Green Marketing—Motivation of Environmental Consumer Behavior*

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This article deals with the current possibilities of green marketing and environmental issues. It explains the basic characteristics, historical development, and current trends. The area of environmental management offers additional options to competition and gains a stable position in the market. The attitudes and behaviors of consumers are changing in favor of environmentally oriented purchases with increasing environmental knowledge. However, surveys show that consumers still need an effective education for environmentalism to be effectively developed. Therefore, green marketing is earmarked from the examined area. The aim of this paper is based on analysis, synthesis, and a personally conducted survey to map the environmental consumer behaviors (n = 261 respondents; n = 129 respondents “face to face”; n = 132 online respondents) on the Czech market, followed by comparison with relevant local and foreign research and based on the collected data to provide recommendations for further development of green marketing. The article also builds on hypotheses that confirm or disprove the dependability between relationship to environmentalism and sensitivity to different types of marketing tools by the test of independence. Another hypothesis is based on test of coincidence (X²-test), which confirms or refutes if the position on ecological behavior is distributed evenly among respondents. The results show that there is no dependability between the relationship of respondents to the environment and sensitivity to any type of advertisement and the relationship to the environment are not evenly distributed. The survey shows that users of the Internet have more positive relationship to the environment as well as environmental protection. This means that it is possible to include this fact in the marketing strategies. It can be said that the environmentalism affects all the areas of life, including production, trade, and promotion of goods. Marketers must count with these new aspects of enterprise.

Keywords: green marketing, environment, environmental product, environmental management, environmental consumer behavior, new trends and tools of marketing

Introduction

Environmental issues are beginning to influence part of human activities more and more and this proportion is increasing the interest in the society to inquire about how to protect the environment. One way to help the current ecological situation which can be carried out by each individual consumer is buying less

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environmentally harmful products (Karpissová, 2007).

The concept of green marketing started to appear already in the 1980s and especially in 1990s in European countries. In very simple terms, this is a type of marketing, which involves a group of products that are considered environmentally safe. In a broader sense, it also includes a wide range of activities relating to the manufacture, packaging, advertising, distribution, etc. Another term for this segment of marketing can also be environmental marketing (Ward, 2012).

In green marketing, it is not possible to apply the same procedures as in the principles of traditional marketing. Green marketing is more complex in comparison with the traditional tools of marketing whose aim is to develop such products which have a minimum impact on the environment. Therefore, it is essential that marketers work on further development of green marketing, it can be done with activities that can attract other potential customers who can significantly contribute to the environmental protection. It turns out that green marketing begins to occupy a completely indispensable position in the field of environmental business.

According to Grant, for the greenest marketing, we need to add cultural outcomes as the third criterion: commercial outcomes, environmental outcomes, cultural outcomes. Achieving all three of these outcomes means a radically new approach. Fortunately, the groundwork of this sort of marketing has already been laid, by the emergence of what is described as New Marketing over the past ten years. (Grant, 2007, p. 20)

The typical pressure on the environment is exerted by the government through its legislation. Another sources of environmental requirements are the public and market. The most effective is consumer pressure that influences the marketing decisions of managers of the companies. It should be noted that the correct definition of the term green marketing is a complex problem in the social context. The main reason is that there is a clash of a number of social, economic etc. interests. In some cases, these concepts go against each other and their alignment creates friction and resentment of stakeholders.

Environmental issues are increasingly becoming part of many discussions and some scientific disciplines incorporate environmental issues into their work. This is an example of marketing. In green marketing, it cannot be applied to the same procedures as in the principles of traditional marketing. Traditional marketing philosophy is based on the idea that business success stems from identifying and meeting customers’ needs.

The shortcomings of the traditional marketing are the facts that it includes only these two factors and neglects many other aspects that now play a role in purchasing decisions. Green marketing is more complex compared with the traditional tools of marketing whose aim is to develop products which have a minimum impact on the environment. Green marketing differs mainly from the traditional marketing in factors such as the promotion of environmentally friendly products, recycled materials, biodegradable materials, energy-efficient technologies, etc. (Charter & Polonsky, 1999).

The introduction of green marketing in practice is very difficult and expensive, which is reflected in the final price of an eco-product. For example, the price of organic foods is up to twice the price of traditional foods. A higher price may seem inconvenient in the short term, but in the long term there are cost savings (e.g., fines for environmental pollution, energy savings etc.) due to the underlying action (Matějovský & Vonšovská, 2007).

Materials and Literature Review—Theoretical Framework

It has been said that the promotion and enforcement of environmental aspects into life is complicated. But definitely it is not just a fashion of a few individuals, but a necessity caused by the need to protect the
environment. This is evidenced by the fact that more and more people realize that developed and still expanding production and the associated increase in energy consumption have been putting a high burden on the environment.

It is not enough for considering ecology just as a hobby, but these objectives penetrate the consciousness of the general public. To reverse this trend in the economy is green marketing, whose mission is targeted at promotion of all aspects of environmental protection, environmental thoughts, and environmental performance. The society begins to realize that good environmental sustainability can no longer be only an empty corporate slogan. Healthy and responsible consumer behaviors come to the forefront as a necessity. The traditional understanding of green marketing is limited to environmentally friendly consumer products, so it must be emphasized that the concept of green marketing is now much wider. It also involves industrial products and services (e.g., ecotourism), packaging materials, as well as changes in production processes (Matějovský & Vonšovská, 2007).

The role of green marketing is the promotion of this type of consumer habits that on the one hand lead to environmentally friendly production and on the other hand will create demand for targeted products whose production and use forms pressure on manufacturers and suppliers. A positive feature of this effort is that despite opposition from the beginning we meet with a friendly approach. Production and everything you eat is related to experiencing restructuring.

Jaquelyn A. Ottman in his book *The New Rules of Green Marketing* describes new directions in which today’s society follows the environmental issues. She defined 20 new rules that create current form of green marketing. We will mention at least the most apposite ones:

- **Green is a mainstream.** Not too much, just a small number of deep green consumers exist. Today, 83% of consumers—representing every generation, from Baby Boomers to Millennials and Gen Ys—are some shade of green. Moreover, there are now finely defined segments of green consumers.

- **Green is cool.** Once a fashionable preoccupation of the fringe, green is not only a mainstream, it is chic. In fact, green consumers are really adopters and leaders who influence purchasing behavior. Celebrities and other cool types generally espouse green causes.

- **Greener products work equally or better—and are often worth a premium price.** Green inspires innovative products and services that can result in better consumer value, enhanced brands, and a strong company. Manufacturer and retailer reputation count now more than ever. In addition to looking for trusted brand names on supermarket shelves, consumers are now flipping over packages, saying, “Who makes this brand? Did they produce this with high environmental and social standards?”.

- **Sustainability represents an important consumer need and is now an integral aspect of product quality.** Green is no longer simply a market position. Products need to be green. Brands need to be socially responsible. The greenest products represent new concepts with business model with significantly less impacts.

- **The brands consumers buy and trust today educate and engage them in meaningful conversation through a variety of media, especially via websites and online social networks.** Talking “at” consumers through traditional media and paid advertising cannot build loyalty among empowered consumers in a connected world.

- **Green consumers are strongly influenced by the recommendations of friends and family and trusted third parties.** “With rampant cynicism about traditional forms of advertising and backlash in place against perceived green washing, savvy marketers leverage purchase influencers and third parties” (Ottman, 2011).
**Formula of Purchasing Behavior**

In order to achieve the greatest effects in the environmentalism, it is not enough to focus only on production and sales but also to stimulate consumer behaviors. There has been some progress as well as from customers resound requirements for products reflecting the environmental rules. It requires a response to this demand. Although everyone knows and is convinced of the correctness of this path, there are not many of those who have a clear idea of how to do it. One of the challenges of green marketing is the definition of goals and means of how to work them out. Before their determination extensive surveys and observations need to be carried out that help to identify more broadly the applicable patterns, assuming a sustainable lifestyle.

Ecological view of the world, responsible lifestyle or sustainable consumption are now not just a media issue, but in an advanced society they are becoming a part of the election programs of political parties. It might be assumed that ecology and sustainability of a healthy lifestyle will have considerable priority in the everyday life. Numbers of surveys have repeatedly shown that up to two thirds of people that are interested in this issue are trying to adapt their behaviors to it. However, the question remains to what extent this is a true statement and to what only a proclamation. The majority of respondents in surveys on the subject say they are able to sacrifice part of their comfort in the interest of ecology or even pay a higher price for the goods taking into account the environment. It would be interesting to see how this statement coincides with reality in practice.

**Environmental Theory and Practice**

To the question of whether people really care about the environment, as publicly reported, a partial answer is given by the situation before the recent regulations and ban of the European Union on production and imports of traditional light bulbs.

Before this regulation, customers started buying supplies of traditional light bulbs despite all the rational arguments in favor of saving lamps. For the sake of objectivity, it should be noted that the irrational behaviours in this case do not occur only on the consumer side. Due to the fact that the European Union prohibits only the production but not the actual sale, many retailers have already stocked up so that the practical effectiveness of this measure will have a considerable delay.

Statistical data indicate that the increase in sales of light bulbs in various retail chains was by 27 to 150%, just before the application of the law. This means that although people say they are ready to change their habits due to sustainability of the environment, in confrontation with the reality it looks quite different.

In most cases the respondents state that it could be healthier for the environment to do more. But other issues, going into more details, show that their ideas are rather vague and superficial. The matters falling within the green marketing are accompanied by a number of ideas and myths, which illustrate views of organic foods. Many buyers believe that organic foods are healthier than conventional food despite the fact that this has not been confirmed by any reliable research.

Another stereotype is that all products from natural raw materials must be clearly healthy. This simple logic is reflected by the idea that Nokia and IKEA are considered to be green brands as they are from Scandinavia, which is understood as more advanced in this respect (Hloušek, 2012).

It often happens when people tend to have greater confidence in local or regional companies, which are considered to be better known. It also includes companies that present themselves as socially responsible or those whose primary motive is not making a profit. It cannot be said that those parameters exclude these companies as environmentally responsible but it cannot be considered as conclusive evidence because the
whole issue is much wider and more difficult.

**Orientation in Environmental Issues**

The previous data show that there is interest in environmentalism and sustainability of its principles but that it is difficult to be well informed about this topic. Everyone knows that this is the correct trend but is not able to properly grasp the issue or denominate it. It is obvious that everyone or at least the majority of consumers would like to decide correctly but are not prepared to compromise. It often happens that the ecological product has slightly worse properties or is more expensive.

Green marketing should appeal especially to people’s needs and not only operate with difficult environmental theme. The business sector has captured this trend and is beginning to change its thinking and behavior to be able to meet the demands of new consumer interests. Companies should realize that pure statements and proclamations are not enough, which may sound untrustworthy, but you need to present concrete steps. It does not make sense to mention this issue if it is not meant seriously or the company has nothing to do with it.

**Are the Environmental Benefits of Product a Competitive Advantage?**

Product differentiation in the environmental sense can become a competitive advantage over other comparable products. But this fact cannot be taken for granted, as the introduction of organic products does not automatically take precedence, and if so, subjective perception by customers should also be taken into account (Čech, 2007).

Media play a big role in green marketing as they can promote trust in organic products but also weaken it. Experts and data confirm that new marketing opportunities are created with new ways of marketing. The market for environmentally friendly products will grow due to greater awareness and consciousness. As environmental awareness is increasing worldwide, end-consumers are just becoming one of the main motives for promoting environmental strategy of products.

**Perception of Environmental Topic and Factors Influencing Consumer Behavior**

The perception of environmental issues is probably affected by many different factors that significantly influence the purchase decisions. Purchasing behaviors and decision-making process can be divided into several basic categories that should be respected and built on in planning the marketing strategies:

- **Customary purchase decisions**—the normal everyday shopping needs, buying products without deeper reflection, which are routine and automatic;
- **Impulsive purchasing decisions**—lead to immediate purchase, it can be influenced by emotional behaviors and caused by a spontaneous impulse. For example, attractive goods that are displayed in a tempting way, the current desire of the buyer, etc.. This is not usually a product that would be a great financial risk;
- **Extensive purchasing decisions**—occur when buying more expensive products with long-term utility value, which bear a financial risk in case of a wrong decision. The buyer carries out market analysis and comparison of different offers, and then a decision is made;
- **Limited (simple) purchase decision**—the purchase decision-making process is limited and short. The customer decides to buy when a product associated with his/her expectations is found and already does not consider other alternatives. Other reasons for such limited decision-making process may be limited choices, lack of time, convenience, financial limits, etc. (GreenMarketing.cz, 2012).
Purchase decisions are influenced by other variables that affect buyer and his/her thinking. These factors can be divided into two parts:

- **Endogenous factors**—they can be included in personal qualities and characteristics of the buyer, such as demographic, socioeconomic, etc.;
- **Exogenous factors**—environmental influences, advertising, sales tools, etc..

Purchasing decisions cannot be observed before the purchase because it is an internal matter of a shopper. However, you can see the result of this decision after the purchase is performed and build on it for the future business strategy. For specifics of the “green shopping” is necessary to understand the motives and potential obstacles for such decisions. In other words, it is necessary to determine the circumstances under which customers are willing to prefer greener products to traditional variants.

Surveys and practice show that there are usually changing attitudes and behaviors of consumers in favor of environmentally oriented purchases with increasing environmental knowledge. If marketers want to convince customers about the correctness of green purchasing, it is necessary to provide them with enough convincing information. On the other hand, it is desirable to overwhelm the disproportionate amount of information that could be confusing. It is known that there is usually a segment of consumers with higher environmental conscience, which require and seek information of this kind. A wider range of data should be available for them, for example the Internet.

**Compromises in Consumer Decision**

The consumer evaluates properties and benefits of the product when deciding on buying. In doing so, he/she is often forced to compromise between more and less preferred attributes of the product. This attribute of “green product” is for example its environmental friendliness. The decision in favour of the customer can bring a good feeling that their actions contribute to the environmental protection. The mentioned compromise may be laid in the environmental benefits compared with other attributes that the offered product brings. It can usually be one or more of the followings:

- **The higher price**—higher price of organic products is necessary in many cases because the production of organic products often brings higher production costs. It should be noted, however, that there may also be a marketing strategy with the intent of higher profits;
- **Lower technical level or level of product**—it can happen when achieving of the same parameters in environmental performance is not technically possible or manufacturer is saving costs in this way to reach the competitive price;
- **Impaired availability of organic products**—products are not available in the place where the customer needs them, or they have less service, etc..

It should be noted in connection with the attributes influencing purchase of environmentally friendly products that the price is the most decisive factor according to all known sources. If consumer is willing to pay a higher price, it is necessary for him to be convinced of the meaningfulness of such an investment. It is evident that a customer having a positive attitude to the environment will be more suggestible and vice versa the consumer with an indifferent or even negative attitude will not incline to such purchases and it will be difficult to convince him to buy.

**The Czech Republic and Environmentalism**

Over the past decade we have seen a fivefold increase in organically managed land and a six fold increase in the
number of organic agricultural producers. These positive developments in organic agriculture are conditioned by several factors. Primarily, the development of organic agriculture is stimulated by the grant policies of the Czech Republic and European Union. Secondly, organic agricultural development is influenced by increased demand of consumers for organic foods. Thirdly, a significant factor of organic agricultural development in the Czech Republic is the high percentage of less favorable localities for production. (Malá, 2007, p. 15)

Even though consumers in the Czech Republic are not willing to pay higher price for organic products, there is a noticeable increase in demand for green products in some product categories. At present the Czechs prefer organic foods most from all environmental products, whose sales increase despite the higher price. The Czech Republic has recorded considerable development in environmental issues in recent years. According to statistics, however, some areas are still lagging behind the world and the European Union average.

According to the Green Marketing agency (GreenMarketing.cz, 2012), the worldwide market with organic foods reported consumption approximately EUR 39 billion in 2009, which represents an annual growth by 5% compared with 2008. In the long term, the global organic food market grew by 240% compared with 1999. Consumption in the organic food market represented EUR 21 billion in the same year in the European Union, which represents an annual increase of 6% compared with 2008 (Bio Summit, 2010).

According to the agency Incoma Research (Incoma GfK, 2012), the organic food market in the Czech Republic represented 0.55% of total food and beverage consumption in 2007, which is relatively low compared with for example Switzerland and Denmark, where the organic food market is 4.5% or Austria, where a 6% keeps the European leadership. The statistical data show that more than two thirds of organic products in the Czech market are imported from abroad. According to the Green Marketing agency, the organic food market lacks strong Czech organic brands, which is considerably more difficult task of green marketing. Simple sticking brand “BIOP” is not enough (Bio Summit, 2010).

According to a survey conducted in 2007 for the Ministry of Agriculture, agency Incoma Research showed that nearly half of respondents (49%) said that have heard of organic foods, but so far they have not had any experience with it. Almost the same share of respondents said that they buy organic foods from time to time but do not do it regularly (45%). Further research showed that 80% of respondents cannot name any specific brand of organic products and other respondents (12%) include in this part the brands that do not meet the standards of organic farming (Gfk Praha, 2011).

Another investigation, which was carried out in this area, was conducted for the Ministry of Agriculture in 2008, where the main aim was to verify the effectiveness of communication campaigns (which aimed to raise awareness about organic farming and organic products to enhance the brand awareness). The brand “Products of organic farming” is well known but only among those respondents who are regularly interested in this issue. Generally, about a third of respondents know this brand.

Knowledge about the organic brand in the European Union is weak, less than one fifth of respondents knew it. Roughly a third of respondents saw a communication campaign. The communication campaign is very much appreciated by the target group of respondents (Hrabalová & Dittrichová, 2012). It appears that green marketing tools should be focused more on the other target groups who are still interested in the organic and eco-products and marketers should focus their activities to honor their efforts more on its effectiveness. The following Figure 1 shows the results of the survey on the key question of whether respondents saw the marketing campaign tools.
In 2009, consumers in the Czech Republic spent for organic foods CZK 1.77 billion, which was approximately the same as in 2008. The average annual consumption per capita was less than CZK 200 and the share of total consumption of organic foods and beverages amounted to 0.71% as in the previous year, according to a published report of the Institute of Agricultural Economics and Information (ÚZEI—Ústav zemědělské ekonomiky a informací) (ÚZEI, 2011b) The financial and economic crisis did not hit the market of organic foods dramatically. After a rapid growth in consumption between 2007 and 2008, the market only stagnated but did not decrease, as conventional foods. A further increase in consumption is expected for the year 2011 (ÚZEI, 2011a).

Czech consumers spent the largest part of their expenditure on organic foods and healthy eating in supermarkets, according to a survey SHOPPING MONITOR 2011 INCOMA GfK. The total of 43% of Czech households mentioned supermarkets as their main shopping places for the whole area of fast moving consumer goods. Discount shops (25%) took second position. The popularity of supermarkets had fallen to 15%. Smaller shops remained at last year’s position (15% level of preference) (Incoma, Gfk, 2011).

Currently, the number of producers of organic food is rapidly increasing. The following Table 1 shows the growth of organic food producers from 2001 to 2010. Compared with 2001, there was an increase of more than eightfold, which demonstrates the growing consumer demands for organic products. Ministry of Agriculture puts increased emphasis on improving consumer awareness of organic foods. This induced demand resulted in rapid growth of organic food producers who took an advantage of business opportunities in this promising field (Hrabalová & Dittrichová, 2012).

Four hundred and four organic food producers were registered at the end of 2010, or 618 production plants. Compared with the end of 2009, when 395 manufacturers were registered (or 497 plants), the number of producers of organic food grew up only by 2%, which represents a significant slowdown compared with true 14% growth in 2009 and 82% growth in 2008 (Incoma, Gfk, 2011).
The research of foreign studies shows that consumers of environmental products are usually better-off women from a larger city who prefer organic foods for several reasons. From the main reasons we can mention efforts for better health, better taste and an emphasis on the environment, including the humane treatment of animals. A new consumer’s decision is usually made when a major event happens in the family. It can be a conception or birth of a child or, conversely, a serious illness in the family. As for the range in Europe, consumers buy mostly fresh goods, i.e., fruit, vegetables and dairy products, meat, and then possibly dry products. In the Czech Republic, it is the opposite. Local consumers mostly purchase dry products, nuts, dried fruit, flour, and then the rest.

The purchase of organic foods is influenced significantly by a higher price in the CR. Customers are primarily people who are trying to be responsible towards themselves, their health and the health of their loved ones and who think about the impact of their behaviors on the environment. An important group of consumers of organic foods are mothers with children and people with higher incomes, university students, and foreigners from developed countries.

According to surveys, consumers are discouraged from buying by the high price of organic foods which of course is disproportionately higher than the price of conventional foods. The reason is in the high costs of distribution, packaging of small lots and mostly lower degree of competition in this area on the Czech market. It turns out that organic food prices in the Czech market are by 45% to 250% more expensive than traditional products. In the future, however, it is expected that prices will decline due to increased production, reduction of logistics costs and especially increased competition in the market. Most organic food producers and traders try to ensure their own promotion. The main forms include tasting and promotional leaflets. It is expected that the Czech organic food market will be growing. The main factors affecting market growth are:

- Increased demand due to information and education campaigns;
- Growing middle class and disposable income;
- Increased demand in organic food retail chains;
- Support for marketing and promotion of foreign suppliers;
- Greater choice and better accessibility (Matějovský & Vonšovská, 2007).

Green Marketing Agency (GreenMarketing.cz, 2012) emphasizes for the efficient form of green marketing in the Czech market that education of customers is absolutely necessary for further growth in sales of organic and eco-products. Vendors of these products should emphasize the value of organic foods by highlighting the differences between organic and non-organic: the absence of pesticides, artificial ingredients, higher vitamin content, etc. If customers understand these values, they are not reluctant to pay higher prices for organic foods. Retailers should start presenting organic food as a gourmet specialty that deserves a higher price.

Fresh organic vegetables and fruit are a category that will decide about success in this area. Unattractive presentation and spoilt products enhance customers in the belief that the retailer does not take organic foods seriously. It is not surprising that consumers turn to ignore the other categories. The availability of organic foods is extremely important, both for the producers and the consumers.
foods in the shop is not about labeling shelves. It is about communication to customers: “We understand organic food and we are interested in it”.

The present time brings a chance to highlight the values, rather than reduce the prices. This opens up opportunities for companies and their brands that will be able to play a larger role in combating the climate change. People express a clear need for environmentally responsible brands and believe that companies can and should be at the forefront of the positive change. However, in this respect they are still very insecure and looking for signs that will be able to show the way (Bio summit, 2010).

If we look at the global fair trade market (which includes environmental issues and also social responsibility in the sale of goods), then consumption in this market recorded in 2009 was an average of 2.9 billion EUR, roughly a 40% annual increase over 2005. The consumption of fair trade in the Czech market is around 50 million. This consumption increased by 22% compared with 2008 and even 1600% over 2005, according to a survey conducted by Green Marketing and the Association for Fair Trade (Ekolist.cz, 2012).

Most fair trade products purchased last year both in the Czech organic food stores and health food and retail chains have the same share of 28 percent. While the share of retail chains rose by 87 percent, organic food stores and their share dropped sharply, by 79 percent. A similar shift of purchases from specialized stores to retail chains followed the development of organic foods. Czechs most enjoy fair trade coffee, tea, chocolate and other sweets. The largest product category was in the category of coffee last year, which contributed to the total turnover of 36%, 10% more than in 2008 (Ekolist.cz, 2011).

Methods and Hypothesis of the Research

The author of this article decided to conduct a survey that relates to environmental purchasing to validate or refute the available data and other surveys. This study was divided into two parts. The first part consisted of respondents addressed in public places, mostly in the district of Pardubice in the Czech Republic. In the second part a larger group was approached via the communication media, especially the social network of Facebook, e-mail, Skype or ICQ.

The total of 142 people were contacted in person, of whom 129 respondents were willing to fill in a questionnaire, followed by a sample of 115 respondents, so that they matched the demographic profile of approximately the composition of the Czech population, 235 people were interviewed via the Internet, 164 completed questionnaires were returned back and then a sample of 132 respondents in the demographic composition of the population in the Czech Republic. It was possible to contact a larger number of respondents via the Internet because of less demanding factors than questioning by personal contact.

The questionnaire was strictly anonymous. All the respondents were asked 16 questions with predetermined answers. The first five were of sociological nature to sort respondents according to characteristics. Questions five to 10 sought to determine which respondents have a positive relationship to the environment. Some indirect questions were also used, such as whether the respondents sort waste, use public transport or energy-saving bulbs.

The last six questions had a direct relation to the issue of buying environmentally friendly products, such as what motivates the respondents for “green” shopping or what would prompt them to raise their environmental buying. Conclusion of the questionnaire consisted of questions for the future development of the environmental products. The main aim of the survey was to find out the relevant opinions and purchasing behavior in relation to the products of environmental specialization.
Evaluation of the Research

The survey showed that most respondents expressed a positive attitude to the environment. Of course, there is a group of skeptics who look at green issues with suspicion and are not willing to accept them. Importantly, the positive attitude prevails and it is therefore possible to build on it in the area of marketing.

Personally conducted survey presents a slightly more favorable ratio of women to environmental protection. Figure 2 shows that 57% of women have a positive attitude toward the environment. In contrast, men express a positive relationship in 43% of cases. This phenomenon is probably caused by differences in the natures of both sexes and approach to life. Personally conducted survey confirmed the results of other surveys that have been made in this direction.

Relation to the Environment by Age, Education and Income Levels

The research data showed that the highest positive relationship to the environment was found in the younger age groups. This is due to the fact that in earlier times minimum or no consideration was paid to the protection of the environment. Older generations were not able to obtain enough relevant information. The situation changed at the end of the last century. It could be argued that there were efforts to protect the environment even before this period but these were often only of a nature of proclamation without any real impact on practice.

The second criterion, exploring the relationship to the environment by education, shows that higher education of respondents contributes to the development of the environmental protection. People with higher education have better access to information and also are more interested in it, so their approach is friendly to green issues. The third criterion listed in Figure 3 suggests that people with higher incomes are logically willing and able to invest more in their shopping to protect the environment. It is usually manifested by the fact that environmentally friendly products are usually more expensive.

Green Purchasing Behavior of Consumers, Depending on Income

Price is one of the most important factors in the decision-making process when purchasing. It is
understandable that there is higher willingness to adapt purchasing to the environmental criterion with increasing income. This does not mean that it would be the correct to rule out the low-income groups.

![Figure 3](image1.png)

*Figure 3. Relation to the environment by age, education, and income (in %).*

![Figure 4](image2.png)

*Figure 4. Purchasing of organic products, depending on income (in %).*

Marketers should look for ways how to reach even this considerable group and give them an opportunity to participate in environmental protection. Figure 4 shows that the sales of environmental products are through the pricing policy and reducing the cost of production.
Determination of Hypotheses and the Results

Test of Independence

Figure 5 shows which type of advertising appeals to most respondents, depending on the relationship to the environment. The results show that with respect to the respondents who have a positive relationship to the environment, the largest percentage falls on the effectiveness of Internet advertising. Conversely, respondents expressing a negative attitude toward the environment state television advertising in most cases. This is due to the different ages and income groups who were contacted on the Internet and in person.

It is tested, using non-parametric test of independence (Kubanová, 2004), whether a relation exists between the relationship of respondents to the environment and sensitivity to any type of advertisement. It is tested at a level of significance \( \alpha = 0.05 \). Random variable \( X \) means relationship of respondents to the environment, a random variable \( Y \) means sensitivity to any type of advertisement. It is tested as the null hypothesis \( H_0 \) that the random variables \( X \) and \( Y \) are independent. An alternative hypothesis \( H_1 \): \( X \) and \( Y \) are dependent.

![Figure 5. Purchasing of organic products, depending on income (in %).](image)

The value of the test-statistic is:

\[
\chi^2 = \sum_{i=1}^{s} \sum_{j=1}^{t} \left( \frac{n_{ij} - \frac{n_{i \ast} \cdot n_{\ast j}}{n}}{\frac{n_{i \ast} \cdot n_{\ast j}}{n}} \right)^2
\]

The first step is to calculate the marginal frequencies to which the following applies:

\[
n_{i \ast} = \sum_{j=1}^{t} n_{ij} \quad \text{and} \quad n_{\ast j} = \sum_{i=1}^{s} n_{ij}
\]

Marginal frequency and total frequency are reported in Table 2.
Table 2

Marginal and Total Frequency to Calculate the Test of Independence

<table>
<thead>
<tr>
<th>Type of Advertisement</th>
<th>Relationship to environment</th>
<th>( \sum n_{ij} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>Positive 48</td>
<td>Negative 14</td>
</tr>
<tr>
<td>Radio</td>
<td>Positive 27</td>
<td>Negative 2</td>
</tr>
<tr>
<td>Press</td>
<td>Positive 24</td>
<td>Negative 3</td>
</tr>
<tr>
<td>Internet</td>
<td>Positive 62</td>
<td>Negative 7</td>
</tr>
<tr>
<td>Other</td>
<td>Positive 7</td>
<td>Negative 2</td>
</tr>
<tr>
<td>None of them</td>
<td>Positive 19</td>
<td>Negative 3</td>
</tr>
<tr>
<td>Sum</td>
<td>187</td>
<td>31</td>
</tr>
</tbody>
</table>

The second step is to calculate the theoretical frequency \( \frac{n_{ij} \cdot n_{*j}}{n} \). The third step is to calculate for each pair of indices \( i, j \). Values are written into the Table 3.

Table 3

Partial Calculation of the Test of Independence

<table>
<thead>
<tr>
<th>( \frac{n_{ij} \cdot n_{*j}}{n} )</th>
<th>Relationship to environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Television</td>
<td>0.2493</td>
</tr>
<tr>
<td>Radio</td>
<td>0.4764</td>
</tr>
<tr>
<td>Press</td>
<td>0.7733</td>
</tr>
<tr>
<td>Internet</td>
<td>0.0199</td>
</tr>
<tr>
<td>Other</td>
<td>0.575</td>
</tr>
<tr>
<td>None of them</td>
<td>0.2895</td>
</tr>
</tbody>
</table>

Calculation of the value of the test-statistic \( \chi \):

\[
\chi = \sum \sum \frac{(n_{ij} - n_{*i} \cdot n_{*j})^2}{n_{*i} \cdot n_{*j}} = 17.0531
\]

The critical area is then defined by the relation \( W = \{ X; X > X^2_{\alpha(r-1) \cdot (s-1)} \} \), the critical limit \( X^2_{\alpha(r-1) \cdot (s-1)} \) is looked up in tables \( X^2 \) probability distribution.

Critical limit \( X^2_{\alpha(r-1) \cdot (s-1)} = X_{0.05;15} = 24.9958 \)

Conclusion:

24.9958 > 17.0531. The value of the test-statistic fell into a region of acceptance. Hypothesis \( H_0 \) is not rejected, random variables \( X \) and \( Y \) are independent. This means that there is no dependability between the relationship of respondents to the environment and sensitivity to any type of advertisement.
Test of Coincidence—$X^2$-test

Figure 6 generally expresses the relationship of respondents to the environment. Numeric data serve as a basis for establishing hypotheses (Kubanová, 2004).

Consequently, it is determined by hypothesis using the $X^2$-test on a basis of previous graphical results.

$H_0$: Relationship to the environment is evenly distributed (there is consensus among respondents who have a positive relationship to the environment, respondents who are undecided or neutral to the environment and respondents who are not interested in the environment).

$H_1$: The relationship to the environment is not evenly distributed (there is no consensus among respondents who have a positive relationship to the environment, respondents who are undecided or neutral to the environment and respondents who are not interested in the environment).

The value of the $X^2$-test is:

$$
X^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}
$$

where:
- $O_i$ = an observed frequency;
- $E_i$ = an expected (theoretical) frequency, asserted by the null hypothesis;
- $E_i = np_i$, $n$ = the number of cells in the table, $p_i$ = probability of the $i$th class in the expected probability distribution.

Substituting in the formula:

$n = 132 + 129 = 261$

$E_1 = 65.25, E_2 = 65.25, E_3 = 65.25, E_4 = 65.25$

$O_1 = 101 + 86 = 187, O_2 = 13 + 18 = 31, O_3 = 16 + 18 = 34, O_4 = 2 + 7 = 9$
$$\chi^2 = \frac{(187 - 65.25)^2}{65.25} + \frac{(31 - 65.25)^2}{65.25} + \frac{(34 - 65.25)^2}{65.25} + \frac{(9 - 65.25)^2}{65.25} = 308.61$$

(5)

It is tested at a level of significance $\alpha = 0.05$. The critical area is then defined by the relation $W = \{X; X > X_{\alpha,n-1}^2\}$, critical limit $X_{\alpha,n-1}^2$ is looked up in tables $X^2$ probability distribution.

Critical limit $X_{0.05,4-1}^2 = X_{0.05,3}^2 = 7.81$

Conclusion:

$308.61 > 7.81$. The value of the test-statistic fell into a region of rejection. Differences between actual and expected distribution of probabilities are high, therefore, there is disagreement and H0 is clearly rejected. The result shows that the relationship to the environment is not evenly distributed.

**Discussion and Conclusion**

The survey showed that issues related to environmental issues and quality of life are not unfamiliar with the inhabitants of the Czech Republic in most cases. A survey is valid mainly for start-up entrepreneurs in this field due to the limited number of respondents. In this respect effective creation and implementation of environmental strategies are important. According to Podaná, creation of environmental strategy must:

- concentrate the documents and information about environmental objectives around the company on existing and upcoming rules and restrictions;
- collect information about hygiene standards, limits and other regulations, information about environmental objectives of the territorial unit in which the business is located;
- group information about the environmental aims and requirements of customers and suppliers, information about the attitudes of the public, media and other “third parties”;
- set environmental aims of the company;
- formulate guidelines for the production of sub-strategies;
- confront the draft strategy with fixed principles and restrictions;
- update the strategies (Podaná, 2003).

Due to the widely known psychological fact that some people tend to portray themselves in a somewhat better light in similar surveys, results may consequently be slightly distorted in a positive sense. Nevertheless, it can be concluded that this survey has considerable interpretive value. It can be stated that the environmentalism and everything associated with it get to the forefront and affect all the areas of life, including production, trade and promotion of goods. Marketers must count with these new aspects of enterprise.

The aim of the article was to find new opportunities for green marketing and its method. The survey showed that users of the Internet have noticeably more positive relationship to the environment as well as environmental protection. This can be explained by the fact that the Internet users have easier access to new things and are more supportive of progressive ideas. This means that it is possible to include this fact in the marketing strategies. The highly supersaturated advertising market has already shown signs of stagnation and decline in efficiency, so we need to search for new forms to receive new customers. Internet social networks, which experience dynamic development, provide a unique opportunity.

Technological boom in Internet marketing provides new possibilities that previously traditional media like television, radio and press cannot offer. Social networks provide a potential of a precise focus on the target group of consumers. Another possibility of new marketing way is interactivity through which you can also get feedback and reactions of potential customers. Dynamic technological development suggests that the last word
has not been said yet, it can be rightly that even more unimagined eventualities will appear. It is not certainly a mistake to be focused on this phenomenon and take an advantage of this potential.

References


