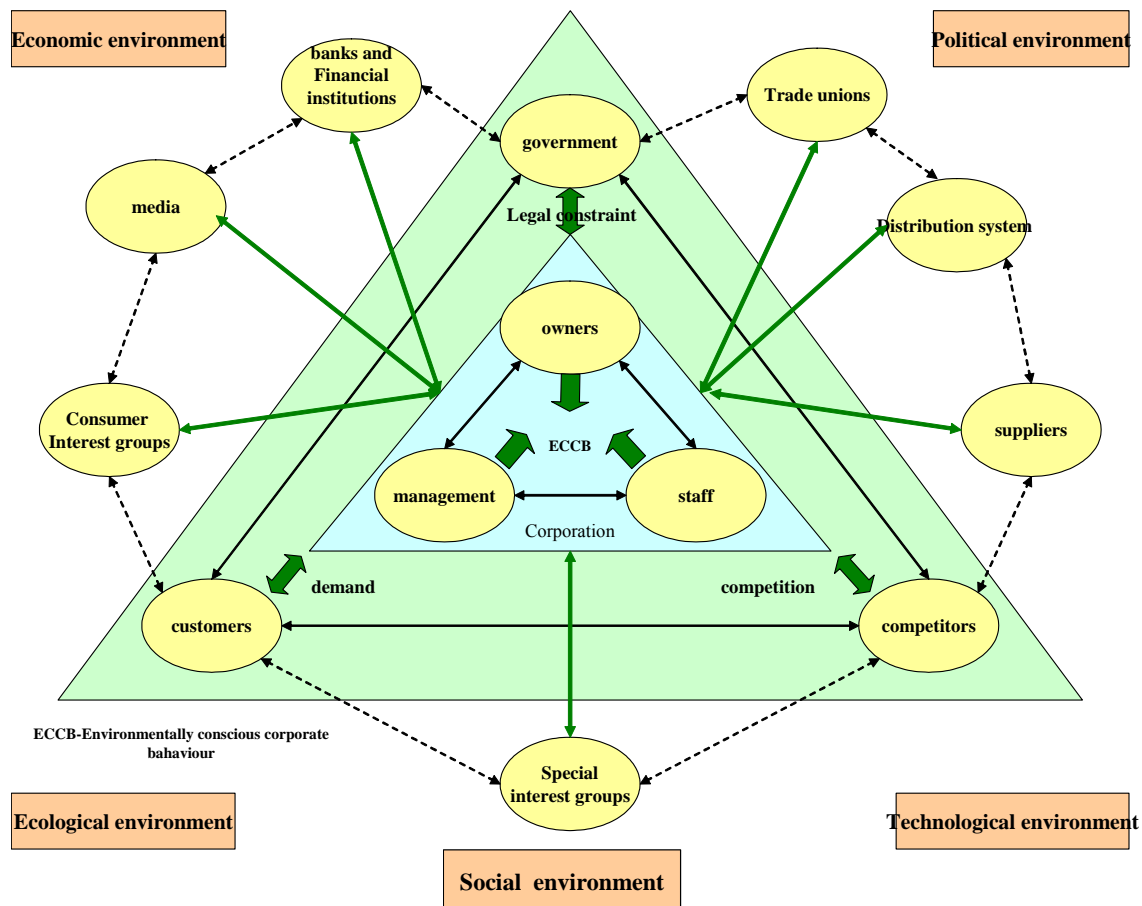
workshop on ECM in 1975, called 'Ecological Marketing' (Henion and Kinnear 1976). The following thesis stems from the above mentioned:

*T1. Emerging of ECM and its being in the limelight in developed countries in the 1990s is considered to be a rational answer of marketing theory and practice to the environmental issues induced by traditional marketing.*

# Thesis concerning the driving forces of ECM

I managed to construct the so-called driving-force model of ECM based on the synthesis of my own research experience and the empirical findings found in the literature, which illustrate the internal and external driving forces towards more environmentally conscious behaviour from the corporate perspective. In the hub of the model the manufacturer or/and services company was placed, which was further decomposed to the owners, the management and the employees.

I succeeded in distinguish three main driving forces based on Pujari's (1995) recommendations and my own research findings. These are legal constraint stemming from the governmental side, changes induced by the competitors' behaviour (power of competition) and consumer demand. Legal constraint and the power of competition are considered to be push-type force, while consumer demand is pull-type force. Besides there is a serious literature (Elkington, Knight and Hailes, 1991) of other less powerful and frequent forces influencing ECB, which were also included in my model. Our own research findings revealed that the most powerful driving force among Hungarian companies is legal constraint, followed by the power of competition and the consumer demand.



### Driving force model of ECM



The driving force model is focusing on the political, social, environmental, technological and economic aspects of the external corporate environment. Among the external forces are consumer protection associations, suppliers, the distribution system (wholesalers and retailers), trade unions, special interest groups, financial institutions, banks and the media. My consequences concerning their power and roles in ECB model were backed up by my research findings and the related literature. Having analysed the internal corporate relations I realized that forces toward ECB could stem from:

- the attitude and personal values of top-management (Nash, 1990)
- expectations of employees (Elkington, Knight és Hailes 1991; Greeno és Robinson, 1992; Winsemius és Guntram, 1992; Poltorzycki, 2001),
- shareholders, owners (White, 1999; Welford 2003).

Our own surveys revealed that the most important internal driving force of environmentally conscious corporate behaviour was the employees' expectations, who are often expecting improved working conditions from greening companies. Based on the above mentioned I made the following thesis:

***T2 Based on the synthesis of the empirical findings found in the literature and my own primary research findings I have constructed the driving force model of ECM which analyze the environmental factors influencing environmentally conscious corporate behaviour, the internal and external driving forces. In the model I have distinguished three main driving forces as follows: legal constraint, the power of competition and consumer demand.***

## **Thesis regarding environmentally conscious consumer behaviour**

### **Attitude**

When determining environmental attitude I used multi-component approach, so attitude must have been taken to parts according to Rosenberg and Hovland's (1960) recommendations to cognitive, affective and behavioural intention components. During the conceptualization phase of my own research I used Kaiser's (1999) methodology, which was based on the theory of planned behaviour and the probability approach. General approach of ECB made it possible for me to secure strong connection between environmental attitude (EA) and ECB. The general approach of ECB uses behavioural constraint and behavioural intention to analyze behaviour. Goodness of general approach of ECB was later empirically justified by Kaiser (1999) et al. when they found that relationship between general environmental attitude and general ECB remained consistent even in the case of members of ideologically very heterogeneous groups (greens and browns)

In order to confirm the multi-component approach of the environmental attitude I used principle factor analysis. The resulting components are considered to be the sub-components of environmental attitude. So the environmental knowledge component (EK) includes 4 sub-components of which EK1 is about air-pollution and heavy metals, EK2 is about causality, EK3 is about climate changes and EK4 is about the facts regarding the greenhouse effects. The value components was made of up two sub-components. In EV1 there were statements about the value of life and the right to exist, while in EV2 there were statements about the God and faith. Environmental behaviour intention (EBI) contains two sub-components, too. The one (EBI1) contains statements about car usage; the second one (EBI2) contains statements about legal constraints and financial burdens.

My findings confirmed that the multi-component approach of the environmental attitude is scientifically correct, as the variables representing knowledge, value and behaviour intention were mixed together in no component at all. This can be seen in the below table.

Attitude component	variable	Car usage	Right to exist	Air pollution and heavy metals	Faith and the God	causality	Financial burden, legal constraints	Climate changes	Polar Ice
		EBI1	EV1	EK1	EV2	EK2	EBI2	EK3	EK4
		1	2	3	4	5	6	7	8
EBI	AUTOLEMO	0,820							
EBI	CARSHOP	0,764							
EBI	CARUSEFU	0,747							
EBI	AUTOKERU	0,719							
EBI	REDLIGHT	0,644							
EBI	HOLIDAY	0,523							
EBI	NEXTCAR	0,416							
EBI	SEBKORLA	0,342							
EV	ÉLETÉRTÉ		0,720						
EV	LÉTJOGOS		0,674						
EV	ÁLLATJOG		0,657						
EV	KETRECBA		0,584						
EV	FÖLDÉRTÉ		0,399						
EK	OZON			0,648					
EK	ÜRÜLÉS			0,601					
EK	MFÉMVEGY			0,588					
EK	ÉGETÉS			0,535					
EV	FELELŐS				0,841				
EV	TERMISTE				0,809				
EK	KÖLCSÖNÖ					0,685			
EK	JEGHEGY					0,577			
EBI	KÖRADÓ						0,756		
EBI	PARKDIJ						0,666		
EBI	BELVAROS						0,430		
EK	KLÍMAVÁL							0,621	
EK	ÜVEGHÁZ							0,542	
EK	FAJOKSZA							0,536	
EK	SARKIJEG								0,750

Components after principle factor analysis (PFA, Varimax rotation Kaiser normalization. Iteration in 18 steps.)

\* Reverse coded statements (variables)

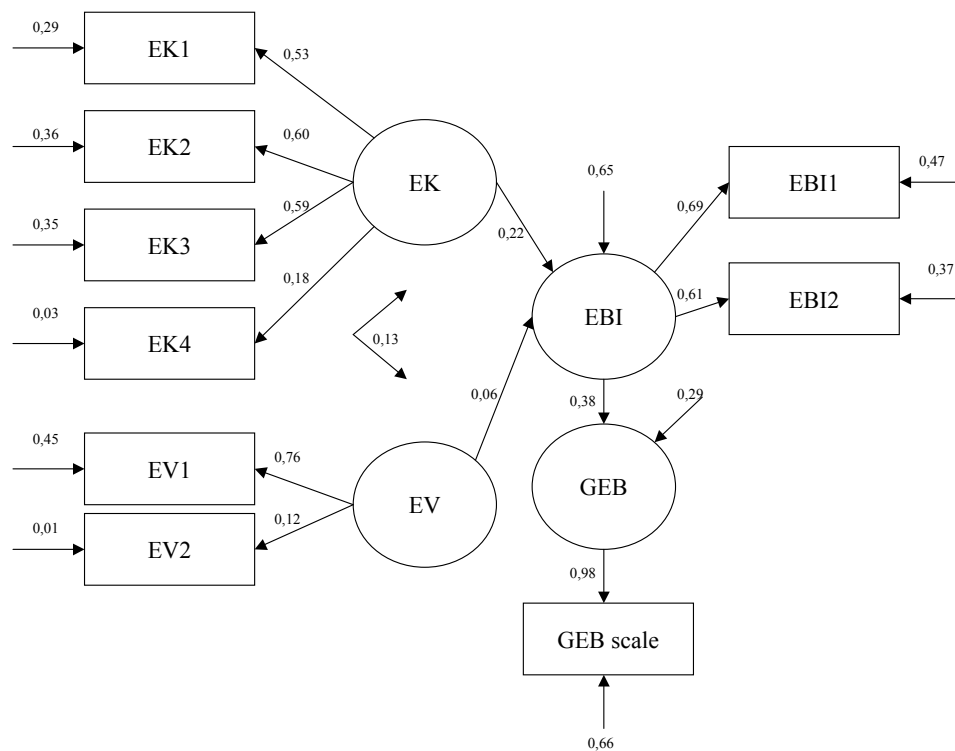
\*\*  $n=333$

Based on the above mentioned I formulated the next thesis:

***T3. I confirmed that the multi-attributive approach of the environmental attitude is methodologically correct based on my findings that variables representing knowledge, value and behaviour intention were found and organized in different factor sub-components. My findings revealed that the main components of the environmentally conscious attitude were further sub-grouped. The knowledge component is made up of 4 sub-components, while the value and the behaviour intention components include 2-2 sub-components.***

There are several examples in the literature that environmentally conscious behaviour intention and environmentally conscious behaviour are strongly correlated (Maloney and Ward, 1973; Maloney, 1975; Auhagen és Neuberger, 1994). Even in the worst case the correlation between them is moderate (Smythe és Brook, 1980; Hines, 1986/87; Moore, 1994; Diekmann and Franzen, 1995). The theory of planned behaviour is considering the effect of non-controllable behaviour variables. It is well-known that the theory of planned behaviour can be used effectively in the field of environmentally conscious behaviour (ECB) sciences as the ECB was influenced by several non-controllable variables (Hines 1986/87) e.g. external temperature (Olsen, 1981) and the type of dwelling (Verhallen és Van Raaij, 1981) can influence energy consumption.

In order to modelling ECB I used LISREL analysis. I used the eight attitude factor sub-components EK1, EK2, EK3, EK4, EV1, EV2, EBI1, EBI2) and the GEB-scale – measuring the responders' ECB - as input variables. In order to test the model and the hypothesis I used 4 latent variables, which were the three attitude components (EK- environmental knowledge, EV – environmental value and EBI – environmental behaviour intention) as well as the general environmental behaviour (GEB) predicted by the attitude components. To reveal the relationships among latent variables I used the path-diagram method in LISREL analysis. The model was empirically correct, as  $\chi^2 = 28.76$  ( $P = 0.12$ ), 21 degree of freedom; NNFI = 0.96 and RMSEA = 0.034.



The empirical model of environmentally conscious behaviour – LISREL diagram

Arrows represents the strength and direction of relationships. B-coefficient (standardized multiple regression) shows the strengths of relationships. Arrows w/o starting point represent Pearson correlation coefficient. Measurement error and the unexplained portion of the variance are represented by arrows w/o starting point.

By this model I managed to confirm that environmentally conscious behaviour intention (EBI), which is a function of the environmental knowledge (EK) and environmental values (EV), can predict general environmental behaviour (GEB). 35% of the variance of EBI was explained by two determinants: environmental knowledge (EK,  $\beta=0,22$ ) and environmental values (EV,  $\beta=0,06$ ). Correlation between the two determinants was not significant ( $r=0,13$ ). A single indicator explained 71% of the variance of environmental conscious behaviour, which was the environmental behaviour intention (EBI). Measurement error can decrease the strength of the effect of EBI on GEB. Therefore the explanatory power of EBI decreased to 46,86% after it has been cleaned from the effect of measurement error.

**T4. If environmental attitude is separated to knowledge-, value- and behaviour components, environmental knowledge and environmental values predict environmentally conscious behaviour intention. There is a significant relationship between environmentally conscious behaviour intention and environmentally conscious behaviour if both of them are assessed by general attitude approach and if the environmental behaviour measure model considers situational behaviour constraints.**

## Environmental values

The basis of environmental value surveys is the fact that every culture has those dominant values which every single member of the society learns during the socialization process. These dominant values are often communicated together with the main product features. These values determine which product will be popular, but at least accepted in a society. It is presumed that in cultures where environmental values are more dominant, environmental protection and consumption of environmentally friendly products have a greater importance for the customers. Dominance of environmental values can be manifested through consumption of environmentally friendly products. The original survey with which my survey was compared was part of an international comparative study entitled GOES (Global Environmental Survey). In the original and in my Hungarian survey a modified version of Schwartz's general value items (12 important pro-environmental behaviour related values) and economy-versus-environment items were used to clarify the value basis of environmental attitudes and pro-environmental behaviour, and to compare these among the study populations. The modified Schwartz items were developed by the George Mason University group (Stern, Dietz and Kalof 1993; Stern, Dietz and Guagnano 1995) into a twelve-item system that is especially relevant to environmental attitudes and behaviour. Environmentally not related values are not included in the logical framework of my survey, which facilitated my work. The modified Schwartz value items can be grouped into four categories: biospheric, altruist, traditional and egoist values. Biospheric values include unity with nature, respecting the earth, protecting the environment, while altruistic values include a world at peace, equality, and social justice. Egoistic values include authority, wealth, and influence. Traditional values include honouring parents and elders, family security, and self-discipline.

The three components, showing the value structure of our marketing students, resulting from the factor analysis is unique as the Hungarian value structure is not similar to any of those countries also involved in the surveys.

- Biospheric values can be found in a distinct factor-component only in Hungary. In any other cases these values are mixed with other values. In countries representing the Western cultures (USA and the Netherlands), in the Philippines (maybe due to the American effect) and even in Thailand biospheric values are mixed with altruist ones in a single factor-component, while in Japan biospheric values are linked to traditional ones.
- Traditional and altruist values can be found in the same component only in Hungary.

The three factor components made it possible for me to show them in a 3D-like chart. In the chart biospheric and egoist values are shown very far from each other, whilst altruist and traditional values are close to one another. The structure of the values in Hungary has serious marketing consequences. Since in our country the biospheric values are distinct from other values, environmental arguments used to enhance environmentally conscious behaviour should be based on biospheric values and they should not be mixed with other (e. g. arguments based on traditional or altruist values) arguments.

Japan*	Factor-weight	Holland*	Factor-weights	USA*, ***	Factor-weight	Thailand*	Factor-weight	Philippines*	Factor-weight	Hungary**	Factor-weight
<i>Factor 1 – Biospheric-traditional</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Traditional</i>		<i>Factor 1 – Biospheric</i>	
A world at peace	0,79	Respecting the Earth	0,72	Unity with nature	0,81	Unity with nature	0,80	Family security	0,85	Unity with nature	0,83
Family security	0,87	Unity with nature	0,70	Respecting the Earth	0,74	Self discipline	0,72	Honouring parents and elders	0,76	Respecting the Earth	0,79
Respecting the Earth	0,65	Protecting the environment	0,63	Protecting the environment	0,81	Protecting the environment	0,63	Self discipline	0,71	Protecting the environment	0,79
Protecting the environment	0,61	Social justice	0,53	A world at peace	0,69	Equality	0,61	A world at peace	0,66		
Honouring parents and elders	0,46	A world at peace	0,52	Equality	0,64						
		Equality	0,48	Social justice	0,59						
				Helpfulness	0,55						
				World of	0,53						

Eigenvalue 3,308	Eigenvalue 3,038	beauty <i>Belonginess</i> 0,43	Eigenvalue 3,496	Eigenvalue 4,064	Eigenvalue 3,760
<b>Factor 2 - Altruist</b>	<b>Factor 2 - Egoist</b>	<b>Factor 2 - Egoist</b>	<b>Factor 2 - Traditional</b>	<b>Factor 2 - Biospheric-altruist</b>	<b>Factor 2 - Traditional-altruist</b>
Influence 0,62	Authority 0,79	Authority 0,67	Family security 0,76	Social justice 0,68	Honouring parents and elders 0,83
Equality 0,58	Influence 0,76	Wealth 0,48	Respecting the Earth 0,63	Unity with nature 0,68	Family security 0,68
Self discipline 0,58	Self discipline 0,30	Influence 0,44	Honouring parents and elders 0,63	Equality 0,62	A world at peace 0,61
Social justice 0,56		Social power 0,62	A world at peace 0,60	Respecting the Earth 0,49	Social justice 0,50
Unity with nature 0,52			Social justice 0,49		Self discipline 0,49
					Equality 0,45
Eigenvalue 1,342	Eigenvalue 1,452		Eigenvalue 1,617	Eigenvalue 1,545	Eigenvalue 2,123
<b>Factor 3 - Egoist</b>	<b>Factor 3 - Traditional</b>	<b>Factor 3 - Traditional</b>	<b>Factor 3 - Egoist</b>	<b>Factor 3 - Egoist</b>	<b>Factor 3 - Egoist</b>
Wealth 0,79	Family security 0,72	Honouring parents and elders 0,85	Authority 0,78	Wealth 0,73	Authority 0,86
Authority 0,78	Wealth 0,66	Family security 0,62	Influence 0,70	Authority 0,70	Influence 0,84
	Honouring parents and elders 0,52	Self discipline 0,56	Wealth 0,62	Influence 0,68	Wealth 0,73
		Honesty 0,71			
		Obedience 0,54			
		Orderliness 0,49			
		Politeness 0,46			
		Social order 0,46			
		Loyalty 0,40			
1,097 48%	1,151 47%		1,160 52%	1,102 56%	1,078 58%

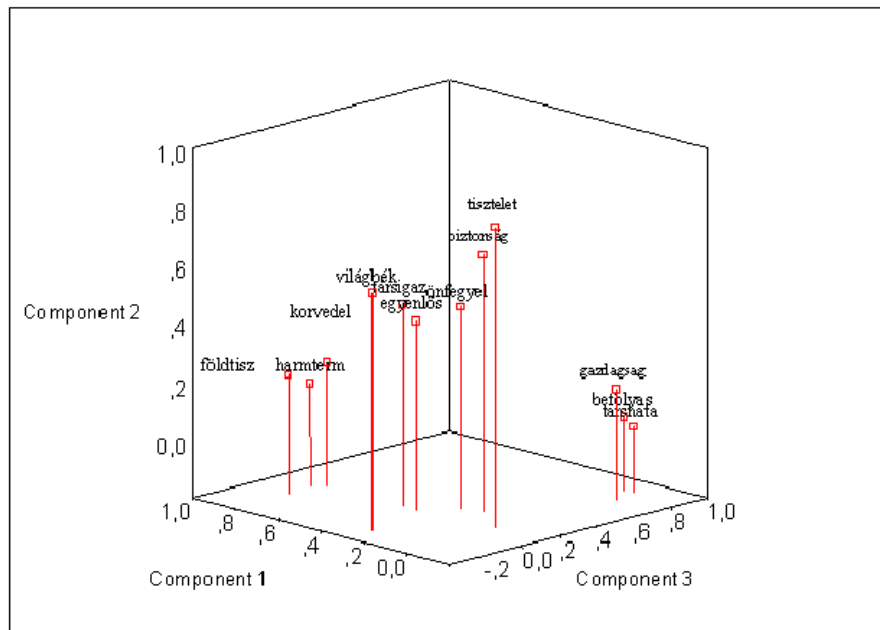
Table 3- Schwartz's value items factor components (method: Principal Factor Analysis)

\* Source: Aoyagi-Usui, Vinken és Kuribayashi (2003), *Human Ecology Review*, Vol. 10, No. 1, \*\* my own research in Hungary, \*\*\* George Mason University Group results (see Stern, Dietz and Guagnano, 1995). This survey included more than 12 items. Extra items are put in italics.

Based on the above-mentioned I formulated the next thesis:

***T5. The analysis of the modified Schwartz value items revealed that the structure of values in Hungary is unique since biospheric and egoist values were grouped in one-one single factor component, while altruist and traditional values were mixed in a third different component. The structure of values of this kind cannot be found in the case of any other country, so neither in the case of USA and the Netherlands representing the developed Western Christian culture, nor in the case of Japan representing the developed Eastern Buddhist culture, nor in the case of the developing, Buddhist Thailand, or nor in the case of the developing, mostly Catholic Philippines.***

## Component Plot in Rotated Space

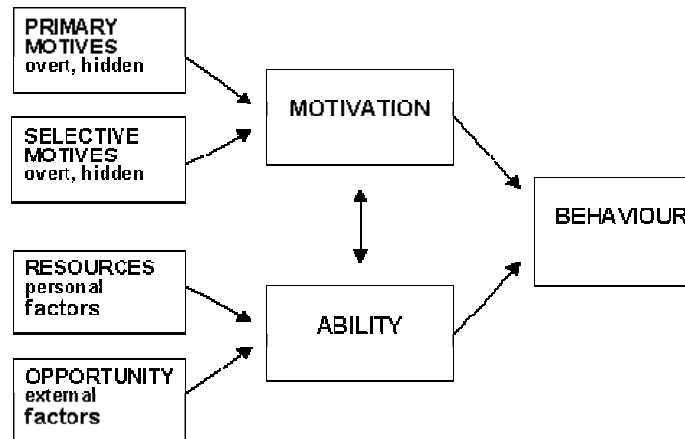


*The modified Schwartz value items in the rotated space*

## Motivation

According to the literature, it can be generalized that even in the case of a customer's having environmentally conscious values and attitudes it is probable that she or he will not behave in an environmentally friendly way in her/his consumption patterns (Moisander 2002). These barriers are usually attributed to the motivational complexity of green consumption. My purpose was to analyze and discuss this motivational complexity of ecologically oriented consumption and to suggest some reasons why green consumers are sometimes willing and sometimes not willing to engage in environmentally responsible behaviour. The underlying assumption usually present in conceptualizations of 'motivation' holds that consumer behaviour is purposive; in other words, that people aim to satisfy needs or to attain some goals. Nevertheless, it is usually accepted that the associated motives can be both overt and hidden, i.e., consumers may or may not be aware of their motives for a given behaviour. An important distinction is usually made between primary motives, the purposes behind consumers' decisions to engage or not to engage in entire classes of behaviour (to engage in ecologically responsible consumer behaviour), and selective motives, which refer to the purposes behind consumers' decisions as to exactly which particular behaviours they want to engage in (recycling, saving energy, buying eco-products, etc.).

In addition to motivation, consumers' behaviour is usually assumed to be determined by their ability to perform behaviour. Ability refers to personal resources within the consumer needed to perform the behaviour, as well as to opportunity, which is determined by aspects of the immediate environment and refers to various external factors that impede or facilitate behaviour. Consumers' perceptions of their ability or the degree of behavioural control they have in the action situation is usually also postulated to influence both the strength and direction of their motivation to engage in a given behaviour. In other words, people are not always motivated to do something for which they lack the necessary resources and opportunities. Moreover, strong motivation is generally presumed to enhance people's abilities and, also, their perceptions of the behavioural control they have.



*Motivation and behaviour (Moisander, 2002)*

In my research I analysed ability and motivation together. In the questionnaire I used there was an open question asking the respondent why she or he behaves in an environmentally conscious way or not. Response rate was quite high with more than 90%. Responses given revealed that the main reason for ECB is that the cleanliness of their home, the place where they are living and its close environment is very important for them. The most important primary motives of ECB were the importance of the place where I am living, followed by the preference for living a healthy life, and the caring for our descendants. Among further primary motives are the preferences for sustainability, meeting with ethical standards and the fear of the effect of damage to the environment.

The most important selective motives are selective waste collection, consumption of environmentally benign products and using mass transport systems. But we can find here the non-littering, the participation in re-use and encouragement of environmentally friendly products – even if just to a little degree.

When analysing ability, I try to find the most important resources and opportunities. The most prominent and most frequently answered constraint was the so-called ‘missing opportunities’ e.g. the not appropriate conditions. Many of the respondents is not behaving in an environmentally friendly way as they do not intent to give using their car, or environmental protection is not important in their life. Among personal factors the convenience and the effect of the different socialization can be mentioned. Anyway, it is clearly been seen that ability is primarily strongly negatively affected by limited opportunities (I cannot choose but buy non-environmentally friendly products, They are still so expensive in Hungary, etc.)

Motivational factor: „I behave in an environmentally conscious way because...”	Mention rate
1 The cleanliness of my home (the place I live) is very important for me.	17%
2 (where and however much I can) I protect my precincts.	11%
3 I participate in selective waste collection.	10%
4 It is important for me to live a healthy life.	8%
5 I try to buy environmentally friendly products	7%
6 I use the public transport system.	7%
7 I care of my children by doing so, too.	4%
8 I do not waste.	4%
9 I am a supporter of the sustainable development	3%
10 I use paper sacks several times.	3%
11 I can do my best.	2%
12 It is our common objective in the long term.	2%
13 I see it at home.	2%
14 It is important for me to live in an environment where everything is in order	2%
15 Think of my grand-children.	2%



16	If we did not care about the environment, who else would care.	2%
17	If we ruin the environment, it will ruin us, too.	1%
18	I encourage others to buy environmentally friendly products.	1%
19	Warn others to protect the environment	1%
20	Sometimes I fund to help saving animals	1%
21	I do not throw out used batteries	1%
22	I do not pollute the air.	1%
23	I do not buy products tested on animals	1%
24	I try to save energy.	1%
25	By doing so I can save money, and it is more comfortable and clean for me	1%

	Ability: „I do not behave in an environmentally conscious way because...”	Mention rate
1	I have got no opportunity to do so.	22%
2	I often use my car.	17%
3	Environmental protection is not important for me at all.	15%
4	Use the modern technological achievements even if they are not environmentally friendly ones	11%
5	It is more convenient for me to do so	9%
6	I cannot choose but buy non-environmentally friendly products	7%
7	It is rather expensive in Hungary	5%
8	Other way some do not work properly, or have been finished in time	4%
9	I am not in environmentally friendly manner socialized	3%
10	I do not always use environmentally friendly products	2%
11	I am not enough motivated, committed and fanatic	2%
12	I do not participate in selective waste collection	1%
13	I live a life in which environmentally friendly consumption is not in the centre	1%
14	I feel as if I would be a fleck of dust in the process	1%

It must be emphasized regarding the marketing consequences of motivation that knowing the motives and abilities we can formulate the arguments and methods by which the customers' environmental consciousness can gradually be increased. Its precondition is to create opportunities (i.g. broad selection of environmentally friendly goods should be available on the shelves, placing waste-collection islands, etc.)

This is the basis of my next thesis, which is:

***T6. The most important primary motives of the environmentally conscious behaviour are the protection of the environment where our home is situated, followed by the preference for healthy life and caring for our children. The most frequent selective motives are the selective waste collection, buying environmentally friendly products and using the public transportation system.***

## Demographic variables

Demographic variables are broadly used – especially in segmentation – in assessing environmentally conscious behaviour. It can partially be explained by their easy to use nature, but researchers often use them along with different psychological variables (attitude, motivation, behavioural). During the 1980-90s the marketing community made big progress regarding understanding socio-demographic variables (see Jones and Dunlap, 1992; Lowe and Rüdiger, 1986; Milbrath, 1984; Stern and Dietz, 1994; Van Liere and Dunlap, 1980; Van Liere and Dunlap, 1981). Research findings concerning the existence, strength and direction of relationships are rather inconsistent (Olli, Grenstad and Wollestad, 2001).

My own research (Piskóti and Nagy, 1998) analysed the possible relationships between ECB and the classical demographic variables plus marital status, number of children, participation in civil organizations. Although married are a little bit inclined to ECB, it has not predictive power as there is no significant relationship between marital status and ECB. There is no significant correlation between the number of children and ECB, and participation in civil organizations has also no effect on ECB.



Our questionnaire survey used the following demographic variables:

Variable	sex	age	Place of living	Marital status	Number of children	education	income	civil	Political view
Correlation	0,21	0,05	-0,08	0,06	-0,11	0,22	0,12	-0,03	0,05

I composed the next thesis based on the above-mentioned:

***T7. Demographic variables are inadequate predictors of environmentally conscious behaviour, therefore it is not advisable to use them in customer segmentation. Based on the literature and the findings of my empirical researches it is stated that there is only weak correlation between demographic variables and environmentally conscious behaviour and the different research findings are often inconsistent regarding the effect of demographic variables on behaviour.***

## Temporal changes of ECB

Analysis of the youth' environmentally consciousness is very important as they are who can behave in an environmentally friendly manner in their workplaces and families. In my most relevant research in 2004 respondents were selected from age group 20-25. Since there is significant positive correlation between ECB and education, I presumed that respondents will behave in a more environmentally friendly manner as the average do. The 1998 sample included respondents from the same age-group (20-25) in almost the same number, which made it possible for me to compare the change in level of ECB from 1998 to 2004. The distribution of the two samples according to the education variable was almost the same. I compared two samples where my data came from different respondents, therefore I had to use 2-sample t-test. To confirm that the difference between the results of the two sample is not caused by chance, the 2-sample t-test was the correct method. We can use 2-sample t-test only if there is no difference between the variances of the two samples. To answer this question we must use F-test. Here calculated value of F, i.e.  $F(\text{cal.}) = 0,3618/0,3845 = 1,0627$  based on the below table:

		KTV98	KTV04
N	valid	329	333
	missing	4	0
variance		0,3845	0,3618

Since F calculated value (1,0627) is smaller than F table value (app. 1,09) at 328 and 332 degree of freedom level, therefore we can say that the variance of the samples are not different from each other, so I could continue my analysis with the 2-sample t-test.

### Group statistics

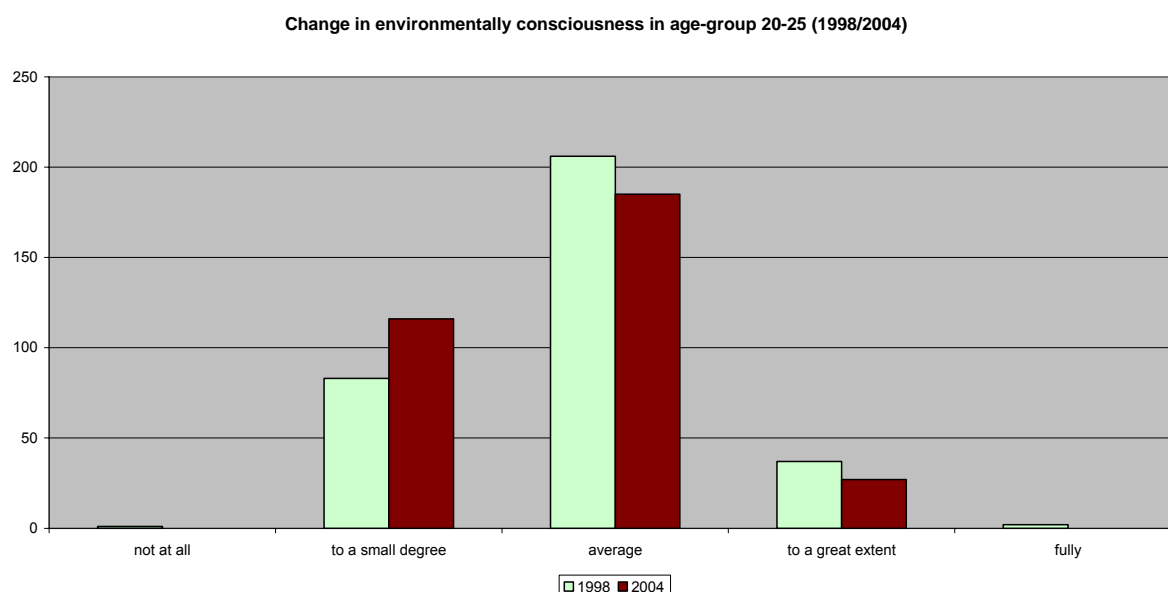
Sample	N	Average	St. deviation
ECB 1998 sample	329	2,8663	,6201
2004 sample	333	2,7267	,6015

### Test of independent samples

	F test		t- test		
	F	probability	t	Degree freedom	ofTwo-sided probability
Assuming equal variance	5,282	,022	2,939	660	,003
Not assuming equal variance			2,938	658,813	,003

Probability of F-test is 0,022, which is smaller than 0,05. Therefore nil-hypothesis must be rejected, and t-test not assuming equal variance must be used. Since t calculated value is 2,938 and its probability is 0,003 at 518,813 degree of freedom level, which is smaller than the level of significance

(0,05), nil-hypothesis must be rejected. It means that the behaviour of the respondent in the 1998 sample was significantly more environmentally conscious than that of the respondents in the 2004 sample.



The level of environmental consciousness in age-group 20-25 has significantly decreased from 1998 to 2004 as the number of fully or to a great extent environmental conscious people is much lower than it was in 1998, and the number of people with only a little environmental consciousness was increased dramatically. Based on these facts I made the following thesis.

***T8. Comparison of my 1998 survey results with those of 2004 revealed that the level of environmental consciousness among university students in age-group 20-25 has significantly been decreased.***

As for my research plans for the future, I have got several research projects in mind, which could be possible steps further. I plan to analyze if there exist a Hungarian approach in environmentally conscious marketing, and if so what characteristics it has got. Besides this I plan to do a research in the field of values and cross-cultural comparisons. So I try to repeat the questionnaire survey year by year in order to track the changes in environmental consciousness, re-structuring of values and changes in attitudes.

I would like to make environmentally conscious marketing popular in a broader circle as well. In my mind there is a plan for publishing a book on ECM in which from students to political decision makers could be interested.

Last, but not at least, I hope that my existing and future researches will help to create a more sustainable, happier and harmonious world.

## IV. Publications, presentations and grants

### Publications

1. Szabolcs Nagy: Environmentally conscious marketing, Diploma work, University of Miskolc, Faculty of Economics, 1994.
2. Szabolcs Nagy: Environmentally conscious corporate marketing in practice, Diploma work, University of Miskolc, Faculty of Economics, 1996.
3. Szabolcs Nagy: New product development in ECM (Hungarian Marketing Workshops' third Conference, Keszthely, 1997.)
4. Szabolcs Nagy - Tamás Szabó: Green marketing in theory and practice (1st International Conference of PhD Students, Miskolc, August 11-17, 1997.)
5. István Dr. Piskóti – Szabolcs Nagy: Environmentally conscious marketing – Environmentally consciousness of the Hungarian population – based on the findings of a research (Marketing Teachers Conference: Tradition and renewal in the Hungarian marketing education, Pécs, 1998., 118-130. pages)
6. Szabolcs Nagy: Environmentally consciousness of the Hungarian Customers (Hungarian Marketing Workshops' 4th Conference, June 3-5., Keszthely, 1998, 125-148. pages)
7. Szabolcs Nagy: Environmentally conscious consumer behaviour (PhD students' Forum, in The day of the Hungarian Science, Miskolc, November 6., 1998, 38-53. pages)
8. István Dr. Piskóti – Szabolcs Nagy: Environmentally conscious marketing - Environmentally consciousness of the Hungarian population, Survey Report, 1998
9. Szabolcs Nagy: The information sources of the environmentally friendly products in Hungary, - where from our customers do get information about them? (Marketing Symposium, Miskolc, 1998., 93-100. pages)
10. Szabolcs Nagy: Environmental Marketing (2nd International Conference of Ph.D Students, Miskolc, August 8-14, 1999)
11. István Dr. Piskóti –Szabolcs: Survey on the environmentally conscious corporate behaviour in Hungary – Survey report, 1999
12. Szabolcs Nagy: The role of environmentally friendliness in product policy (Marketing Symposium, Miskolc, 2001)
13. Szabolcs Nagy: Green Consumer Behaviour in Hungary (Application of Management Theory in Practice, Proceedings, ISBN 80-969181-0-9)
14. Szabolcs Nagy: Whom do we educate? (2nd Central East European Exhibition Forum, Brno, Follow-up CD)
15. Szabolcs Nagy: From evolving of ECM to the trends, Part 1 (Technológia és gazdaság felsőfokon, online published, Verlag Dashöfer Kft., [http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk\\_id=19&wa\\_nr=0&uid=0](http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk_id=19&wa_nr=0&uid=0), 2004 January.)
16. Szabolcs Nagy: From evolving of ECM to the trends, Part 2 (Technológia és gazdaság felsőfokon, online published, Verlag Dashöfer Kft., [http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk\\_id=19&wa\\_nr=0&uid=0](http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk_id=19&wa_nr=0&uid=0), 2004 February)
17. Szabolcs Nagy: The driving forces of ECM (Technológia és gazdaság felsőfokon, online published, Verlag Dashöfer Kft., [http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk\\_id=29&wa\\_nr=0&uid=0](http://tg.dashofer.hu/index.php?menu=mintaszamcikk&cikk_id=29&wa_nr=0&uid=0), 2004 March)
18. Szabolcs Nagy: The well considered marketing plan (Vállalkozás-online portal, [http://www.vallalkozas-online.hu/marketing\\_terv.htm](http://www.vallalkozas-online.hu/marketing_terv.htm), September 24, 2004)
19. Nagy Szabolcs: The value oriented approach of environmentally conscious behaviour (Marketing Symposium, Miskolc, December 9, 2004)

**Presentations**

1. Szabolcs Nagy - Tamás Szabó: Green marketing in theory and practice (1st International Conference of PhD Students, Miskolc, 1997, August 11-17., poster presentation)
2. Szabolcs Nagy: Conceptualization of Research in Environmental Marketing, Teesside University, Middlesbrough, UK, 23 November, 1997
3. István Dr. Piskóti – Nagy Szabolcs: Environmentally conscious marketing – Environmentally consciousness of the Hungarian population – based on the findings of a research (Marketing Teachers Conference: Tradition and renewal in the Hungarian marketing education, Pécs, 1998.)
4. Nagy Szabolcs: Environmentally consciousness of the Hungarian Customers (Hungarian Marketing Workshops' 4th Conference, June 3-5., 1998, Keszthely)
5. Nagy Szabolcs: Environmental Marketing (2nd International Conference of PhD Students, Miskolc, August 8-14, 1999, poster presentation)
6. Szabolcs Nagy: Green Consumer Behaviour in Hungary (Application of Management Theory in Practice, Kosice, Faculty of Business Economics in Kosice, University of Economics in Bratislava, February 6, 2004)
7. Szabolcs Nagy: Whom do we educate? (2nd Central East European Exhibition Forum, Brno, Czech Republic, February 22-23, 2004)
8. Szabolcs Nagy: The value oriented approach of environmentally conscious (Marketing Symposium, Miskolc, December 9, 2004)

**Work experience**

1. 1996: Green Marketing Research Project, University of Miskolc, Department of Marketing
2. 1998: Green Marketing – Survey on the environmentally conscious behaviour of the Hungarian population, University of Miskolc, Department of Marketing, research project
3. 1999: Environmentally conscious corporate behaviour, University of Miskolc Department of Marketing, research project
4. 1999-2002: sales and marketing leader, Shinwa Precision Hungary Kft.: participation in the introduction and operation of the environmentally-oriented quality systems in a supplier in the car industry; participation in the introduction of the environmentally friendly distribution system (optimisation, waste-management, etc.)
5. 2004. June-: ISPA Miskolc Regional Waste Management Project, project staff

**Grant**

1. Teesside University, Middlesbrough, UK, 1 November – 10 December, 1997

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