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„FUTURE GENERATIONS" AND SUSTAINABLE CONSUMPTION

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ABSTRACT. The paper is based on the topic of sustainable consumption. The authors describe the main definitions and concepts of sustainable consumption using international literature review, however in a narrow sense, concentrate on eco-labelling. Eco-labels and eco-labelling are introduced and their role in sustainable consumption is emphasized by examining the interests of consumers and producers. The secondary comprehensive research is the base of a questionnaire research, which examines the knowledge and attitude (consumer behavior) in connection with sustainable consumption and also eco-labels. This research focuses on the interpretation and the factors of sustainable consumption, in addition the influencing factors of choosing eco-labelled products; within the sample of Hungarian university students who are the members of "future generations". Results of the questionnaire research show the interests on sustainable consumption and eco-labelling; and also highlight the improving fields in raising awareness.

JEL Classification: Q5, Q59, M3

Keywords: sustainable consumption, eco-labels, resource-efficiency, consumer behavior.

Introduction

As sustainable consumption (SC) is (has to be) a current topic in case of consumers (private and public purchasers) and also of producers, at the beginning of the paper

(Chapter 1) we introduce the main definitions and concepts of sustainable consumption based on an international literature review and in the same chapter we summarize the meaning of sustainable consumer behaviour. We also concentrate on eco-labelling and eco-labels, as tools of sustainable consumption, in the next chapter (Chapter 2) we introduce the main definitions, aims and usability of eco-labels using literature review.

The secondary research is the base of our primer, questionnaire research, so the second part of our paper (Chapter 3 and subchapters (3.1, 3.2, 3.3)) introduces the results of this primer research (our method was descriptive statistic in the examination of answers). The questionnaire research focuses on the interpretation and the factors of sustainable consumption, in addition the influencing factors of choosing eco-labelled products; within the sample of Hungarian university students who are the members of "future generations" (Students of Department of Environmental Economics (Budapest University of Technology and Economics)) were asked during a limited time period, so these are limits of the questionnaire research, however the sample is relatively high, so we assume that some general conclusions can be drawn from the answers). Finally, based on the results of the questionnaire research, at the end of the paper (Conclusions) we make conclusions about the interests on sustainable consumption and eco-labelling and also highlight the improving fields in raising awareness.

1. Sustainable consumption and consumer behaviour – a literature review

Our production and consumption habits/behaviour have a strong contribution to global environmental problems, therefore the necessity to move towards a more sustainable behaviour is urgent – as it is emphasised in the EU's Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (COM (2008) 397 final, 2008). Numerous publications, roadmaps from the Commission call the attention for sustainable consumption and production (inter alia "Roadmap to a Resource Efficient Europe" (COM (2011) 571 final, 2011, Ch. 3 and 3.1), thus sustainable consumption and production is (has to be) a current topic in case of consumers (private and public purchasers (see green public procurement (inter alia (Diófási & Valkó, 2014)) and also of producers. As sustainable consumption is in the centre of this work, further paragraphs analyse mostly the concept of sustainable consumption.

In spite of the fact, that term of sustainable consumption has appeared as early as in 1992, in the Rio Summit of the United Nations Conference on Environment and Development (Agneda21) (UNEP, 2010), today there is a wide range of definitions and approaches in connection with this concept. It is defined, characterized by different initiatives, reports, and international policies and also scientific literatures, however several works are about solutions towards achieving sustainable consumption patterns. Based on non-exhaustive but comprehensive literature review, we present a clear, summarized picture about the main characteristics of sustainable consumption.

After the Rio Summit, the working definition of sustainable consumption and production (SCP) was created by the Oslo Symposium on Sustainable Consumption in 1994, namely SCP is "[t]he use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of future generations" (Norwegian Ministry of Environment referred by UNEP, 2010, p. 12). According to this definition, the transition toward "sustainable consumption and production patterns should mean more than just enabling consumers to buy products that are a bit more sustainable" (Fedrigo and Hontelez, 2010 referred by Wang, Liu, & Qi, 2014, p. 154). Document of the European Environmental

Agency (EEA) summarizes that commitment to SCP was renewed by the UN Conference on Sustainable Development in 2012 and recently SCP „has been proposed as one of the sustainable development goals (SDGs) for the post 2015 development agenda" (UN, 2012a and UN, 2014a referred by EEA, 2014, p. 155).

In the scientific literature, a wide range of approaches help to understand what sustainable consumption is as a practical approach. Inter alia, Wang *et al.* (2014, p. 154) label sustainable consumption as an "umbrella term" and enumerate the key issues: "meeting needs, enhancing the quality of life, improving resource efficiency, increasing the use of renewable energy sources, minimizing waste, taking a life cycle perspective and taking into account the equity dimension" (Wang *et al.*, 2014, p. 154). According to Valkó (2003), sustainable consumption has two main objectives: reducing the volume of consumption of goods and changing consumer habits, consumption patterns; and to achieve a sustainability based, permanent value system.

As we see, in connection with sustainable consumption, it is not enough just to understand the approach, influencing factors in different levels also should be taken into account. Akenji (2014, p. 18) summarizes the key elements for mainstreaming sustainable consumption in the Attitude–Facilitators–Infrastructure (AFI) framework. AFI enables sustainable consumption at a systems level, „three elements are needed and should operate in concert with each other: the right attitude from stakeholders; facilitators to enable actions reflect attitudes; and appropriate infrastructure that would make sustainable lifestyles the easier option" (Akenji, 2014, p. 18). However, in connection with consumption, consumer behaviour should have an emphasised role. As in general, several factors could influence the behaviour of a consumer, as it is emphasised in different models, such as Kotler's Model of Consumer Behaviour (Kotler & Dubois, 2003). In Kotler's model "The environment" ("Marketing stimuli" and "Other"), "Buyer's Black Box" ("Buyer's characteristics" and "Buyer's decision process") and the "Buyer Responses" are the main elements of consumer behaviour. "Buyer's characteristics" are grouped as "Cultural", "Social", "Personal" and "Psychological" characteristics (Kotler & Dubois, 2003).

It is a fact, that consumers are "more environmentally and socially aware today", although, "they still do not generally consume with concern" (O'Rourke, 2005, p. 116). Based on a deep literature review, Jonkuté and Jugris (2014) write that several authors recognised that consumer behaviour is strongly "influenced by such worldwide tendencies as globalization", demographic changes, "rise in global economy, technological progress and innovations", besides, it "is also influenced by many various elements of socio-cultural system and interactions between economical, socio-cultural, technological and many other factors" (Based on a comprehensive literature review Jonkutė & Jurgis, 2014, p. 466).

Gilg *et al.* (2005, p. 482) based on a literature review, conclude that there are three sets of variables, such as "environmental and social values, socio-demographic variables and psychological factors"; which are influential in classifying a green consumer.

Based on the literature review we can conclude that sustainable consumption is crucial in achieving the overarching goal of sustainability. Several authors and organisations developed various – mostly consistent – definitions and a lot of research has been conducted on the typical characteristics of sustainable consumer behaviour. In order to enable sustainable consumption it is important to reduce the level of material and energy consumption that can basically be reached in two ways: by reducing the level of total consumption or by improving efficiency and environmental characteristics of products. In the following part of the paper we analyse a useful tool for informing consumers about the environmental characteristics of products, namely eco-labelling.

2. Eco-labelling towards sustainable consumption – a literature review

As eco-labelling is an improtant topic nowdays, several researches introduce the meaning and usability of this tool of communication – for example Péterné Baranyi examines the advantages (3 win) of eco-labelling (this chapter is based on the work of Péterné Baranyi (Péterné Baranyi, 2011)). In the past decades in parallel with the improving environmental awareness of consumers, a so-called "information need" was formed in the society regarding the environmental impacts of products (Rex & Baumann, 2007). In order to enable consumer decisions that are favourable from the point of view of the environment, society has to have proper information about the environmental impacts of products or services (Kósi & Valkó, 1999; Polonsky & Rosenberger III, 2001).

We can raise the question: whose task (responsibility) is it to provide information about the environmental impacts of products? The next question is: how, by what kind of measures can this task be completed? It is important to note that providing information about the (environmental impacts of) products cannot only be considered as a responsibility, but it can or should be seen as an opportunity as well. It is an opportunity for the producer to influence the choice of consumers and to motivate them to by their products. If it happens, providing information – in an indirect way – may contribute to the growth of market share of the given organisation.

The second question is easy to answer, as there are several practical tools to satisfy the information need of consumers. Information about the environmental impacts of the product can be provided in written form or by symbols placed on products or packaging (Baranyi & Csigéné, 2004). Environmental information helps consumers to make consumption decisions that are beneficiary for the environment (Aragon-Correa & Rubio-Lopez, 2007).

However, there are several symbols available on the market. Their overall name is eco-label, and they can be classified as follows (ÚMFT Project, 2010):

- voluntary or compulsory labels,
- labels based on a single requirement or based on life-cycle assessment,
- labels providing information about the product or service or about the process of production,
- labels providing information for consumers or for business partners,
- labels created by a first-party or labels certified by a third-party,
- legally acknowledged labels or private labels regulated by the market,
- ISO I, ISO II or ISO III-type labels based on standards of the ISO 14000 series of standards etc.

Consumers have to be aware that some symbols do not provide accurate information about the environmental impact of products based on its whole life-cycle, but give information only about certain aspects of environmental impacts, or in many cases there is no independent party guaranteeing the reliability of the information provided (Terracoice, 2009; ÚMFT Project, 2010).

In order to provide reliable information about the environmental impacts of products or services for the consumers – which is essential from the aspect of enlightened consumers nowadays who are often sceptical and do not believe what producers or sellers communicate (Törőcsik, 2006) – labelling systems, supervised by an independent body, have been established. These labels can be awarded to products that satisfy the system of criterion defined by the labelling organisation.

The reliability of information is especially important in case of this type of product characteristics. According to the so-called "characteristics model" (Lancaster, 1966), the usefulness of a product is determined by a set of characteristics and they are also reflected in the price of the product. However, these characteristics nowadays are becoming more and

more hidden, not directly perceivable by the consumers, actually we can call these "soft product characteristics". Environmental characteristics of products typically belong to this group: the consumer cannot measure them (especially if we follow the life-cycle approach and would like to see the "full spectrum of environmental impacts" at each step of its life-cycle….). The reliability of information is important for these reasons as well.

The purpose of labelling systems, supervised by independent bodies is to inform consumers about environmentally friendly products, creating one of the important bases of sustainable consumption. Furthermore, they help to move the economy onto a more sustainable track, that is eco-labelling and information provision is not the main objective, but they help environmentally friendly production, consumption and market in general (Gallup, 2009; Rex & Baumann, 2007) Eco-labelling can be seen as a connection link between sustainable, responsible consumption and responsible operation of companies (in a broader sense, Corporate Social Responsibility).

In the creation of more environmentally friendly, sustainable business operations and market mechanisms the role of companies is indispensable. Growing environmental expectations motivate companies to consider environmental (and social) issues more carefully, integrate environmental protection (and social responsibility) into their operations, operate environmental management systems, invest in eco-innovation and communicate their environmental efforts. Eco-labelling can be seen as a useful measure of environmental communication. The opportunity of eco-labelling is available for companies. While in case of compulsory labels the companies are obliged to use it (e.g. EU energy label), in case of voluntary labels (e.g. ISO I type eco-label) the organisation can choose to use the label to satisfy consumer needs or for advertisement purposes, as a part of their communication and marketing activity. (Labelling can be considered as a key element of eco-marketing) (Rex & Baumann, 2007).

It is important to emphasize that eco-marketing can only be successful and credible if the decisions are made and marketing activities are chosen based on the profile of the company, and the activity reflects the real operations of the organisation and they avoid the trap of the so-called "green-washing" (Corpwatch, n.d.; greenwashingindex, n.d.; Lausek, 2009; Smith, 2009; Sourcewatch, n.d.; stopgreenwash, n.d.).

Among others, ISO I-type eco-labels help to avoid green-washing. They are voluntary environmental policy and management tools and provide reliable information about the (favourable) environmental characteristics of products. Reliability and the provision of information about the whole life cycle impacts of the products are guaranteed by the system of labelling by an independent body (third-party) and the fact that the product has to satisfy a strict criterion system based on the life-cycle approach. That is, ISO I-type eco-labels are awarded by independent certification committees for products and services that meet several environmental criteria, related to certain parts of the whole life-cycle of the product (criteria are based on life-cycle assessment) (Hemmelskamp & Brockmann, 1997) and satisfy the basic quality criteria as well (MSZ EN ISO 14024, 2001).

Several environmental regulatory documents help the spread of this type of reliable eco-labelling, contributing to the achievement of the following goals: motivating sustainable consumption and production (informing consumers, following the life-cycle approach, motivating the usage of environmentally friendly products) and encouraging green public procurement as well (COM (2001) 68, 2001; COM (2004) 0038, 2004; COM (2007) 804, 2007; COM (2007) 860, 2007; COM (2008) 397, 2008; COM (2008) 400, 2008; Decision No 1600/2002/EC, 2002; Directive 2004/17/EC, 2004; Directive 2004/18/EC, 2004; Directive 2009/125/EC, 2009; EU 6. EAP, 2001).

In the following part of our paper we present the results of a questionnaire survey, conducted among university students about sustainable consumption in general and also focusing on their awareness of the eco-labelling systems and concrete labels.

3. According to the "future generation"

Based on the previous, secondary comprehensive research, we prepared a primer, questionnaire research examining the knowledge and consumer behaviour of "future generations" about sustainable consumption and eco-labels.

Hungarian university students, as the members of "future generations" were the target group. The research took place at the Budapest University of Technology and Economics, in March 2015. Students of the Department of Environmental Economics (DoEE) were asked about the interpretation and the influencing factors of sustainable consumption, and also about eco-labelled products. In 2015, DoEE educates approximately 1100 students (per semester), who are interested in sustainability and environmental issues. Finally 172 students filled in the questionnaire, however 27 were MSc student and 145 were BSc student, and thus finally the examined homogenous sample is the group of BSc students (N=145).

Because of the relatively high number of respondents, we assume that some general conclusions can be drawn from the answers. The aim of the research was to gain information about their knowledge on sustainable consumption and eco-labelling, which gives a base to know which fields should be improved. Our method was descriptive statistic, since this was a first level examination. We intend to extend our research later and examine this result with other methods too.

Based on previously presented literature review and in additionally studied literatures (as (Csutora Eds. & Hofmeister Eds., 2011; Valkó, 2003)) and an overview of previous researches in the field of sustainable consumption (Roberts, 1996; Thøgersen & Folke, 2002; Wang *et al.*, 2014; Zhao, Gao, Wu, Wang, & Zhu, 2014), but mostly based on the our professional knowledge and experience (lecturers and researchers of DoEE (e.g. (Csigéné Nagypál, 2008), (Péterné Baranyi, 2011)), a questionnaire with 15 closed and 9 open questions was prepared by us, focusing especially on university students' attitudes towards the above analysed issues. We were also interested in how the consumption patterns of university students would change after they graduate and will have their own, presumably higher income.

3.1. Characteristics of the sample

The demographic data are shown in *Table 1*. It can be seen that the sample is made up of 50.3% female and 49.7% male respondents, really close to the ideal ratio 1:1 and the numbers from the national official statistics are 53.8% female and 46.2% male respectively (Hungarian Central Statistical Office, 2011).

In the demographic part of our survey, we also collected information on age, the field of education, and place of origin. Since our respondents are university students, we could not ask questions about their own income, therefore, we asked how much money they spend on food, clothes and durable consumer goods per month on average. The students' age group is 18-25 (100%), they are BSc students (100%), and therefore, we did not make a difference within this age group as we suppose that they have similar characteristics (*Table 1*).

Table 1. The demographic features of our samples (N=145)

Variables	Options	N (number)	%
Gender	Male	72	49,7
	Female	73	50,3
	Total	145	100
Age group	18-25	145	100
Education field	Economic	106	73,1
	Engineering	39	26,9
	Total	145	100
Settlement/ place of origin	Capital city (Budapest) and its agglomeration	67	46,2
	Countryside	78	53,8
	Total	145	100
Avarage spending for food, cloths, durable consumer goods HUF/month	0-10 000	12	8,3
	10 001-20 000	23	15,9
	20 001-30 000	34	23,5
	30 001-40 000	33	22,8
	40 001-50 000	15	10,3
	50 001-60 000	14	9,7
	60 001-	14	9,7
	Total	145	100

Source: own compilation.

In *Table 1* the average monthly spending of our respondents can also be seen. It was an important field of our survey as we asked them about their willingness to realise sustainable consumption and to buy eco-labelled products basically. This figure proves that this students group has rather inhomogeneous income. The average spending is from below HUF 10 000 monthly to over HUF 60 000, and the majority of the respondents' average spending is about HUF 30 000.

3.2. Environmental attitude of our respondents

The first part of our survey was focusing on what students think about their personal attitude in relation to environmental protection and sustainable consumption. Which are the typical characteristics and barriers of sustainable consumption?

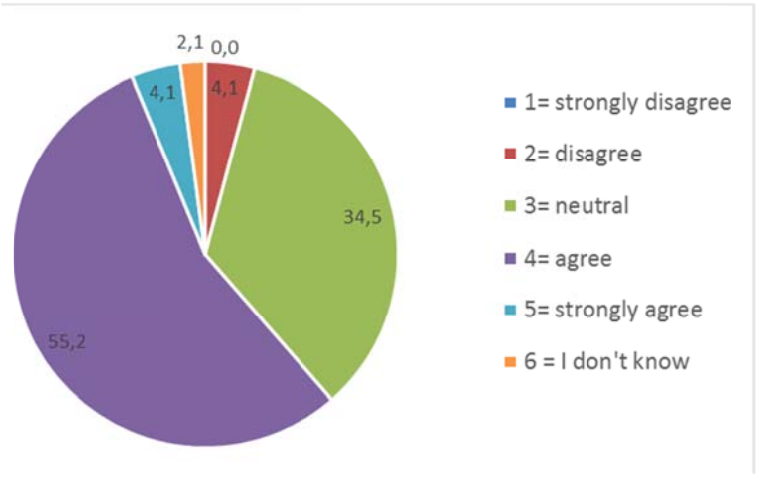


Figure 1. What do you think about your own environmental attitude? You are environmentally conscious… (%)
Source: own compilation.

In *Figure 1* it can be recognised that our respondents think about themselves as rather environmentally conscious than not environmentally conscious consumers, namely 55.2% of the sample think so. Data were measured basically by 5-point Likert-type scale (1 = not at all; 2 = a little bit; 3 = neutral; 4 = rather environmental conscious; 5 = strongly environmental conscious), furthermore, there was the 'I do not know' (6) option to choose.

In this case, we suppose that people basically like to put themselves at a higher level in relation to positive things (for example environmental awareness), however we can still conclude that it is a positive result.

It was an important field of our survey to investigate what our students, – who are members of 'the future generation' – think about their future consumption behaviour if they will have their own income. The question referred to water and energy – use in the future; consumption and interest in fair trade, eco- and bio labelled-products, furthermore the use of public transport in the future.

The answers can be found in *Figure 2*. The reader can see that the most conspicuous answer is that they will aspire to reduce their water and energy use. Another important result is that the majority does not plan to buy Fair trade or eco-labelled products). We suppose that this is partly, because they have insufficient information about these labels and products. However, more than 60% of our respondents plan to buy bio or healthy food products, suggesting that healthy lifestyle is a bit more important for our respondents than sustainable consumption.

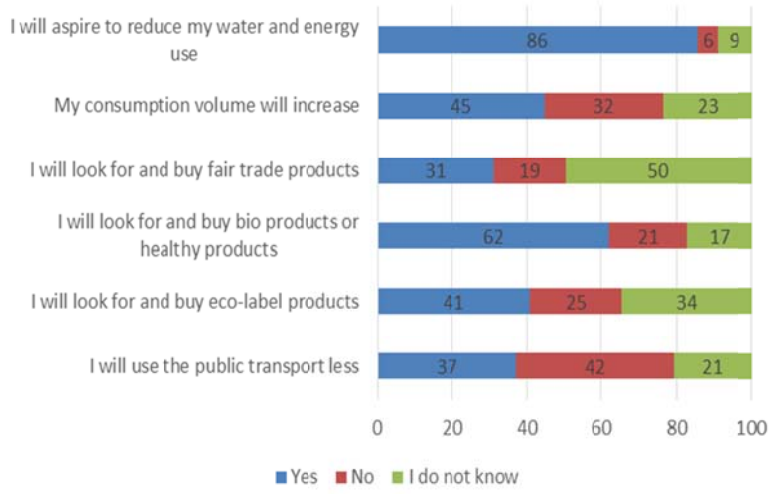


Figure 2. Future consumption behaviour (%)
Source: own compilation.

3.3. Our respondents' awareness on sustainable consumption

Students were asked to define the meaning of sustainable consumption (SC) with their own words and also to define the barriers of the process towards SC. In spite of different definitions and barriers of SC, several common points could be found in the answers. *Table 2-3*, summarizes the results and emphasise the common points of definitions and barriers.

Among barriers it should be emphasised that behaviour of producers (e.g. oversupply, variety of goods and profit-oriented corporate behaviour) and also of consumers (e.g. consumerism, wasting) could be a limit of sustainable consumption.

Table 2. Definition of sustainable consumption

Total number of answers	132
Number of uninterprtable answers	10
Total number of interpretable answers (100%)	**N=122**
The definition of SC according to students (own words) contains…	*Incidence of answers*
...the characteristics of the volume of consumption and the refusal of wasting products	59%
…a consumer behaviour, which takes the "interest of future generations" into account.	30%
… a behaviour, which aims to reduce environmental impacts, and contribute to environmental protection and nature conservation	24%
… recycling, usage of recycled materials and to decrease waste.	14%
… environmentally-friendly consumption, conscious consumption and consumption of environmentally-friendly products.	12%
… saving concrete resources (e.g. energy, water)	3%

Source: own compilation.

Table 3. Barriers of sustainable consumption

Total number of answers	129
Number of uninterpretable answers	2
Total number of interpretable answers (100%)	**N=127**
Barriers of SC according to students:	*Incidence of answers*
…way of thinking, attitude, mentality	26%
…excessive consumption needs, consumerism, wasting	21%
…higher price, more expensive products	20%
...ignorance, lack of information	17%
… production with high environmental impacts, lack of environmentally-friendly products available	15%
… profit-oriented corporate behaviour	10%
… oversupply, too many goods produced and available	9%
…laziness, comfort, lack of time	9%
… global economic crisis, globalization, policy	9%
...population growth	6%
… lack of effective environmental regulation; … lack of opportunity for household selective waste collection; … differences in standard of living; …lack of opportunity for recycling	0,78% - 0,78%

Source: own compilation.

In *Figure 3* it can be seen what our students think about sustainable consumption. Some false characteristics regarding sustainable consumption "have been hidden" among the characteristics, as we would have liked to know whether the respondents can filter these not suitable characteristics. In case of this question data were also measured by a 5-point Likert-type scale (1 = not at all; 2 = a little bit; 3 = neutral; 4 = rather agree; 5 = strongly agree and 6 = I do not know).

Based on the sustainable consumption definition which was chosen by our author group, we put the next variables among the "fake features": not decreasing consumption level on the long run; continuously increasing consumption level; purchasing lower price products. 68% of all respondents think that the 'continuously increasing consumption level' does not belong to the characteristics of sustainable consumption. However, the answers in case of the other two "false" characteristics were not so unambiguous. In case of these factors respondents have chosen rather the neutral point than clear judgment had been made.

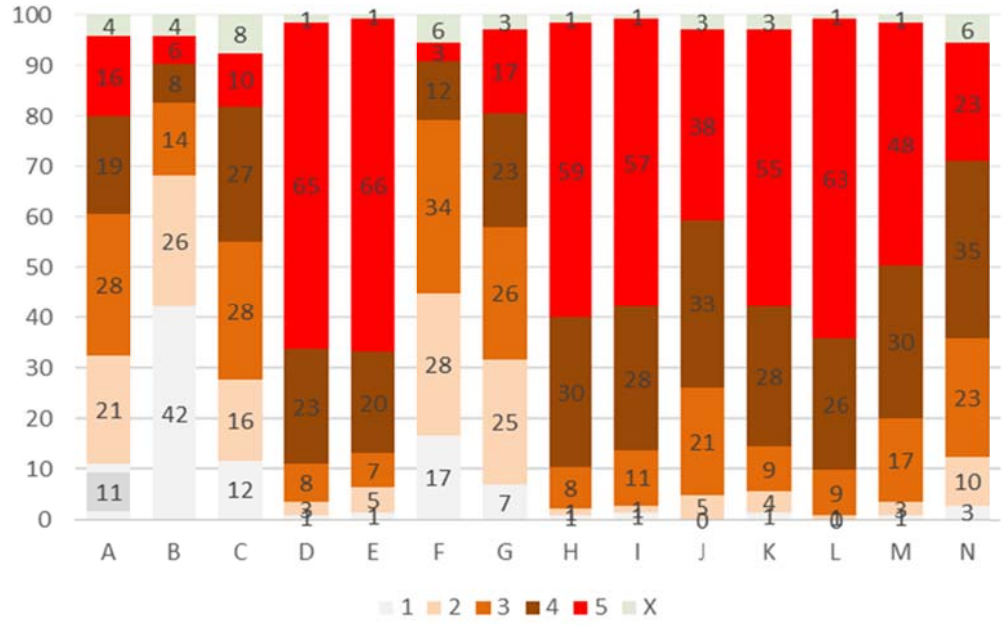
It is an interesting result that the points of 'keeping in mind the interests of future generation'; 'decreasing the quantity of waste'; 'buying better quality and longer life-time products'; 'reduction of water and energy consumption in households'; 'choosing a product with few packaging or environmental friendly packaging'; 'sustainable use of resources'; and 'buying products from recycled materials' have been marked as 'strongly agree' by over 50% of all respondents.

This result is in connection with the result of own-word definition of sustainable consumption, where rate of consumption and refusal of wasting, and future generations were (see *Table 2*) mention in the field of SC.

Table 4. Additional characteristics of sustainable consumption

Total number of answers	62
Number of uninterprtable answers 2	3
Total number of interpretable answers (100%)	**N=60**
Additional characteristics of SC according to students:	*Incidence of answers*
…no more (just the mentioned ones in the questionnaire)	12%
… no other idea	8%
… repeated characteristics	13%
… environmentally-friendly production and (conscious) consumption	32%
… selective waste collection	17%
…giving information, changing attitudes	5%
… using public transportation	3%
Energy efficiency; Subsidy; Removing construction debris; Higher well-being of consumers; Gardening – sowing; Common usage of products in communities	1,66% – 1,66%

Source: own compilation.



Variable	Meaning
A	Not decreasing consumption level on the long run
B	Continuously increasing consumption level
C	Reducing the income differences
D	Keeping in mind the interests of future generation
E	Decreasing the quantity of waste
F	Purchasing lower price products
G	Buying less products
H	Buying better quality and longer life-time products
I	Reduction of water and energy consumption in households
J	Getting more information about the characteristics of the wanted products
K	Choosing a product with few packaging or environemental friendly packaging
L	Sustainable use of resources
M	Buying products from recycled materials
N	Buying local products

Figure 3. The characteristics of sustainable consumption according to the respondents. The question was: How typical are the listed characteristics in case of sustainable consumption? (%)
Source: own compilation.

After these students were asked to collect other, additional characteristics of SC, *Table 4* shows the answers and as it can be seen, environmentally-friendly production and (and conscious) consumption and separate waste collection was highlighted as additional characteristics of SC.

Likely, these features have a strong effect on our students. They can learn about these issues for example on courses which are held by our Department.

To summarize these comprehensive figures, our respondents have an adequate knowledge in this topic, generally, they could indicate the most typical variables and broadly filter the false points too. As it was emphasised in the literature review, eco-labels have a highlighted role in realising sustainable consumption. There is a wide range of eco-labels and for good usability; consumers should be informed about the meaning, content of labels.

Table 5. Aim of eco-labelling

Total number of answers	137
Number of uninterpretable answers	2
Total number of interpretable answers (100%)	**N=135**
Aim of eco-labels…	*Incidence of answers*
...to inform consumers	45%
…to draw attention on the importance of environmental protection	29%
...captivate, manipualtive	16%
…to inform about lower level of environmental impacts, environmentally-friendly production	11%
…awareness-raising	6%
…consumption of healthier products; …protection of endangered species and rain forest	0,74%-0,74%

Source: own compilation.

Table 6. Eco-labels give information about…

Total number of interpretable answers (100%)	**N=121**
Eco-labels can give us information about…	*Incidence of answers*
…process of preparation	51%
…about raw material, recycled material and environmentally-friendly raw material	47%
… place of origin	22%
… recycleablity of the product, waste treatment	17%
…environmentally-friendly , healthly product	13%
…packaging	12%
… energy efficiency of the product	9%
… transportation of the product	2%

Source: own compilation.

Students were asked to define the aim of eco-labelling and the information content they provide in their own words. *Table 5* and *Table 6* summarize the answers. Among the aims specified by our respondents, there is a variety of "communication roles" of eco-labels: according to students these labels could inform, raise awareness, can be captivate-

manipulative and also can provide real information. Production process and raw materials are emphasised as subjects of information provided by eco-labels.

Consumption of eco-labelled products could have different disadvantages, and we were interested about student's own opinion about it. A high percentage of respondents wrote that there is no any disadvantage in this field, however the majority of respondents wrote that higher price of eco-labelled product is a disadvantage. *Table 7* summarizes the incidence of answers according to students.

Table 7. Disadvantages

Total number of answers	107
Number of uninterpretable answers	4
Total number of interpretable answers (100%)	**N=103**
Disadvantages of consuming eco-labelled product:	*Incidence of answers*
… there is no any disadvantage	17%
… no any known disatvantages	5%
… higher price, more expennsive products	62%
… deceptive, does not always show the real meaning	19%
… worse quality of the product	3%
… overconsumption of eco-labelled product, no any change in the consumer behaviour	3%
… there is no enough information about eco-labelled products	3%
… there is no wide avability of eco-labelled products; …there is no demand of eco-labelled products	1%

Source: own compilation.

In relation to eco-labelling a table with labels (pictures) was used in the questionnaire as we wanted to investigate whether respondents can recognize these ones.

Figure 4 summarizes the answers, how many students could interpret the labels. The first three labels are ISO I type eco-labels – the EU eco-label, the Hungarian and the German one – while the last one is the Energy Label. Numbers in brackets are the numbers of mentioning, bold ones are the good interpretations of the label and present product categories of eco labels, italics indicate previously eco-labelled products Assessment of product categories is based on the actual categories of EU eco-label (EU eco-label, n.d.), Hungarian eco-label (Hungarian Ecolabelling Organisation, n.d.) and German eco-label (blauer-engel.de, n.d.).

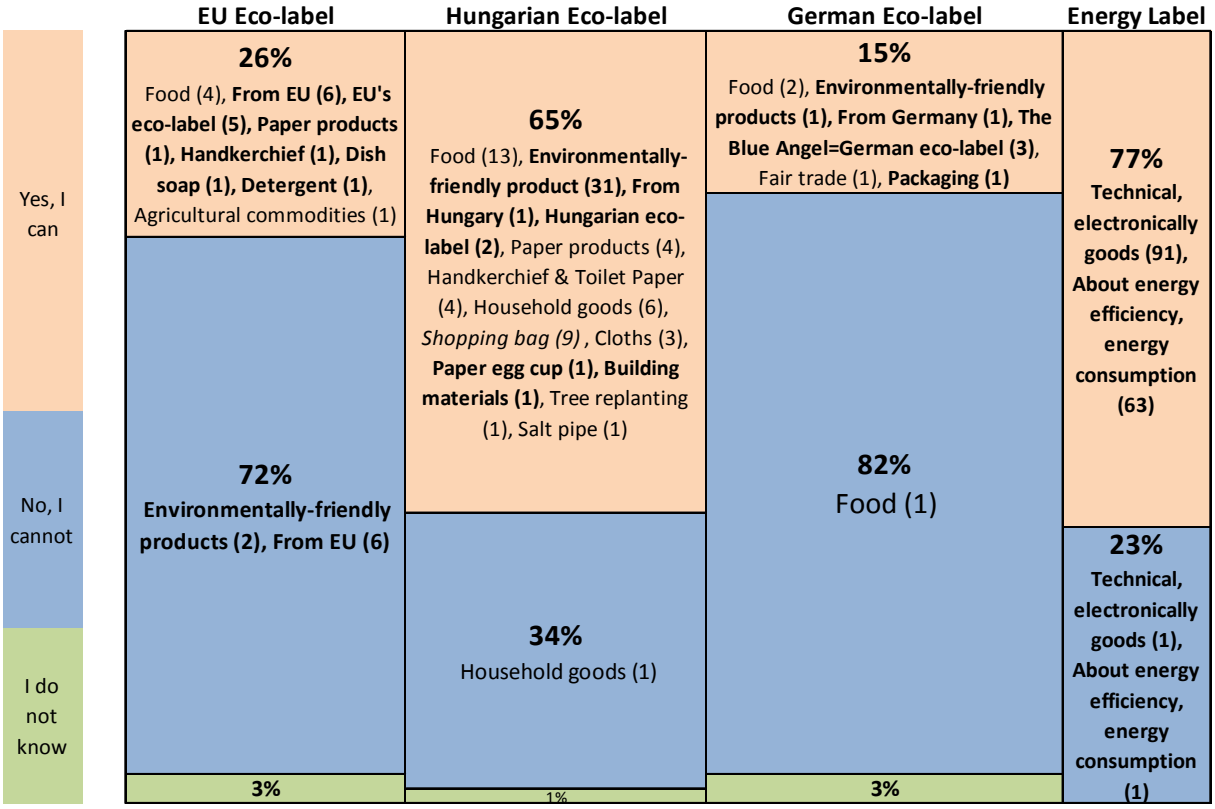


Figure 4. Recognition and identification of labels (%, N=145)
Source: own compilation.

It is well seen in *Figure 4* that in case of those who recognized the label, it is not sure that he or she could identify it properly. Food was a typical identified product which was mentioned by our students; however, in case of this product group ISO I type eco-labels are not used. Presumably respondents know bio-product eco-labels and they think these are ISO I type eco-labels too.

Table 8. Product groups according to students

Total number of answers	**122**	**118**
Number of uninterpretable answers	0	1
Number of "I don't know answers"	5	10
Total number of interpretable answers (100%)	**N=117**	**N=107**
Product gropus in eco-label systems (Type I)	**Hungarian eco-label**	**EU's eco-label**
	Incidence of answers	*Incidence of answers*
Food (also Hungarian/from EU)	71%	40%
Food from Hungary/EU	8, 54%	2%
Hungarian product/Product from EU (not food)	**10%**	**15%**
Cosmetic Products	5%	**8%**
Clothing	9%	**16%**
Household goods, chemicals	15%	**27%**
Packaging	**2%**	**1%**
Paper products	4%	**1%**
Electronic goods, devices	4%	**28%**

Building products	**3%**	1%
Wood products	1%	–
Industrial products	1%	–
Shopping bags	*1%*	*1%*
Vehicles, transportation	–	5%
Energy saving products	–	**1%**
Bottles	–	1%
Any products	–	3%

Source: own compilation; Source of assessment is based on (EU eco-label, n.d.), (Hungarian Ecolabelling Organisation, n.d.).

Without pictures, students were asked about product groups labelled with Hungarian and EU eco-labels, which are ISO I type labels – as it was emphasised in the questionnaire. Answers (*Table 8*) are really similar to results in *Figure 4*, and as it can be seen, after assessing the good (real) interpretations of labels (bold numbers), product groups with the EU's eco-label are identified more correctly that those with the Hungarian label. This could be because in Hungary EU's eco-label is more popular in case of consumer goods and the supply of these products is bigger. Assessment of product categories is again based on the actual categories of EU eco-label (EU eco-label, n.d.) and Hungarian eco-label (Hungarian Ecolabelling Organisation, n.d.).

Conclusions

As we concluded at the end of the literature review, sustainable consumption is crucial in achieving the overarching goal of sustainability; therefore we think that the promotion of this type of consumer behaviour is urgent, especially in the case of future generations. Our primer, questionnaire research proved that the students asked, who are a "good sample of future generations", have an own picture about the meaning of sustainable consumption, which is according to our research mostly in harmony with the definitions from secondary, literature review. Students' opinion and knowledge about sustainable consumption is deep, mature, which is also proved by the fact that most of them could name the main barriers and additional characteristics of SC correctly. Students in our sample are rather environmentally conscious, than not environmentally conscious consumers, what could explain their mature opinion and knowledge about SC, too. However, these results, facts could be characterized as "theoretical attitudes", if we see the results in connection with their knowledge about some concrete eco-labels. In spite of the fact that students were able to define the aim of eco-labelling and also the meaning/content of eco-labels in general – again in theory –, their practice-oriented knowledge is weak: eco-labels (signs and names) are less known by them. One of the reasons of these results can be that consumers nowadays receive too much information about products and it is difficult for them to filter the relevant, true information. There are too many eco-labels available on the market and it makes it difficult to differentiate them and to be aware of their exact meanings. Secondly, in Hungary only a few eco-labelled (especially ISO I type) products are available, which also weaken the demand for and popularity of eco-labelled products.

Sustainable consumption is existing in theory; however it should exist in practice, too. The promotion of practical aspects, feasibility of SC should be emphasised. Communication, education should concentrate on informing future generations about practical solutions, which also contain information about the interpretation of eco-labels. This communication could be

the task of educational institutions – from kindergarten to higher education –, producers and also commercial institutions as part of their Corporate Social Responsibility; however agencies, associations and environmental NGOs also could make more efforts in this field.

Achieving sustainable consumption, achieving the overarching goal of sustainability is a step-by-step process, where education and communication has an emphasised, initial role.

References

Akenji, L. (2014), Consumer scapegoatism and limits to green consumerism, *Journal of Cleaner Production*, 63, 13-23, doi:10.1016/j.jclepro.2013.05.022.

Aragon-Correa, A. J., & Rubio-Lopez, A. E. (2007), Proactive Corporate Environmental Strategies: Myths and Misunderstandings, *Long Range Planning*, 40, pp. 357-381.

Baranyi, R., & Csigéné, N, N. (2004), *A környezeti információhoz való hozzájutás az Európai Unióban*, Műszaki Menedzsment Gazdálkodás- és Szervezéstudományi Doktori Iskola PhD konferencia.

blauer-engel.de (n.d.), Blue Angel, German eco-label – Products. Retrieved from https://www.blauer-engel.de/en/all-products

COM (2001) 68 (2001), *Green Paper on Integrated Product Policy*, Brussel: European Commission, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2004) 0038 (2004), *Communication from the Commission to the Council and the European Parliament – Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan for the European Union*, Brussel: European Commission, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2007) 804 (2007), *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Proposal for a Community Lisbon Programme 2008 - 2010*, Brussel: European Commission, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2007) 860 (2007), *Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – A lead market initiative for Europe* {SEC(2007) 1729} {SEC(2007) 1730}, Brussel: European Commission, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2008) 397 (2008), *A Bizottság közleménye az Európai Parlamentnek, a Tanácsnak, az Európai Gazdasági és Szociális Bizottságnak és a Régiók Bizottságának a fenntartható fogyasztásról, termelésről és iparpolitikáról – Cselekvési terv*, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2008) 397 final (2008), *Communication from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan*, Brussels, 16.7.2008.

COM (2008) 400 (2008), *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Public procurement for a better environment*, Brussel: European Commission, Brüsszel: Az Európai Közösségek Bizottsága.

COM (2011) 571 final (2011), *Communication from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions Roadmap to a Resource Efficient Europe*, Brussels, 20.9.2011.

Corpwatch (n.d.). www.corpwatch.org.

Csigéné Nagypál, N. (2008), *Corporate Social Responsibility and its Relationship with Sustainability* (Hungarian language PhD dissertation).

Csutora Eds., M., & Hofmeister Eds., T. Á. (2011), *Sustainable consumption?* (p. 188), Budapesti Corvinus Egyetem, Budapest (in Hungarian language).

Decision No 1600/2002/EC (2002), *Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme*.

Diófási, O., & Valkó, L. (2014), Step by Step Towards Mandatory Green Public Procurement, *Periodica Polytechnica Social and Management Sciences*, 22(2), pp. 21-27.

Directive 2004/17/EC (2004), *Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors*.

Directive 2004/18/EC (2004), *Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts*.

Directive 2009/125/EC (2009), *Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of eco-design requirements for energy-related products (Text with EEA relevance)*.

EEA (2014), *Environmental Indicator Report 2014* (p. 95), European Environmental Agency.

EU 6. EAP (2001), *Communication from the Commission to the European Parliament*, the Council, the European Economic and Social Committee and the Committee of the Regions 'On the sixth environment action programme of the European Community "Environment 2010: Our future.

EU eco-label (n.d.), *EU eco-label – Product Groups and Criteria*, Retrieved from http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html

Gallup (2009), *European's attitudes towards the issue of sustainable consumption and production, Analytical Report*, European Commission, Flash Eurobarometer, Gallup Organization.

Gilg, A., Barr, S., & Ford, N. (2005), Green consumption or sustainable lifestyles? Identifying the sustainable consumer, *Futures*, 37(6), pp. 481-504, doi:10.1016/j.futures.2004.10.016.

greenwashingindex (n.d.), www.greenwashingindex.com.

Hemmelskamp, J., & Brockmann, L. K. (1997), Environmental Labels – The German 'Blue Angel', *Futures*, 29(1), pp. 67-76.

Hungarian Central Statistical Office (2011), *Demographic information – Hungary*, Census data. Retrieved from http://www.ksh.hu/nepszamlalas/tablak_teruleti_00

Hungarian Ecolabelling Organisation (n.d.), *Hungarian Eco-label – Product Groups and Criteria*, Retrieved from http://www.kornyezetbarat-termek.hu/en/pages.php?aid=148&pID=2#.VR6RluGzkXg

Jonkutė, G.-S., & Jurgis, K. (2014), Realizing SCP in the companies: the SURESCOM model, In: *17th European Roundtable on Sustainable Consumption and Production* (pp. 465-476).

Kósi, K., & Valkó, L. (1999), *Environmental Economics and Management*, Baja: Eötvös József Műszaki Fakultás (in Hunagrian language).

Kotler, P., & Dubois, B. (2003), *Marketing Management* (11th ed., p. 761), Paris, France: Pearson Education.

Lancaster, K. J. (1966), A New Approach to Consumer Theory, *Journal of Political Economy*, 74(2), pp. 132-157.

Lausek, E. (2009), *Zöldmarketing Konferencia. Kiknek érdemes zölden hirdetni?* Retrieved from http://www.kreativ.hu/cikk/kiknek_erdemes_zolden_hirdetni_

MSZ EN ISO 14024 (2001), *Környezeti címkék és nyilatkozatok*. I. típusú környezeti címkézés. Alapelvek és eljárások. (ISO 14024:1999).

O'Rourke, D. (2005), Market Movements Nongovernmental Organization Strategies to Influence Global Production and Consumption, *Journal of Industrial Ecology*, 9(1-2), pp. 115-128.

Péterné Baranyi, R. (2011), T*he "3win" relation system of eco-labelling. The economic analysis of the system in Hungary* (Hungarian language PhD dissertation).

Polonsky, M. J., & Rosenberger III, J. P. (2001), *Reevaluating Green Marketing: A Startegic Approach*, Business Horizons, September, pp. 21-30.

Rex, E., & Baumann, H. (2007), Beyond ecolabels: what green marketing can learn from conventional marketing, *Journal of Cleaner Production*, 15, pp. 567-576.

Roberts, J. A. (1996), *Green Consumers in the 1990s: Profile and Implications for Advertising*, 2963(95).

Smith, S. (2009), *Green Marketing*,The Possibilities & Pitfalls'. Budapest.

Sourcewatch (n.d.), www.sourcewatch.org.

stopgreenwash (n.d.), www.stopgreenwash.org. Retrieved from www.stopgreenwash.org

Terracoice (2009), *The "Seven Sins of GreenwashingTM" Environmental Claims in Consumer Markets*, Summary Report by TerraChoice Environmental Marketing Inc. North America.

Thøgersen, J., & Folke, O. (2002), *Human values and the emergence of a sustainable consumption pattern: A panel study*, 23, pp. 605-630.

Törőcsik, M. (2006), *Fogyasztói magatartás-trendek – Új fogyasztói csoportok*, Budapest: Akadémiai Kiadó.

ÚMFT Project (2010), *A környezeti címkézés és a „zöld" közbeszerzés; Komplex népszerűsítő kampány a magyar Környezetbarát Termék és az Európai Unió ökocímke rendszerek ismertségének és elismertségének növelése érdekében*, II. ütem. ÚMFT.

UNEP (2010), *ABC of SCP, Clarifying concepts of sustainable consumption and production* (p. 33), Paris, France: United Nations Environment Programme.

Valkó, L. (2003), *Sustainable/Environmentally Friendly Consumption (Handbook for Teachers)*, Hungary. Budapest: National Institution of Vocational Training (in Hungarian language).

Wang, P., Liu, Q., & Qi, Y. (2014), Factors influencing sustainable consumption behaviors: a survey of the rural residents in China, *Journal of Cleaner Production*, 63, pp. 152-165. doi:10.1016/j.jclepro.2013.05.007

Zhao, H., Gao, Q., Wu, Y., Wang, Y., & Zhu, X. (2014), What affects green consumer behavior in China? A case study from Qingdao, *Journal of Cleaner Production*, 63, pp. 143-151. doi:10.1016/j.jclepro.2013.05.021