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INSIGHTS FOR MEASURING ENVIRONMENTAL AWARENESS

Abstract

In the past two decades, managing and raising the general level of environmental awareness on all levels of society has become one of the main social goals that has reached a level of social and political consensus unseen ever before. Considering that only things that can be measured can actually be managed, the measuring of environmental awareness based on scientific criteria is becoming increasingly interesting to scientists working in different disciplines. As these disciplines developed, numerous laws were discovered, models were developed and limitations which should be taken into consideration were defined. However, there is a lack of literary sources that could offer a review of scientific knowledge acquired so far and provide a certain "check list" for researchers.

The purpose of the present research is to determine and discuss the key issues that should be considered while creating measurement instruments, conducting analysis of research results and interpreting them. Based on the analysis of relevant theoretical cognitions and empirical research results, the paper provides an overview of key issues and categorises them in three groups: issues in measuring different components of attitude, issues concerning the attitude – behaviour gap and issues concerning the influence of social desirability and research sample. By considering all of these issues it is possible to account for and minimize their negative influence and to contribute to the quality, universality and comparability of the obtained results, as well as of the developed models and the defined laws.

Keywords: Environmental awareness, measuring, issues, attitude components

1. Introduction

Over the last few decades, many attempts have been made to form a conceptual and operational definition of environmental awareness. Along with literature on marketing, other scientific disciplines have also dealt with this subject matter, primarily psychology, sociology, political sciences, environmental studies and business studies. Various measuring instruments were used, which significantly differ depending on the extent to which they include different environmental issues (population control, natural resources, energy conservation etc.) and depending on implicit and explicit assumptions on the components of environmental awareness (Schlegelmilch et al., 1996: 37-38). Interdisciplinary studies encompassing knowledge, experts and methodology from different scientific branches are often involved in this field.

The numerous studies of environmental awareness can be divided into three groups, according to the three main issues that those studies deal with (Culiberg and Rojšek, 2008: 132):

1. What comprises environmental awareness?
2. In what way do demographic and psychographic factors influence environmental awareness?
3. What is the correlation between environmental awareness and pro-environmental behaviour?

Managing and raising the general level of environmental awareness on all levels of society has become one of the main social goals that has reached a level of social and political consensus unseen ever before. Considering that only the things that can be measured can actually be managed, the measuring of environmental awareness based on scientific criteria is becoming increasingly interesting to scientists working in different disciplines.

As these disciplines developed, numerous laws were discovered, models were developed and limitations that should be taken into consideration were defined, especially for conducting analysis of research results and interpreting them but also for forming measuring instruments and defining research samples. This area of research is dependent on interdisciplinary scientific cognitions and tools, and consequently is very complex per se. In fact, many researchers deal precisely with inconsistencies (Bratt, 1999), gaps (Grunert, 1993; Kaiser et al., 1999; Schlegelmilch et al., 1996) and sample issues (Armstrong and Overton, 1977) in research. Nevertheless, there are still concrete measures introduced and important business and political decisions made based on these research results.

It is therefore important to discuss the issues important for designing measurement instruments, analysing research results and interpreting them. Different issues arise in different aspects of research and it is important to be aware of and account for different angles. By considering all of the relevant issues it is possible to minimize their negative influence and to contribute to quality, universality and comparability of the obtained results, developed models and defined laws. Thereby, it is possible to ensure the manageability of this concept and its movement in the desired direction.

2. Defining environmental awareness

Although the concept of environmental awareness is intuitively clear to most people, it is safe to conclude that there is no generally accepted definition, or even clearly defined terminology. Therefore, different name variants of the same concept can be found in English-language literature, such as environmental awareness, environmental consciousness, and environmental concern. In some cases, the difference between attitude and behaviour is not clearly distinguished, and the above-mentioned terms are equated with terms such as environmental responsibility and environmental behaviour.

Environmental awareness can be broadly defined as the attitude regarding environmental consequences of human behaviour. Starting from the typical definition of attitude, environmental awareness is a predisposition to react to environmental issues in a certain manner (Culiberg and Rojšek, 2008: 132). It is an element of one's own individual system of values and beliefs and it a part of social awareness.

Gagnon Thompson and Barton (1994) propose a two-dimensional approach to understanding environmental awareness. According to them, there are (at least) two motives or reasons why people become concerned about the natural environment. Specifically, there are ecocentric individuals who value nature for its own sake and, therefore, believe that it deserves protection because of its intrinsic value. In contrast to them, anthropocentric indi-

viduals think that nature should be protected for its value in maintaining and improving the quality of human life. These are primary sources of environmental awareness as an attitude.

Environmental awareness may precede pro-environmental behaviour. However, even when people are environmentally aware, they do not necessarily behave in a pro-environmental manner. An environmentally aware consumer is not necessarily a green consumer – in order to become a green consumer, one must behave in a certain manner. Environmental awareness is the first step in becoming a green consumer (Carlson, 2004: 46). We can say that environmental awareness is operationalised through the form of environmentally motivated, i.e. pro-environmental behaviour.

There are basically two types of attitudes used to predict pro-environmental behaviour, namely attitudes towards nature itself and attitudes towards pro-environmental behaviour, i.e. certain pro-environmental activities.

If environmental awareness (attitude) is supported by actual pro-environmental behaviour, we may use the term *environmental responsibility.* In other words, environmental awareness consists of a positive attitude toward the environment and appropriate environmentally relevant behaviour.

Studies in the area of marketing often used to equate socially responsible consumer behaviour with environmentally aware consumer behaviour. Leigh et al. (1988) highlighted that consumers' environmental awareness represents a subset of the category of social responsibility. Socially responsible behaviour can affect particular groups within the society (e.g. women, minorities, migrant workers, labour unions etc.) or promote causes (e.g. rights of homosexuals, religious affiliation, avoidance of "sin" stocks, reduction of weapons production, etc.). In other words, it is important not to interpret socially responsible and environmentally aware consumers as a single market segment with a unique profile. Based on the foregoing, Roberts (1995) defines the socially responsible consumer as a consumer who purchases products and services perceived by him/her as having a positive (or less negative) impact on the environment or who uses his/her purchasing power in order to express concern for a certain social issue.

Different studies encompassed different types and aspects of pro-environmental behaviour, but also all combinations thereof. Consequently, there are studies dealing with generalised pro-environmental behaviour, sector-related pro-environmental behaviour (most often recycling), behaviour with regard to transportation (use of environmentally friendly types and means of transportation), and energy conservation and pro-environmental purchase behaviour (Roberts, 1995: 98). Such studies are sometimes focused on assessment of the situation and on predicting the adoption of a certain type of consumers' behaviour, while in other cases they are focused on discovering impact factors and correlations between attitudes and behaviours as well as certain incentives and behaviours.

It is also necessary to define consumer behaviour. Consumer behaviour represents a process of obtaining and consuming products, services and ideas by a consumer unit. It also includes post-purchase processes encompassing evaluation and post-purchase behaviour. It should be noted that a "consumer unit" is either an individual or a family (household) making an expenditure decision (Kesić, 1999: 2). When discussing consumer behaviour in terms of green marketing, it is particularly important to emphasize the above-mentioned "consumption" (acceptance) of ideas, and behaviour in accordance with those ideas. This also involves behaviour that is not necessarily directly related to purchase and consumption of certain products, because such a connection is often indirect, and behaviour also relates to certain other activities such as recycling, energy conservation, participation in environmental protection activities, etc. This is often the case when the agent of green marketing is not an economic entity, but one of the other social participants, such as an environmental organisation or the state.

In order to explain the relationship between attitude (environmental awareness) and behaviour, psychologists have developed several models aimed at explaining what constitutes environmental awareness, which are inherent factors and what are the interrelations between those factors. A popular theory called "theory of planned behaviour" is often used as a starting point.

The "theory of planned behaviour" (TPB) originates from the "theory of reasoned action" (TRA) (Fishbein and Ajzen, 1975). The TRA aimed to foresee human behaviour by proposing that the behaviour of a person is affected by behavioural intentions, which are primarily affected by attitudes toward the act and by subjective norms. Thus, the TRA has two components: the attitude toward the act which is the func-

tion of perceived consequences and subjective norms which are a function of beliefs about the significance of referents, and motivation to act in accordance with those referents. These associations were supported by numerous articles related to consumer behaviour and social psychology (e.g. Ryan, 1982; Sheppard et al., 1988). An extension of the TRA is the "theory of planned behaviour" (TPB), proposed by Ajzen (1991). The TPB added the concept of perceived behavioural control to the TRA as a third predictor of intention.

3. Measuring environmental awareness

Studies relating to environmental awareness and determination and correlation factors that influence it do not always provide consistent results. One of the main problems that researchers face is the question whether they (researchers) and their respondents understand the concept of environmental awareness in the same way. Conflicting research results as well as an exceptionally large number of influencing variables have led to the assumption that researchers do not always share the same concept of environmental awareness (Carlson, 2004: 81).

Van Liere and Dunlap (1981) differentiate between so-called substantive variations (content-related) and theoretical variations between individual measurement instruments, i.e. measurement scales. Content-related variations comprise differences of range in which measurement scales cover different environmental issues, such as pollution, population issues, wildlife preservation etc. It is not clear whether the attitudes toward different issues are equally reflected in a broader concept of environmental awareness. Another source of variations is theoretical conceptualisation, which comprises implicit or explicit assumptions on what comprises a respondent's expression of environmental awareness. Different studies covered, for example, perceived seriousness of environmental issues, knowledge on environmental issues and problems, support for reforms, participation in environmental behaviour etc. In their own study, the authors mentioned above found an inconsistency between individual measurement scales in terms of both substantive differences and theoretical conceptualisations. This indicates that a great deal of attention is required to combine different variables into a unique measurement instrument.

Different types of interpretation can also pose a problem, particularly when providing a generalisation of conclusions. For example, in studies that examine behaviour in connection with recycling, the variable is called pro-environmental behaviour. In other words, behaviour connected with recycling is generalised, and conclusions about an individual's level of pro-environmental behaviour are made on that basis. Simultaneously, numerous studies deal with the differences between factors which influence individual groups of behaviour: the purchase of environmentally-friendly products, activities connected with recycling, participation in environmental clean-up actions, support for green political parties, donating money to environmental associations and initiatives, etc.

Apart from the above-mentioned, comparison of the results of different studies is made even more difficult due to cultural and historical differences between various countries. Literature often mentions the generally present difference between the western and eastern world when it comes to fundamental attitudes of man towards nature. In western developed countries, the philosophy of man's domination over nature prevails, and it is based on early philosophical thought (Plato, Aristotle) and Christian postulates (that God made man the ruler of nature). In contrast, the philosophy of harmony between man and nature, based on Taoism and Buddhism, prevails in the Eastern countries. Considering that those differences can have a significant impact on attitudes toward the environment, as well as on one's understanding of the very concepts involved, comparison of data or non-critical acceptance of, for example, measurement scales, can lead to errors and misinterpretation of results.

Another challenge involved in these measurements is something Yankelovich refers to as the "Mushiness Index". It is a measuring instrument developed by Daniel Yankelovich himself more than a quarter-century ago. It measures the firmness of one's opinion on a topic, i.e. the degree to which consumers are aware (able to clearly acknowledge their attitudes) and sure about how they think. Yankelovich found that the vast majority of people do not have very well-articulated and firm views regarding the environment (Makower and Pike, 2009: 44-45).

When talking about measuring behaviour, one of the main issues is the fact that most environmentally relevant behaviour (electricity conservation, water conservation, recycling, planned purchase etc.)

takes place within the household (out of researchers' sight), and measurement often relies on behaviour described by the consumers themselves. However, people are not necessarily aware of the impact that their behaviour has on the environment. They may unconsciously take action which increases or reduces their impact on the environment, without being aware of it (whether by doing something that has a positive impact on the environment, (e.g. use of catalytic converter in their car) or something that has a negative impact (e.g. use of detergent harmful for the environment), leading to differences between actual and measured environmental responsibility (Gatersleben et al., 2002: 335).

3.1 Measuring components of environmental awareness

In order to describe inherent factors of environmental awareness, one can use the three-component attitude model. Environmental awareness is a multidimensional concept consisting of a cognitive, affective and conative component (Dembkowski and Hanmer-Lloyd, 1994: 594). Some authors studied individual impacts of each of those components, while others believed that their mutual impact is too strong, which is why they developed measuring instruments that use all three components simultaneously, without a clear distinction between them.

This three-component model of environmental awareness as an attitude has often been applied in many studies by a large number of different authors, and it dates back to initial research by Maloney and Ward (1973) and Maloney et al. (1975). As a part of those studies, four known subscales have been developed, three of which are used to measure attitude components, while the fourth one measures the actual pro-environmental actions that were taken.

In brief, the cognitive component comprises of our opinion of someone or something (regardless of whether we are right or not). The affective (emotional) component consists of our feelings towards someone or something, while the third component (conative, sometimes referred to as behavioural) represents an intention to act in a certain way (Fraj and Martinez, 2007: 27). We can also say that the first two components form and direct the third (behavioural) component (Stone et al., 1995: 597).

Focus on the cognitive component in most of the studies is the result of earlier studies that demonstrated that there is a significant influence of knowledge and awareness of attitudes towards the environment. Those early studies are based on the assumption that knowledge influences attitudes, and attitudes influence behaviour. It is the so-called linear model. However, it should be noted that there is no general consensus on that issue. Some studies reveal only limited influence of cognitive factors (such as knowledge on the environment), and show significant influence of affective factors in the process of making environmentally conditioned purchase decisions (Hartman et al., 2005: 12). There are certain approaches found in recent studies that reject some of the components of attitude and take into account just the other two or even just one of the components.

3.1.1 Cognitive component

Cognitive variables comprise knowledge, memory processes, intelligence, decision-making and behaviour regarding problem solving. Knowledge (cognition) basically pertains to understanding – how meaning is formed, applied and stored within an individual's mind (Wagner, 2003: 192).

We can say that the consumer's ability to differentiate between decisions, procedures and choices, based on their actual impact on the environment, is in fact the basic requirement for his/her pro-environmental behaviour in any aspect. Makower and Pike (2009) highlight that education (knowledge) leads to a high level of environmental values, but it does not necessarily cause to the customer to become an expert on environmental issues.

One of the main goals in studying cognitive and emotional processes influencing consumer behaviour is to make an impact on the consumers' knowledge. Knowledge can be defined as information stored in memory. As a part of total knowledge, consumer knowledge is defined as all information stored in the memory that serves for a consumer's functioning in his/her role as a consumer (Kesić, 1999: 181). This variable has been recognised by marketing researchers as a factor influencing each phase in making a purchase decision, influencing the manner in which the consumers gather and organise information and determining how they eval-

uate products and services (Finisterra do Paco and Raposo, 2008: 131-132).

Gambro and Switzsky (1996) define environmental knowledge as a student's ability (author's comment: it was a research among adolescents) to understand and evaluate the society's influence on the ecosystem, and this knowledge is expressed by recognising environmental issues and understanding their causes, implications and results.

Consumer knowledge on environmental issues is a variable that is relatively difficult to measure. Due to the specificities related to the particular countries where research is conducted, scales are applied which measure the consumers' own perception on environmental issues (e.g. as in the studies by Schlegelmilch et al. (1996)), instead of internationally tested scales which measure specific knowledge (such as the scale developed by Maloney, Ward and Braught (1975)). Scales which measure the consumers' perception do not necessarily provide a realistic view on the actual level of knowledge, but their advantage is the fact that they are universally applicable and comparable, easier to develop, and they sometimes give more appropriate results, depending on research objectives (e.g. if the objective is to measure the perceived level of knowledge as a measure of the respondents' self-esteem in that regard (rather than his/her actual knowledge), which may also be an important factor of pro-environmental behaviour).

These types of scales are often found in public opinion polls and even in *Eurobarometer* studies (probably the most extensive modern public opinion poll) which also monitor environmental issues on a regular basis. However, Kufrin (2003) claims that self-assessment of consumers' awareness of environmental issues cannot replace an adequate measurement instrument for objective measurement of that variable. An obvious weakness of such measurement is the fact that different respondents will base their assessments on different criteria – we do not have a valid reason to assume that all of their scales are "calibrated" in the same manner, that their level of self-criticism is identical, etc. The author concludes that, as a rule, researchers usually use objective tests of environmental awareness in their studies, and respondents' self-assessment is rarely applied.

Results of a research titled "National report card on environmental knowledge, attitudes and behaviour", regularly conducted in the USA by the National Environmental Education and Training Foundation (NEETF), speak in favour of the foregoing. The research indicates a large gap between self-assessed levels of knowledge and levels of knowledge measured by means of objective measurement. According to the ninth report published within the said research, 70% of respondents estimated that they knew "quite a lot" or "a lot" about environmental issues. However, the results they achieved in an environmental knowledge quiz were much poorer (if one were to express those results in school grades, only a third of the respondents would get a passing grade, and only one tenth would get the highest grade) (Kufrin, 2003: 4-5).

When talking about objective measurement of knowledge, there are multiple problems. First of all, the very nature of ecology which encompasses complex interactions between living organisms and their environment is what makes understanding of this issue complex. Furthermore, regardless of the current situation, it can be said that an average person does not know a lot about the environment (author's comment: this was true back in the seventies, but the situation has not changed until today). That is why it is difficult to develop a measuring instrument with enough high-probability ("easy") questions (Maloney and Ward, 1973: 585). Furthermore, the process of determining relevant environmental issues (topics) which should be considered when measuring knowledge is exceptionally complex. The manner of asking questions (and offering answers) is also relevant, as well as the research method itself (opportunity to "cheat") which can influence the relevance of the measured level of knowledge.

There is no established pattern for the relationship between knowledge and pro-environmental behaviour. In the meta-analysis of 128 previous studies, Hines et al. (1987) found a mean correlation of 0.30 between the following variables: knowledge on environmental issues and pro-environmental behaviour. This moderate but statistically significant correlation was later also confirmed by Grunert's study (1993) on purchase of green or organic food products, and also by the model suggested by Chan and Lau (2000). On the other hand, Maloney and Ward (1973) found no significant correlation between those variables. A study conducted by Arbuthnot and Lingg (1975) should also be noted, since it found a negative correlation. In brief, we can conclude that the prevailing attitude is that there is a positive correlation between those variables, which

is partially based on results of empirical studies, and partially on logical reasoning and general theory regarding attitudes and their impact on behaviour. The assumption that those who know more about environmental issues and their consequences will be more willing to act in a pro-environmental manner may appear logical; however, proving this connection through empirical studies has been rather difficult.

Schan and Holzer (1990) assumed that low significance in previous studies might have been the result of the fact that scales that measure relatively abstract knowledge (general knowledge on the environment) are correlated with very specific activities. That is why they used two different scales for their study: one for abstract and one for concrete/applicable knowledge (connected with concrete activities and strategies contributing to environmental protection). They concluded that a certain amount of information is necessary in order for behaviour to have the desired effect and for applicable knowledge to have the impact of a moderating factor between attitudes and actual behaviour, since abstract knowledge has no such impact. Knowledge, specifically applicable (concrete) knowledge, has an indirect effect on knowledge.

It should also be noted that the consumer may be aware, i.e. capable to realistically assess his/her level of knowledge on a certain environmental issue ("I don't know just how much I don't know"), but it may not be the case, because at least a minimum level of knowledge is required for one to be aware of his/her lack of knowledge, and to have an attitude towards that level of knowledge ("I want to learn more and I should learn more" or "That doesn't concern me at all").

In his study, Wagner identified four different types of consumers' practical thinking and explained their impact on actual environmentally conscious purchase behaviour (Wagner, 2003: 188):

- Pragmatism – pertains to accepting the complexity of environmentally responsible purchase behaviour, without attempting to solve the issue entirely. One might say that consumers who think that way always look for the "better" and not for the "best" solution. They consider the entire life cycle of the product (LCA – Life Cycle Analysis), but on a selective and comparative level, and they consider all available information (they approach life cycle analysis in a pragmatic, not scientific manner).
- Gullibility – consumers who think in such a manner believe in certain information without understanding it completely. Behaviour is based on a so-called "realistic illusion". For example, tag lines such as "friend of the environment", symbols such as a small green tree or packaging colours such as blue-green are considered to be an indicator of the product being environmentally friendly.
- Cynicism – such manner of thinking most often appears when the consumer realises the gullibility of his/her previous ideas on environmentally responsible purchasing and starts to understand the scientific complexity (such as the very complex LCA analysis) involved in the selection of products that are actually green. Confusion caused by that comes with time, after adopting a pragmatic or cynical way of thinking. Cynicism usually prevents further purchase of green products.
- Ignorance – consumers who apply this type of practical thinking do not know anything about green products and they do not want to know. They simply avoid the issue of environmentally conscious purchasing.

Pragmatism and gullibility facilitate, while cynicism and ignorance usually prevent pro-environmental purchase behaviour. It is necessary to keep in mind such types of practical thinking when creating measurement instruments, specifically when providing proposed answers to closed-ended questions.

3.1.2 Affective component

Affect is a general term denoting feelings or emotions. The emotional or affective component of attitude pertains to a person's feelings about the attitude object. The affective component is most often expressed verbally as good – bad, positive – negative, to love – not to love, etc. (Kesić, 1999: 151).

The affective component of environmental awareness includes all anxieties, expectations, feelings and emotional reactions relating to environmental issues (Maloney and Ward, 1973: 585). It also includes an individual's emotional judgement about the consequences of his/her own impact on his/her biophysical surroundings.

Various studies (Chan and Lau (2000), Fraj and Martinez (2007), Maloney and Ward (1973), Schlegelmilch et al. (1996)) confirmed that affective variables are a relatively consistent predictor of pro-environmental behaviour, including consumer behaviour and buying of green products. In their meta-analysis, Hines et al. (1987) confirmed the mean correlation of 0.37 between those two variables.

It is often indicated that attitudes based on the affective component are more reliable predictors (so-called leading variables) of pro-environmental behaviour because such attitudes are less complex; they are shaped more quickly and are more homogenous in comparison with attitudes based on a complex set of different supportive and non-supportive components. Less complex attitude contributes to less exposure to external or situational factors.

Smith and Haugtvedt (1995: 164) claim that a certain context can make some factors of a complex attitude become essential, resulting in behaviour that may be inconsistent with the general attitude orientation. An example for this may be an individual who has a positive attitude towards environmentally friendly products, but at the same time, he/she believes they are generally more expensive. When price temporarily becomes the most important factor for that individual, the mentioned belief can have a disproportional effect on his/her behaviour, so that the individual will buy a product that is less environmentally friendly without even checking the price of the environmentally friendly alternative. On the other hand, an individual whose attitude towards environmentally friendly products is based purely on positive feelings for such products will be less influenced by prices, because no negatively evaluated attributes are integrated in his/her attitude.

Chan and Lau (2000) confirmed in their study that even people with a low level of knowledge on ecological issues can exhibit a strong emotional attachment to the environment. Moreover, they proved that knowledge and emotional variables have a completely independent influence on certain behaviour and it is therefore justifiable to treat them as independent variables.

However, it should be pointed out that certain interaction between these variables can potentially appear. In other words, it is possible that expressed emotions towards the environment affect the increase of knowledge on environmental issues by inducing the consumer to consciously look into the issues important to him/her. It is also possible that, if the consumer knows more, i.e. if he/she is more informed about poor environmental conditions, extinction of some species, distortion of original natural beauties, it would result in emergence of positive emotions towards the environment never felt before. Nevertheless, it should be noted that we are talking about interferences between variables, and not about variables conditioning one another, given that, as mentioned, these variables can be present and influence behaviour independent of one another.

Dunlap and Van Liere (1978) developed the widely accepted scale under the name "New Environmental Paradigm", developed in order to measure what people feel regarding the environment. The so-called "NEP scale", based on 12 variables, was first considered to be one-dimensional, but later three factors were established: the balance of nature, the belief that growth should be limited and the belief that human beings are a part of nature (Cotrell, 2003).

The "affect subscale" developed by Maloney, Ward and Braught (1975) is also often applied for measuring the affective component of environmental awareness. In this subscale, different emotional reactions towards the environment and environmental issues are measured by giving answers to questions such as: "I get frustrated and angry when I think about how industry pollutes the environment" or "It scares me to think that most of the food I eat is contaminated with pesticides".

By applying the aforementioned scale, as well as the two other subscales, "verbal commitment" and "actual commitment", Fraj and Martinez (2007) showed that pro-environmental behaviour is determined by affective variables (emotions towards the environment) and that affective variables better explain pro-environmental behaviour in comparison with attitude towards environmental activities ("verbal commitment"). At the same time, emotions represent a significant variable that determines one's attitude towards environmental activities.

Smith and Haugtvedt (1995: 165) explain the direct influence of affective variables on behaviour by claiming that people will more often engage in activities they enjoy than in those that result in dissatisfaction. Therefore, we can expect that individuals who experience positive affective states as a result

of engaging in environmental activities will be more inclined to repeat such behaviour than individuals experiencing negative emotions or lacking positive emotions.

It should be pointed out that there are attitudes that negate the direct relationship between affect (emotions) and actual pro-environmental behaviour, by emphasizing the existence of various mediating variables. One such (mediating) variable is most often willingness, i.e. intention to act.

The usage of affectively oriented appeals seems particularly useful in getting people activated - it works best for people who have little or no direct experience engaging in a particular (targeted) behaviour. Needless to say, it is of great importance to reach this particular group of people, since success in the area of environmental protection depends on mass participation. Once pro-environmental behaviour has been initiated, information-based appeals work better in sustaining that behaviour (Smith and Haugtvedt 1995: 165).

The previously mentioned usage of affectively oriented appeals is based on the almost universal human need to feel united with nature (to feel a part of it). Hartmann and Apaolaza Ibáñez (2006: 677) indicate that there is an instinctive motivation in people to spend time in natural surroundings, due to a positive emotional state experienced while spending time in nature.

If an individual really feels the described emotions associated with nature and environment, but is unable to satisfy the need arising from those emotions (to spend some time in nature), it can be assumed that he/she achieves the mentioned unity with nature (to some extent) by purchasing and consuming green products which he/she perceives as being part of that nature due to strong and continuous marketing strategies in that sense. These emotions often appear on a subconscious level, and consumers express it as "I feel good when I purchase and use a green product", although they do not really know the answer to the question why. One can draw a similar conclusion when it comes to engaging in other pro-environmental actions or behaviour.

The mentioned indirect emotional connections and the mediating variables need to be kept in mind when creating measurement instruments and also during interpretation of results.

3.1.3 Conative component

The conative component of environmental awareness includes behavioural intentions that result in personal contribution to solving environmental issues (Culiberg and Rojšek, 2008: 132). Some authors, e.g. Stone, Barnes and Montgomery (1995), refer to this variable as "willingness to act", while Maloney and Ward (1973) call it "verbal commitment" and define it as a measure of probability of an individual's future actions.

Verbal commitment is often measured by an appropriate subscale, the "verbal commitment subscale", developed by Maloney, Ward and Braught (1975). It measures what a person says he/she is willing to do with regard to environmental issues. This subscale measures the willingness to act by measuring the extent to which people agree with statements such as "I would go to work by bike or bus in order to contribute to air pollution reduction".

In Cottrell's study (2003), in which the aforementioned scale was applied, verbal commitment (intention) turned out to be the strongest predictor of behaviour. Ajzen (1991) also describes intention as a strong indicator of behaviour, but also indicates that the "ability" to predict a conative variable depends on the intensity of interactions between specific variables within the scale, as well as on the effects of external, i.e. situational variables.

Moreover, normative value (author's comment: what an individual thinks others expect of him/her), ascription of responsibility (author's comment: for remedying of environmental problems) and locus of control (author's comment: opinion regarding the extent to which individuals believe they can control events and outcomes in their lives) are important variables that can affect the connection between intention, i.e. expressed willingness to a certain behaviour and actual behaviour (Cottrell, 2003: 370). With regard to this, recent studies have included the so-called "PCE variable" ("perceived consumer effectiveness"), as well as other psychographic variables.

Studying conative variables (intention or willingness to certain behaviour) often leads to finding discrepancies between attitudes and behaviour, which is the subject of the next chapter.

3.2 Attitude – behaviour gap

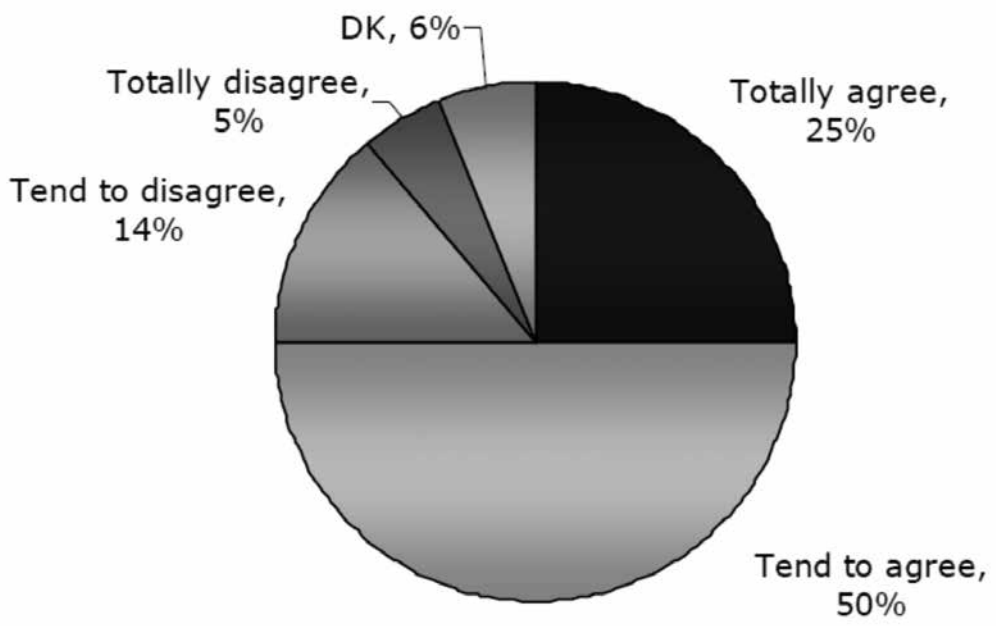
According to Newhouse (1990), inconsistency between attitudes and behaviour most frequently occurs when measurements of general attitudes are applied for prediction of specific (concrete) behaviour. Namely, the variables that measure attitudes towards specific behaviours (attitudes towards activities) are better predictors of pro-environmental behaviour than those that measure general attitudes towards the environment (Bodur and Sarigöllü, 2005: 504). It is also necessary to take into consideration the possibility that consumers' attitudes towards different environmental issues may differ, just like their attitudes towards different environmental behaviour.

Kaiser et al. (1999) provide three reasons (one theoretical and two methodological) that affect the predictive power of the concept of the pro-environmental attitude.

From a theoretical point of view, different attitude concepts are used in research, which make it difficult to compare the results of related research. On the other hand, methodological flaws that affect the observed attitude-behaviour relationship pertain to the lack of measurement correspondence (attitudes and behaviour are not measured on the same level of specificity) and the lack of consideration of situational influences on the observed behaviour. These influences are considered either as moderating factors affecting the relationship between environmental attitude and behaviour or as direct influence on behaviour. Both approaches assume a rather arbitrary selection of possible influencing factors.

A survey carried out in 27 Member States of the European Union in 2007 showed that the transformation of willingness (intention) into actual pro-environmental behaviour is one of the main challenges of green marketing. When asked the following question: "Please tell me whether you totally agree, tend to agree, tend to disagree or totally disagree with the following statement: You are ready to buy environmentally friendly products even if they cost a little bit more", the respondents answered as shown in Graph 1.

Graph 1 Willingness to buy environmentally friendly products even if they are slightly more expensive

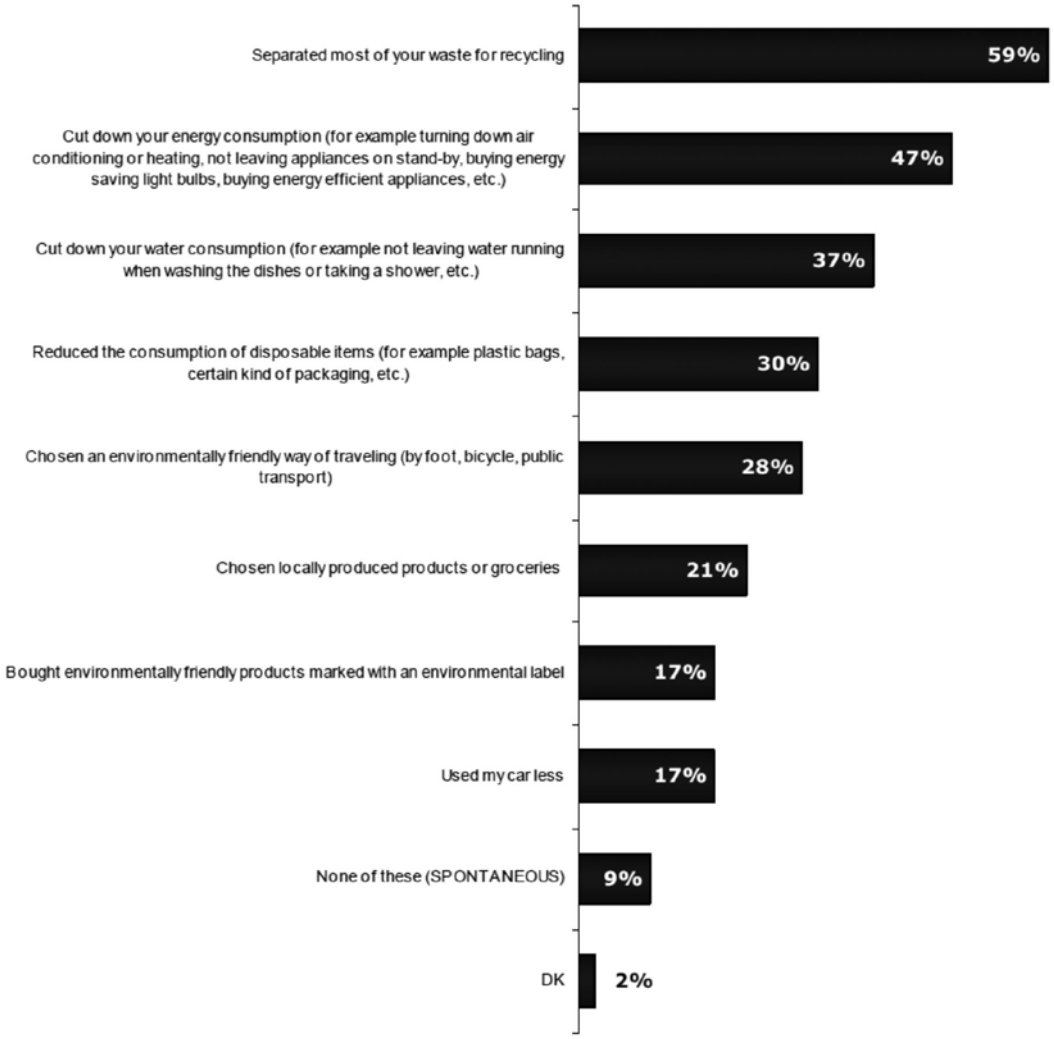


Source: European Commission (2008), "Eurobarometer: Attitudes of European citizens towards the environment", Available at: http://ec.europa.eu/public_opinion/index_en.htm (Accessed on: June 20, 2015)

From Graph 1 we can conclude that three-quarters (75%) of respondents are willing to buy environmentally friendly products. However, in the second part of the same survey on what respondents had actually done in the past month for environmental reasons (Graph 2), only 17% of them reported that they had bought an environmentally friendly product marked with an environmental label.

Table 1 illustrates even better the relationship between intention and behaviour. It seems that 15% of respondents who are willing to buy environmentally friendly products have actually done so, while the biggest share (59%) pertains to those who expressed the willingness to buy such products, but (due to different reasons) have not crossed the threshold of inertia and actually done so.

Graph 2 Actions taken for environmental reasons



Source: European Commission (2008), "Eurobarometer: Attitudes of European citizens towards the environment", Available at: http://ec.europa.eu/public_opinion/index_en.htm (Accessed on: June 20, 2015)

Table 1 Relationship between willingness to buy environmentally friendly products and actual actions

Purchasing environmental products	Willingness + action	Willingness + no action	No willingness + no action
% of total sample	15%	59%	18%

Source: European Commission (2008), "Eurobarometer: Attitudes of European citizens towards the environment", Available at: http://ec.europa.eu/public_opinion/index_en.htm (Accessed on: June 20, 2015)

Leinberger (in Holt and Holt, 2004: 32) gives four reasons for refraining from taking real actions despite the awareness of the need to preserve the environment:

1. I am too busy to make any changes,
2. Environmental products are too expensive,
3. Large economic operators are the ones who should take actions, not people like me,
4. Others are not sacrificing anything; there is little I can do alone.

It can be seen that the first two reasons pertain to external, i.e. situational influences, while the other two present attitudes, i.e. influences acting from the inside (consumer's consciousness).

What is more, it is often indicated that certain discrepancies between attitudes towards the environment and behaviour can be described by cognitive dissonance. Cognitive dissonance is a mental state, often a conflict, in which a person experiences two or more contradictory beliefs or cognitively processes a lot of information. In an individual, it usually leads to a feeling of psychological discomfort that lasts until the person resolves the issue.

Based on survey results, we can conclude that people often experience cognitive dissonance with regard to their behaviour towards environmental issues. If the conflict between environmental attitudes and behaviour really leads to perceived dissonance, a strategy used to reduce it could be to channel one's concern for the environment through specific behaviours that require less or no special sacrifice – thus creating an alibi for one's own consciousness. For example, "Since I started sorting waste for recycling, I have been acting responsibly toward the environment, so it is not necessary to use my car less or participate in the work of environmental associations" (Bratt, 1999: 28). It is possible to quite justifiably assume that certain people will attempt to apply their environmental attitudes in actions that require less effort and less cost.

Consequently, one can conclude that before making decisions on introducing measures to encourage certain forms of pro-environmental behaviour (on state, or local or regional level) it is necessary to consider the influences of those measures on other forms of behaviour. For example, based on his study, Bratt (1999) claimed that introduction of an organized collection of paper for recycling (front-of-house service) reduced to some extent the recycling of other materials which still required going to places foreseen for that purpose, i.e. to special containers. This could be explained by the fact that once paper has been handed over for recycling (through organized collection), the perceived usefulness of transporting other wastes to specialized containers is reduced (due to relatively larger costs per waste unit or due to previously described cognitive dissonance, i.e. alibi for one's consciousness). Therefore, the motivation, and consequently the behaviour itself, is somewhat reduced.

3.3 Social desirability and sample issues

Influences such as social desirability or other forms of (conscious or unconscious) bias in giving answers can result in inaccurate representation of actual behaviour. Although some studies, like studies conducted by Gatersleben et al. (2002), Chan and Lau (2000) and Kaiser et al. (1999), demonstrate that the influence of social desirability is not especially significant when it comes to environmental awareness, the fact remains that a consumer might be aware of a certain answer being socially more desirable and adjust his/her answers accordingly, which may then differ from his/her actual attitudes and/or behaviour.

The mentioned bias is assumed in most studies; although there is evidence that the respondents (regardless of their demographic backgrounds) were completely ready to express their apathy concerning

environmental issues, as well as to explain the reasons for such an attitude, without even thinking of giving socially desirable answers. One of the studies showing such results is the study conducted by Chau and Lau (2000).

One of the ways to reduce the potential bias of respondents is to instruct the fieldworkers to explain to the respondents clearly the importance of honestly expressing their true attitudes and to emphasize the fact that their answers would be analysed and reported only on a collective basis (Chan and Lau, 2000: 345). Apart from that, there are specific interventions in creating the measurement instrument and/or during interpretation of research results.

For example, while creating the measurement instrument, it is possible to incorporate a subscale measuring social desirability effects in the preliminary questionnaire, and then exclude from the final version all those variables that are classified (based on factor analysis) together with the factor marking social desirability, and to exclude the subscale itself (Carlson, 2004). Another version of this is to include the mentioned subscale in the final version of the questionnaire, and then to exclude the questionnaires in which the effect of social desirability is present at a level that exceeds the previously established maximum (Carlson, 2004: 77). By applying a scale of 32 questions that measures the influence of social desirability in respondents' answers, Kaiser et al. (1999) measured the influence on each of the measured variables separately (pro-environmental knowledge, environmental values, intention of pro-environmental behaviour, general pro-environmental behaviour). However, the preliminary testing showed that social desirability did not influence or had only a marginal influence on all measured variables.

Furthermore, it is necessary to take into account the influence of systematic error resulting from unwillingness to participate in the survey (non-response bias). It can be assumed that those who are more interested in environmental issues, being thus more environmentally aware, will be more willing to participate. This is particularly the case in surveys conducted via post or in other extensive types of research that require more time being invested by the respondents (as it is often the case with environmental awareness research due to the complexity of the issue which includes various aspects of the respondents' personality and behaviour).

Armstrong and Overton (1977) offered a way of including systematic error in result interpretation. The procedure involves comparing the so-called "early" and "late" respondents, i.e. respondents who participated in the survey at first request and those who needed an extra incentive or follow-up letter, assuming that late respondents are more similar to those who did not participate in the survey. That way one can make assumptions about the characteristics of those who did not participate. On the other hand, in their research, Kinnear et al. (1974) sent questionnaires to existing panel members (Canadian Family Opinion-University of Western Ontario Consumer Panel). Consequently, they were able to compare the socio-economic background of respondents and non-respondents, finding no significant differences between them.

In numerous studies, the problem of sample size and representativeness were among the most significant limitations. Namely, due to a multitude of different influences on environmental awareness itself and its operationalization in terms of pro-environmental behaviour, one often requires relatively large samples of respondents (on national or even international level) to obtain realistic information. This results from the fact that the level of environmental awareness can differ in certain regions, depending on region-specific environmental issues, dominant industries, level of development and other.

In addition, the existence of actual or assumed differences between certain socio-demographic groups makes it harder to apply a student sample, which is often used in marketing research due to a very simple reason - availability. All of the above significantly increases the costs of conducting research and represents an obstacle for application of certain methodology that requires data collection continuity.

4. Conclusion

All the described issues and limitations of research in no way diminish the value of researching or monitoring the level of environmental awareness or the value of pro-environmental actions taken. However, they represent factors that have to be taken into account when creating measurement instruments, analysing research results and interpreting them. That way, one could minimize the influence of those

issues and limitations and contribute to quality, universality and comparability of the obtained results, developed models and defined laws.

Based on the analysis of relevant theoretical cognitions and empirical research results, the key issues can be categorized in three groups: issues in measuring different components of attitude (cognitive, affective and conative component), issues concerning the attitude – behaviour gap and issues concerning the influence of social desirability and the research sample. When designing research methodology and interpreting the results all of the three categories of issues should be taken into account in order to provide the best possible answer to a specific research question.

It is important to bear in mind the complexity of attitude structure and its components, so that during each stage of research design and implementation, one can have a clear idea of which attitude component is being measured or interpreted. In addition to this, it is necessary to take into account the potential interaction and different direction of correlation between a particular component of attitude as being the independent variable with a dependent variable. The attitude-behaviour gap is particularly important to consider when interpreting research results and defining theoretical and practical implications. It is important to have a clear picture and the same definition of the dependent variable during research design and in making conclusions, implications and resulting strategies. In addition, it should be mentioned that issues related to social desirability and sample issues are sometimes underemphasized in scientific research, especially when the research purpose is to determine variable correlations and predictors. These variable interdependencies can be established on smaller convenient samples but commenting on practical implications of such results should be limited, especially concerning the direction of the variable influences.

We can conclude that significant progress has been achieved in that sense in recent years. Accordingly, the use of the term "environmental awareness" has evolved from being just a declarative buzzword of various speakers and instead it is used in actual strategic objectives on different levels of society. In order to continue this progress, it is necessary to continuously work in various scientific and other spheres to ensure its manageability in all relevant aspects and areas. There is a lack of research in the area of quantification and measurement of intensity of influence of particular issues, such as the influence of socially desirable answers on research results and the intensity of influence of a certain variable. Also, efforts should be made in further development of tools and methodological insights for explaining and minimizing the attitude-behaviour gap.

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Važna pitanja prilikom mjerenja ekološke svjesnosti

Sažetak

U posljednja dva desetljeća, upravljanje i podizanje opće razine ekološke svjesnosti na svim razinama suvremenoga društva postao je jedan od društvenih ciljeva koji je dosegao nikada ranije viđenu razinu društvenoga i političkoga konsenzusa. S obzirom da je moguće upravljati samo onim što se može izmjeriti, mjerenje ekološke svjesnosti utemeljeno na znanstvenim kriterijima dobiva sve više pozornosti znanstvenika različitih disciplina. S razvojem discipline, otkrivene su brojne zakonitosti, razvijeni modeli i definirana ograničenja koja je potrebno uzeti u obzir, međutim nedostaje literature koja bi istraživačima pružila pregled dosadašnjih spoznaja i ponudila svojevrsnu *„check-listu"* za istraživače.

Svrha je ovoga istraživanja utvrditi i raspraviti o ključnim pitanjima koja je potrebno uzeti u obzir prilikom oblikovanja mjernih instrumenata, analize rezultata istraživanja te same interpretacije. Na temelju analize relevantnih teorijskih spoznaja i rezultata empirijskih istraživanja, rad pruža pregled ključnih pitanja i kategorizira ih u tri skupine: pitanja prilikom mjerenja različitih sastavnica stava, pitanja vezana uz neusklađenost stavova i ponašanja i pitanja vezana uz utjecaj društvene poželjnosti i uzorka istraživanja. Ukoliko se sva ova pitanja uzmu u obzir, moguće je uračunati i minimizirati njihov negativan utjecaj i doprinijeti kvaliteti, univerzalnosti i usporedivosti dobivenih rezultata kao i razvijenih modela i definiranih zakonitosti.

Ključne riječi: ekološka svjesnost, mjerenje, pitanja, sastavnice stava