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CHOSEN ATTITUDES OF POLISH CONSUMERS DURING THE DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT

Abstract. Ecological engineering is one of the tools for implementation of sustainable development. The term ecological engineering has been functioning in Poland for many years, although not always being used in the same sense. However, it is more and more often considered that ecological engineering should be understood as interdisciplinary and in this sense it should also be concerned with consideration of widely understood organisational and educational matters (favourable or restrictive to sustainable development which conditions the harmony of man and environment).

The purpose of the article is to present young Polish consumers' behaviours during the Decade of Education for Sustainable Development announced by the UN. These behaviours were researched with the use of questionnaires answered by a sample of 100 students from Rzeszów University and the same number of students coming from Białystok. The students were asked 25 questions. The answers present their opinions about every day routines and habits. The survey regarded the areas where their behaviours were in accordance with the goals of the Decade of Education for Sustainable Development (2005-2014) and those which were not unanimous with them. The last ones were much more frequent. Therefore the research results might indicate where the educators should apply more effort to change the behaviours into those congruent with the goals of the Decade of Education for Sustainable.

Key words: consumer education, sustainable consumption, questionnaire, Poland.

INTRODUCTION

In 1989, Mitsch and Jørgensen [after 11] described ecological engineering as “planning of the development of society in its natural environment, in order to achieve mutual advantages both for the society and the environment”. Ecological engineering should, apart from activities of scientific and technological nature, also consider interdisciplinary issues of organisational and educational character, thereby encouraging (or not) a sustainable development and harmony of man and environment.

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Bergen et al. [2] defined it as a discipline which includes designing of sustainable systems, with consideration of the ecological basis which integrate the needs of society and natural environment for their mutual advantage. According to Raczuk and Markowska [11] the development of the technological thought (practical ecological engineering) should bring closer the following 5 rules:

- 1) design with consideration of the laws in ecology,
- 2) design for a specific location,
- 3) sustain independence of the project functional requirements,
- 3) design in such a way to maintain the optimum energy and information efficiency,
- 5) get to know the values and goals which motivate the project.

The last rule is usually omitted by ecologists in regard to the needs of the society, despite it is an element of the ecosystem.

In general, the needs of natural systems are being put to the fore, despite the fact that the definition of ecological engineering treats the society and the environment equally. However, for the motivation of the project, no less important is to include immeasurable, ethical, moral, and spiritual values, both in regard to the society, and the animate and inanimate nature, in particular to life-supporting systems.

Humanity stands at a defining moment in history. We are confronted with a perpetuation of disparities between and within nations, spreading of poverty, hunger, illnesses and illiteracy, and the continuing deterioration of the ecosystems on which our well-being depend. However, integration of environment, development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems and safer, more prosperous future. No nation can achieve it on its own; but together it is possible - in a global partnership for sustainable development [1].

Sustainable Development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

That concept anticipates major civilisational change on the ecological, social and economic levels. The tremendous scope of these changes makes it reasonable to expect this new vision for development to achieve the status of a "Revolution" comparable with those known from the past: the agricultural, scientific and industrial revolutions. This revolution includes also ethical, technical/ technological, legal and political aspects [10].

THE DECADE FOR SUSTAINABLE DEVELOPMENT

The goal of the United Nations Decade of Education for Sustainable Development (2005-2014, DESD), for which UNESCO is the lead agency, is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations [7].

Education for SD is an education that:

- enables people to foresee, face up and solve the problems that threaten life on our planet
- disseminates values and principals that are the basis of sustainable development such as: gender parity, social tolerance, poverty reduction, environmental protection, natural resource conservation and just and peaceful societies.
- highlights the complexity and interdependency of three spheres: environment, society (including culture) and economy [8].

Thrusts of the Decade:

- Promote and improve quality of education requisition of lifelong learning and skills and values needed by citizens to improve their quality of life
- Reorient curricula: from preschools to higher education, education must be re-thought to become a vehicle of knowledge through patterns and values needed to build a sustainable world
- Raise public understanding and awareness of the concept of ESD – and demonstrate how to put it in practice.
- Educate the employed: managers and workers in trade and industry to enable them to adopt sustainable modes of production and consumption

DECADE THEMES

Overcoming Poverty, Gender Equality, Health Promotion, Environmental Conservation and Protection, Rural Transformation, Human Rights, Intercultural Understanding and Peace, Cultural Diversity, Information and Communication Technologies (ICTs) and Sustainable Production and Consumption:

“Sustainable lifestyles and ways of working are central to overcoming poverty and conserving and protecting the natural resource base for all life... Education and training for sustainable production and consumption depending upon literacy and basic education, and education for the world of work and responsible citizenship, are key goals of both EFA and UNLD.”

The seven strategies of DESD:

- Formulation of common vision and mobilization.
- Consultation and ownership.
- Partnership and networks.
- Capacity building and training.
- Research, development and innovation.
- Use of ICT.
- Monitoring and evaluation.

Focusing on unsustainable patterns of production and consumption, it should be said that special attention should be paid on the demand for natural resources generated by unsustainable consumption and the efficient use of those resources connected

with the goal of minimizing depletion and reducing pollution. Although consumption patterns are very high in certain parts of the world, the basic consumer needs of a large section of humanity are not being met. This results in excessive demands and unsustainable lifestyles among the richer segments, which place immense stress on the environment. The poorer segments, meanwhile, are unable to meet food, health care, shelter and educational needs. Changing consumption patterns will require a multipronged strategy focusing on demand, meeting the basic needs of the poor, and reducing wastage and the use of finite resources in the production process.

Growing recognition of the importance of addressing consumption has also not yet been matched by an understanding of its implications. Some economists are questioning traditional concepts of economic growth and underlining the importance of pursuing economic objectives that take account of the full value of natural resource capital. It is necessary to know more about the role of consumption in relation to economic growth and population dynamics in order to formulate coherent international and national policies.

Action is needed to meet the following broad objectives: (a) To promote patterns of consumption and production that reduce environmental stress and will meet the basic needs of humanity; (b) To develop a better understanding of the role of consumption and how to bring about more sustainable consumption patterns. It is also important from a personal point of view.

The aim of the research was to examine chosen attitudes of Polish consumers as it is an important information for educators how to choose the right methods to teach people suitable consumption. Such education is the most appropriate way leading to sustainable development.

METHODOLOGY

The survey concerned the subject of defining to what extent the level of behavior in everyday life in Eastern Poland is corresponding with the objectives of Decade Of Sustainable Development. Agriculture students from the University of Rzeszów and Marketing and Management students from the University of Finance and Management in Białystok (North – Eastern Poland) were chosen as a sample for the research. The sample was purposeful – it included young people at the age of 20-30 years. It was assumed that both groups have had a similar educational experience. The research was aimed at promoting the sustainable behaviours among the pupils of primary and secondary schools as well as the university students. In the structure of both faculties there are teachers conducting sustainability-related tutorials. The differences in average age of the two groups of students could be explained by the fact that one group consisted of full-time students and the other one – of part-time students. The research had a comparative character – it aimed at determine the level of internalization of the rules of sustainable development through every day behaviours and personal beliefs.

The research consisted of 25 questions and a questionnaire was titled *Do you protect environment by your daily actions, decisions and habits?* To every of the 25 questions the possible answers were: always, often, seldom and never.

The sample of full-time students of Biology and Agriculture Department from Rzeszów University consisted of 50% female and 50% - male, who were asked to give their answers to the questions from the original questionnaire. Average age of respondent from Rzeszów University was about 20. Majority of them (70%) lives in the villages, remaining part – in the cities.

Second questionnaire group of part – time students from University of Finance and Management in Białystok– 60 respondents were female and 40 male. The majority of them (64 persons) lives in the cities, remaining part – in the villages. Average age of respondent of that group is about 28.

RESEARCH RESULTS

The research results from Rzeszow and Białystok in many case were similar in percentage ratio or proportion. The collective results of the questionnaires dissimilated between Białystok and Rzeszów Universities students are presented in the tables below (Table 1–4).

The questionnaire consisted of four parts in which various issues related to the decade of sustainable development were tested.

Part 1 - Behaviours and decisions taken while shopping. There were three questions:

1. Do you find yourself influenced by advertisements and illusory promotions?
2. Do you thoroughly analyze the label of the product:
 - 2.1. the contents,
 - 2.2. the country of origin,
 - 2.3. the manufacturer?
3. When purchasing audio-video or computer equipment, do you demand the seller to take your old one for recycling?

Detailed analysis of the research results obtained in that part shows that in general respondents are convinced that they rather seldom let the ads to influence them, some of them even think that they always resist them. Other researchers also confirm that majority of people are convinced that they do not let publicities to persuade them to buy anything. It is difficult to admit that we are persuaded by manipulation of advertisement tools.

Similar percentage of those surveyed (in both cases 40%) declared that they either rarely or often read labels. The same ratio concerns those who often or rarely learn the content. Those interested in the country of origin of the product is 1\3 as well as those who want to know the producer.

Survey results show that over 1/3 of the respondents never asks sellers for collecting old audio-video or computer equipment from them when buying new products. Similar part rarely asks for recycling. It means that consumers do not know the consumer law and the practice is fixed in this respect.

The detailed percentages of answers obtained in this part of the survey are presented in the table 1.

Table 1. Do you protect the environment by your behaviours and decisions taken while shopping?

Question	Students from Rzeszow: average age 20 years old				Students from Białystok: average age 28 years old			
	always (%)	often (%)	rarely (%)	never (%)	always (%)	often (%)	rarely (%)	never (%)
1	0.0	10.0	70.0	20.0	2.0	13.0	72.0	13.0
2.	5.0	48.7	42.5	3.8	6.5	41.2	43.6	8.7
2.1	8.8	37.5	46.2	7.5	7.4	41.0	41.1	10.5
2.2	2.4	33.8	43.8	20.0	10.6	32.9	40.5	16.0
2.3	6.2	35.0	45.0	13.8	9.7	34.8	44.5	11.0
3.	6.3	12.5	43.8	37.4	17.2	15.1	31.3	36.4

Source: research results.

Part 2 – Choice of bought products. There were eight following questions concerning the kinds of products which were usually bought by both groups of respondents:

4. Do you always buy only the products that you really need?
5. Do you avoid purchasing goods from countries known for violent breaking of civil rights?
6. Do you seek goods with Fair Trade stamps to fight slavery and exploitation in impoverished countries?
7. Do you buy animal-tested products?
8. Would you buy rather than the cheap product:
 - 8.1. fresh,
 - 8.2. unprocessed,
 - 8.3. ecological food?
9. Do you choose ecological detergents to save the environment and allow environment-friendly manufacturers to prosper and invest further in clean and healthy production technologies?
10. Do you avoid chemicals when buying hygiene products?
11. Do you follow fashion trends and buy fashionable gadgets?

Detailed analysis of the research results obtained in that part shows that almost $\frac{3}{4}$ of all respondents declares that they often buy only products they really need. One in every seven does this always. Others buy rarely really needed products, but there aren't many of them in the sample. Such behavior can be explained by respondents' socioeconomic status – they live in the poorest region in Poland and legitimate low incomes.

Over half of respondents confirms that rarely avoids buying products made in countries where human rights are not obeyed. Each one out of five never considers this aspect of product.

Half of respondents rarely seeks products labelled with signs of *Fair Trade*, almost the same number of them never does it. Only single respondents declared doing that.

Almost half of the research participants confesses that never buys animals tested products and similar number do it seldom. It seems that respondents are sensitive to this characteristic of the product. Last years social publicity stressed this issue and it could be the reason of such consciousness.

Respondents buy fresh food, often unprocessed but rarely ecological. Interpretation seems to be very simple – people living in rural regions of Podkarpacie and in the Green Lungs of Poland have the opportunity to buy such food, because it is easily accessible there. In the Green Lungs of Poland there is no heavy industry, therefore many people live in the villages and have access to fresh food. Processed food could be more expensive than fresh and ecological in the case of this part of Poland.

Respondents (more than half of them) rarely chose ecological detergents. Only for a fourth of them the issue is important and they look for such products. Those who always do that and those who never do it, constitute minority in the sample.

Over a half of those surveyed rarely avoids using chemical products or never do it when taking care of body. Almost 1 in 3 does it often and several people confirmed doing it always.

Majority of respondents rarely follows the latest fashion trends by buying gadgets, still 1/3 confirms doing it. Only one in ten never follows the fashionable trends in this way i.e. buying modern gadgets. It seems that the age of respondents can explain such conformist behaviour. The detailed percentages of answers obtained in this part of the survey are presented in the table 2.

Table 2. Do you protect the environment by your choices of products you buy?

Question	Students from Rzeszow: average age 20 years old				Students from Białystok: average age 28 years old			
	always (%)	often (%)	rarely (%)	never (%)	always (%)	often (%)	rarely (%)	never (%)
4.	23.8	65.0	11.2	0.0	17.0	70.0	12.0	1.0
5.	6.2	25.0	53.8	15.0	7.0	16.0	56.0	21.0
6.	0.0	17.5	52.5	30.0	3.0	7.1	49.5	40.4
7.	2.4	13.8	38.8	45.0	3.1	10.3	44.3	42.3
8.1.	61.3	36.3	2.4	0.0	68.0	29.0	3.0	0.0
8.2.	8.7	52.5	33.8	5.0	9.5	52.6	32.6	5.3
8.3	1.2	45.0	48.8	5.0	7.4	42.1	45.3	5.2
9.	3.7	17.5	62.5	16.3	6.0	26.0	59.0	9.0
10.	5.0	35.0	51.3	8.7	13.1	30.3	40.4	16.2
11.	3.7	32.5	48.8	15.0	2.0	32.3	54.6	11.1

Source: research results.

Part 3 - Buyingwise behaviours. There were six following questions concerning the buying-oriented behaviours asked to both groups of respondents:

12. Do you choose local stores and producers to save petrol and support local economy?
- 13.1. Do you buy products with no wrapping
- 13.2. or with ecological wrapping?
14. When shopping, do you use your own bag for packing?
15. Do you reuse plastic bags or other packages?
16. Do you give back used batteries to the special collecting points?
17. Do you crush the cartoon packages for minimizing them when cleaning?

Almost half of research participants from Rzeszow and Białystok often chooses local products and thanks to that save time on shopping and support local businesses. Similar number of respondents, does it seldom or even never. Only 1 in 20 admits doing it always.

A big part of surveyed but less than a half of them seldom buy products without packages. Similar number of respondents often buy unpacked products or products with environment friendly package although one in tree do it seldom.

Almost 1\3 of respondents have their own bags when shopping, nearly half does it often and 1 of 4 rarely or even never. The necessity of paying extra for plastic bag could be a partial explanation for such behaviour. In many cases people could feel guilty for polluting the Earth.

The biggest group of respondents answered that they always reuse disposable packages. The second biggest group admits often using this kind of packages. However almost every third does it rarely or never.

Almost half of the respondents declare that they do not give away used batteries at collection points or do it rarely. In Rzeszów, the number of such respondents was half as big. We may owe that to the activity of Ekotop Ltd including organising annual battery collecting tournaments in various schools. One such collecting point is located at the Biology and Agriculture Department of Rzeszów University. In Białystok such places are scarce and poorly marked.

Half always minimizes product package size to make the volume of garbage smaller, each one in three often does it. Such behaviour could be explained by the problem with garbage grounds existing in the region.

The detailed percentages of answers obtained in this part of the survey are presented in the table 3.

Part 4 - Proecological/sustainable behaviors in everyday life. There were eight following questions concerning the proecological behaviours in everyday life in both groups of respondents:

18. Do you really save water?
19. Do you really save electricity?
20. Do you switch off electric equipment when you do not use them at the moment?

Table 3. Do you protect environment by your buyingwise behaviours?

Question	Students from Rzeszow: average age 20 years old				Students from Białystok: average age 28 years old			
	always (%)	often (%)	rarely (%)	never (%)	always (%)	often (%)	rarely (%)	never (%)
12.	8.8	58.8	30.0	2.4	5.0	49.0	44.0	2.0
13.1	2.5	48.8	47.5	1.2	1.0	44.0	47.0	8.0
13.2.	0.0	51.3	47.5	1.2	4.2	61.5	33.3	1.0
14.	26.2	40.0	28.8	5.0	29.0	40.0	26.0	5.0
15.	20.0	48.8	27.4	3.8	36.0	34.0	22.0	8.0
16.	13.8	21.2	42.5	22.5	16.0	18.0	23.0	43.0
17.	57.5	32.5	8.8	1.2	57.0	29.0	11.0	3.0

Source: research results.

21. Do you turn of the taps at the time when cleaning teeth or shaving you do not need it?
22. Do you take the publicity leaflets from people on the streets even if you know that you will never use them?
23. If you can use public transport, do you prefer to choose trains?
24. Do you calculate you carbon footprint?
25. Do you act as a volunteer if there is such need?

A little less than half of all participants often save water but one in three do it rarely. People do not confirm saving water because it can make an impression that they lack good hygiene habits. Moreover, especially young people use too much water because of the pleasure it gives.

Half declares doing it, however every one in four does not often behave in this way. It means that water is not treated as one of these resources which could be easily exhausted. Old habits from the time when water usage was measured by number of persons living together seems to be still alive.

The case of saving electricity is opposite to water. Almost half of researched students confirms saving energy – part of them often and another part (almost 1/4) – always. Nevertheless 1/3 does it rarely or even never.

Over 30% rarely switches off electric equipment from the socket, and 20% never does it. Still, half confirms doing it either always or at least often. Poland has recently survived energetic crisis – lack of Russian gas- so we still have it in our minds.

Up to 38% of all respondents declare seldom choosing ecological means of transport if they have a choice among different vehicles. Only ¼ of them prefers ecological forms of transport but the same ratio declares never choosing means of transport for ecological reasons.

Approximately one in six never counts his/her carbon footprint. Only several persons consider this issue and only one in ten is conscious of environmental charge. One in three admits that they never act as a volunteer and almost half does it very seldom.

Only 1/5 of all respondents do it either often or always. The detailed percentages of answers obtained in this part of the survey are presented in the table 4.

Table 4. Do you protect environment by proecological /sustainable behaviors in everyday life?

Question	Students from Rzeszow: average age 20 years old				Students from Białystok: average age 28 years old			
	always (%)	often (%)	rarely (%)	never (%)	always (%)	often (%)	rarely (%)	never (%)
18.	15.0	51.3	26.2	7.5	21.4	41.9	31.6	5.1
19.	12.5	48.8	32.5	6.2	24.5	43.9	26.5	5.1
20.	22.5	41.3	28.8	7.4	21.0	28.0	31.0	20.0
21.	62.5	22.5	12.5	2.5	49.0	26.0	14.0	11.0
22.	17.5	42.5	30.0	10.0	13.3	31.6	35.7	19.4
23.	7.5	31.2	33.8	27.5	13.0	25.0	38.0	24.0
24.	0.0	3.7	30.0	66.3	0.0	10.2	29.9	59.9
25.	1.1	21.3	41.3	36.3	5.1	15.1	47.5	32.3

Source: research results.

DISCUSSION AND CONCLUSION

Sustainable development should conduct to shaping of social development as well as development of local and global communities. Ensuring sustainability of development is a multilevel process. In particular, that means that sustainability is achieved by improving life quality of each member of population, and needs creating of adequate social, economical, ecological, spatial and institutional-political order [9]. Achieving those laudable purposes is not possible without contribution of each human-being because in going about our daily routines— commuting, sheltering our families, eating — each of us contributes to the greenhouse gas emissions that are causing climate change. Yet, there are many things that each of us, as individuals, can do to reduce our carbon emissions. The choices we make concerning our homes, our travel, the food we eat, and what we buy and throw away - all influence our carbon footprint [12] and can help ensure a stable climate for future generations. There are many great websites in many languages that are helpful in recognizing one's carbon footprint [3, 4, 6].

As a result of questionnaire research, many behaviors were noticed that may be assessed as proper in terms of steering (directing) society towards SD (accordingly to principles of DESD). Unfortunately, many old and well established habits that are not sustainable were noted as well.

Both groups of behaviors are listed below.

1. Proper behaviours in terms of the decade for sustainable development aims:
 - (Q1). Being skeptical towards advertisements and marketing tricks
 - (Q4). Mostly bought products one really needs
 - (Q7). Not buying products tested on animals

- (Q8). Less often buying fresh products, often unprocessed and ecological
 - (Q13). Often asking for no wrapping products, sometimes asking for an ecological wrapping.
 - (Q15). Often finding another use for disposable packages
 - (Q17). Squashing rubbish to reduce its volume
 - (Q21). Closing taps while performing hygiene activities to prevent water from running for no reason
2. Improper behaviours in terms of the Decade for Sustainable Development aims:
- (Q2). Not reading labels, not caring about the contents of a product, its origin country, manufacturer
 - (Q3). Too rarely giving away electronic equipment in order to recycle
 - (Q5). Not avoiding products from countries known for brutal violations of human rights.
 - (Q6). Not making any effort to find products with 'fair trade' stamps
 - (Q9). Often choosing other washing powders and liquids than ecological ones.
 - (Q10). Scarcely avoiding using chemical products for personal hygiene
 - (Q11). Often buying fashionable gadgets
 - (Q12). Not choosing local manufacturers and, therefore, not saving fuel and not supporting local trade
 - (Q14). Taking a reusable shopping bag when going to a shop too rarely,
 - (Q16). Not giving away used batteries at collection points
 - (Q18). Saving water too rarely
 - (Q19). Saving energy too rarely
 - (Q20). Unplugging electronic equipment too rarely when it is not used
 - (Q22). Taking advertisement leaflets they do not need
 - (Q23). Not using ecological means of transport
 - (Q24). Not calculating their carbon footprint
 - (Q25). Not volunteering for anything

The above concludes that there is still a large need to educate Polish society towards sustainability in everyday life in accordance with the vision of DESD below:

Vision of DESD: A world where everyone has the opportunity to benefit from education and learn the values, behavior and lifestyles required for sustainable future and positive societal transformation.

Results expected from DESD:

- Broad consensus on the strategic importance of ESD
- Public sensitised to the concept of sustainability
- Integration of ESD into education and development plans
- Regular and substantial media presence for sustainable development issues [7].

To enter the paths of sustainable development and follow their goals, it is not sufficient to educate consumers. Also people representing different professions

such as chemical industry employees which play an important role in natural environment protection should be involved in this education [5]. Management of effective supply chains should also be embraced by such education with the relevant activities in the field of marketing, logistics, engineering and operations. Therefore it is a complex interdisciplinary issue important not only for practitioners but also for researchers [13].

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WYBRANE CECHY KONSUMENTÓW W CZASIE DEKADY EDUKACJI DLA ZRÓWNOWAŻONEGO ROZWOJU

Streszczenie. Ponieważ inżynieria ekologiczna stanowi jedno z narzędzi wdrażania zrównoważonego rozwoju uważa się, że powinna być rozumiana interdyscyplinarnie. W tym sensie powinno jej także dotyczyć rozważanie szeroko pojętych kwestii organizacyjno-edukacyjnych (sprzyjających lub ograniczających zrównoważony rozwój) warunkujących harmonijną koegzy-

stencję człowieka i środowiska. Celem artykułu jest przedstawienie zachowań konsumenckich wybranych grup młodych Polaków w trakcie trwania dekady na rzecz zrównoważonego rozwoju ogłoszonej przez ONZ na lata 2005–2014. Zachowania te zostały zbadane za pomocą ankiety przeprowadzonej na próbie 100 studentów z jednej z uczelni rzeszowskich i 100 – uczelni białostockiej. Respondenci odpowiadali na 25 pytań mających zobrazować ich codzienne zachowania w ich własnej ocenie. Badanie wskazało te sfery, w których wzorce konsumpcji respondentów można uznać za zgodne z celami dekady na rzecz zrównoważonego rozwoju oraz te, które nie wspierają realizacji tych celów. Tych drugich było znacznie więcej, toteż stanowią one wskazówkę gdzie skierować wysiłek by je zmienić w sposób zgodny z celami dekady na rzecz zrównoważonego rozwoju.

Słowa kluczowe: edukacja konsumencka, zachowanie konsumenckie, zrównoważona konsumpcja, ankieta, Polska.