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## **SLOWING THE CONSUMPTION - FROM THE PERSPECTIVE OF SPANISH BIOLOGY STUDENTS**

*Consumerism is a very important issue today because of its exponential growth and its influence on the environment. Because of this, numerous movements have appeared that try to focus on slowing down the ecosystems transformation, such as green consumerism. It is very important to recognise the right green behaviour and to know the recommendations for the future in order to improve the present situation. The opinion of young people studying biology may give us some clues about the thinking of slowing consumption. The paper also gives an opinion of scientists' way of thinking of this.*

**Key words:** Green consumerism, slowing consumption, natural resources, eco-friendly, future recommendation, students

### **I. INTRODUCTION**

Consumerism is a consequence of several factors, such as economic capacity and lack of environmental awareness. Consumerism causes the destruction of the environment through its relationship with air, water and soil, and it is the cause of 60% of all global greenhouse gas (GHG) emissions [Jakubczak and Gotowska 2020].

In the last decade, Spain has adopted several plans in order to improve not only its environmental state, but also enrich the quality of life, Spaniards must leave to next generations. The year 2020 marked a milestone on sustainable development and reduction of biodiversity loss. The release of greenhouse gases descended by 13.7% compared to 2019, being inferior for the first time since 1990; energetic efficiency upgraded by 24.7% due to the National action plan of energetic efficiency established in 2017; Natura 2000 net (an ecologic European net of biodiversity conservation areas) occupied the 27.4% of Spanish territory, becoming the country which gives the most quantity of protected land; the 93% of sea bathing water showed excellent quality whereas only 0.2% presented insufficient clarification [Ministerio de Agricultura 2020].

On the other hand, several facts must be faced. According to IUCN criteria 2.4% of Spanish wild species pose some degree of threat to National level. Also, the increase in the consumption of phytosanitary treated products causes an increase in their concentration in the waters, approaching to dangerous levels [European Commission 2020].

Nowadays, Europe faces persistent problems in areas such as biodiversity loss, resource use, the impact of climate change, the impact of climate change and environmental risks to health and well-being. Global megatrends, such as demographic change, are intensifying many

environmental challenges, while rapid technological change brings new risks and uncertainties [European Commission... 2021]. So, if we take all the countries of the European Union as a whole, we are also talking about a very large polluting agent, the third largest behind China and the United States. The EU releases into the environment around 4.000,000 Mt of CO<sub>2</sub> per year [European Parliament News 2021a]]. It should also be added that according to the European Environment Agency (EEA), more than 80% of the habitats protected by the EU are severely degraded; fauna and flora are threatened by intensive agriculture, urbanization, tourism, pollution, unsustainable forestry and climate change [EEA 2020].

However, in order to avoid climate change, the European Union has committed itself to achieving climate neutrality by 2050. This objective, together with the objective of achieving certain levels of emission reductions by 2030, are the proposals updated during the last meeting of the presidents of the member states [European Parliament News 2021b]. At the same meeting in Luxembourg, the ministers of the 27 Member States supported the strategy proposed by the Commission (European executive) to protect 30% of Europe's land and sea area. The ministers had agreed to the obligation for future European economic projects not to be harmful to biodiversity [Government of Spain 2020].

Scientific studies and adequate legal acts will not be enough to improve the quality of the environment, if individual citizens are not involved in implementing pro-environmental activities in everyday life. Therefore, it is worth promoting the concept of slowing down / retarding the transformation of natural resources with the simultaneous assessment of one's own behavior in this field [Kostecka 2013].

In recent years, a new phenomenon called Greenwashing has appeared. Defined as the dissemination of misinformation about environmentally eco-friendly materials, it is used by companies to convince consumers that their organization is environmentally socially responsible, thus misleading the consumer and bringing no benefit to the planet [Horiuchi and Schuchard 2009].

Green (or environmentally conscious) consumers are making consumption choices among an ever-growing selection of green products. Producers, seeing a new market, are meeting the demand for green products by devoting resources to the development of greener technologies and green product lines. Unfortunately, the world's prevailing economic system depends on consumerism [Kepner and Cole 2013].

Although society is aware of the rate of consumption and part of it is trying to help change, not everyone knows what to do or how to contribute. Us, biology students, being one who deal with these issues from a close point of view, can have a different opinion and actions on consumerism, consequently enabling the rest to realize the big problem that we are facing and how to reduce it. Eliminating consumerism and establishing environmental awareness throughout the population would lay the foundation for a better future direction for humanity and the planet.

The aim of the article is to show the general mentality about green consumerism of young Spanish biologists and provide information and measures that other studies have shown to be the best solutions to reduce the excessive consumerism present today.

## **II. MATERIALS AND METHODOLOGY**

A questionnaire was used as the research method. Four hypotheses were verified. A questionnaire was sent to young Spaniards (aged 19-21), who are in the penultimate year of their Biology degree at the University of Granada, 147 people participated (80 women and 67 men). The survey was sent to complete in Spanish. The hypotheses were verified by several questions listed below;

*Hypothesis 1/* respondents understand that consumerism destroys the planet;

- Do you see a link between the consumerism of recent years and the loss of biodiversity and ecosystems? (yes, no, I do not care)
- If we were to reduce our consumption of certain materials or food, do you think we would see any effect on the state of the environment? (yes, no, I do not care)
- How long you think the world will tolerate this level of consumerism until it collapses? (1 year, 10 years, 100 years, 1000 years or more)

*Hypothesis 2/* respondents understand the concept of green consumerism;

- What is a green product? (A/ it is a sustainable product designed to minimize its environmental impacts during its whole life-cycle and even after it's of no use. B/ It is a product that does not use a harmful chemical and its production is characterized as traditional and sustainable. C/ it is a product that does not contain animal products or by-products and it must not be tested on animals. D/ none of the answers before)
- Do you consider yourself a green consumer? (yes, no, I do not care)

*Hypothesis 3/* respondents agree to the presence of various forms of slowing down in their lives;

- Do you think it is possible that we can reduce consumption? (yes, no, I do not care)
- Would you accept a total change in your everyday life in order to contribute to this reduction? (yes, no, I do not care)
- Do you think the society would accept any change? (yes, no, I do not care)

*Hypothesis 4/* respondents follow the announcements of the UNESCO Decades of Education;

- Did you noticed the United Nations Decade on Education for Sustainable Development (2005-2014) (yes, no, I do not care)
- Do you consider that during that time anyone has taught you the importance of sustainable development? (yes, no, I do not care)
- If the previous question was affirmative, where did you learnt it from? (school, family, media, other one)
- Did you noticed the United Nations Decade on the Biodiversity (2011-2020) (yes, no, I do not care)
- Do you consider that during that time the biodiversity has achieved the goal to preserve healthier than the years before? (yes, no, I do not care)
- Did you noticed the United Nations Decade on Ecosystems Restorations (2021-2030) (yes, no, I do not care)
- Do you believe it is possible to restore the ecosystems despite the growing demand for resources? (yes, no, I do not care)
- If the previous question was affirmative, how do you think the goal could be achieved?

The answers of the respondents were presented in %, divided down by gender of the respondents. To show the best solutions to reduce the excessive consumerism present today, adequate literature items have been studied. In the discussion the background of consumerism (green consumerism and consumers types, right relationship, future recommendations) was presented.

### III. QUESTIONARY RESULTS

*1/ Respondents understand that consumerism destroys the planet*

The results from initial closed questions from the questionnaire (table 1) indicate that the vast majority of respondents, regardless of gender, agree that consumerism of recent years is linked to the loss of biodiversity and ecosystems.

**Table 1**

The answers of Spanish biology students from the University of Granada to the first questions (divided by gender, as a percentage %)

Questions / Answers	Gender	yes	no	don't care
Do you see a link between the consumerism of recent years and the loss of biodiversity and ecosystems?	M	90	10	-
	W	80	20	-
If we were to reduce our consumption of certain materials or food, do you think we would see any effect on the state of the environment?	M	66	34	-
	W	95	5	-

M – men; W – woman

To the question: "If we were to reduce our consumption of certain materials or food, do you think we would see any effect on the state of the environment?", women (95%) were more open-minded than men (66%). The largest group of students (both women and men) assessed that the world will tolerate the level of present consumerism until its own collapse, for 100 years (table 2).

**Table 2**

The answers of Spanish biology students to the next question (divided by gender, as a percentage %)

Questions / Answers	Gender	1 year	10 years	100 years	1000 years
How long you think the world will tolerate this level of consumerism until it collapses?	M	1	24	72	3
	W	-	6	90	4

M – men; W – woman

### 2/ Respondents understand the concept of green consumerism

It should be emphasized that the surveyed biology students did not declare the understanding of the concept of green consumerism. Less than 30% of the male students and some more of surveyed female students (35%) considered themselves green consumers, but they did not understand the concept, as only 72% of men and 65% of women got the answer right. Fortunately, no one admitted that they did not care.

Choice of recognizing the proper definition of “green product” was given to respondents after Jakubczak and Gotowska [2020]. After them, the green product is a sustainable product designed to minimize its environmental impacts during its whole life-cycle and even after it's of no use (what is an option A). More women chose the correct definition (table 3).

**Table 3**

The answers of Spanish biology students as a selection from 4 definition proposals as described in the methodology (divided by gender, as a percentage %)

Questions / Answers	Gender	A	B	C	D
What is a green product?	M	57	37	1	5
	W	70	15	10	5

A,B,C,D- as given in the methodology; M – men; W – woman

### 3/ Respondents agree to the presence of various forms of slowing down in their lives

The vast majority of the surveyed students, regardless of gender, accepted the reduction in consumption, but did not accept a total change in their everyday life in order to contribute to this reduction. There were more women (40%) than men (18%) among those accepting (table 4). Students of both gender also did not think the society would accept any change, like this (table 4).

**Table 4**

The answers of respondents to the questions verifying the third hypothesis (%)

Questions / Answers	Gender	yes	no	don't care
Do you think it is possible that we can reduce consumption?	M	84	16	-
	W	85	15	-
Would you accept a total change in your everyday life in order to contribute to this reduction?	M	18	82	-
	W	40	60	-
Do you think the society would accept any change?	M	10	90	-
	W	15	85	-

M – men; W – woman

4/ Respondents follow the announcements of the UNESCO Decades of Education

Almost one hundred percent of survey respondents did not notice about the United Nations *Decade on Education for Sustainable Development* (2005-2014)(table 5). On the other hand, only a few of the respondents considered that during that time anyone they have been taught about the importance of sustainable development (table 5). This means that educational methods used during the decade were not successful.

**Table 5**

The answers of respondents to the questions verifying the fourth hypothesis and United Nations *Decade on Education for Sustainable Development* (2005-2014) (divided by gender, as a percentage %)

Questions / Answers	Gender	yes	no	don't care
Did you notice the United Nations <i>Decade on Education for Sustainable Development</i> (2005-2014)?	M	4	96	-
	W	5	95	-
Do you consider that during that time anyone has taught you the importance of sustainable development?	M	90	10	-
	W	85	15	-

M – men; W – woman

Male students learned about sustainable development at school (33%), from the family (47%), from the media (13%), and from other sources (7%). Female students indicated these sources respectively: in school (72%), from the family (18%), in the media (7%), and other sources (3%).

Half of students noticed the United Nations Decade on the Biodiversity (2011-2020)(table 6). More women (93%) than men (60%), considered that during that time the biodiversity has achieved the goal to preserve healthier than the years before.

**Table 6**

The answers of respondents to the questions verifying the fourth hypothesis and United Nations *Decade on the Biodiversity* (2011-2020) (divided by gender, as a percentage %)

Questions / Answers	Gender	yes	no	don't care
Did you notice the United Nations <i>Decade on the Biodiversity</i> (2011-2020)?	M	51	49	-
	W	60	40	-
Do you consider that during that time the biodiversity has achieved the goal to preserve healthier than the years before?	M	60	40	-
	W	93	7	-

M – men; W – woman

About 70% of students noticed the presence of United Nations Decade on Ecosystems Restorations (2021-2030) and most of them believed that it is possible to restore the ecosystems despite the growing demand for resources (table 7).

**Table 7**

The answers of respondents to the questions verifying the fourth hypothesis - *Decade on Ecosystems Restorations* (2021-2030) (divided by gender, as a percentage %)

Questions / Answers	Gender	yes	no	don't care
Did you notice the United Nations <i>Decade on Ecosystems Restorations</i> (2021-2030)?	M	70	30	-
	W	75	25	-
Do you believe it is possible to restore the ecosystems despite the growing demand for resources?	M	60	40	-
	W	51	49	-

M – men; W – woman

The question “*If the previous question was affirmative, how do you think the goal could be achieved?*” has been answered in different ways, but they can be grouped into the following: a large percentage of participants suggested that it would be best to implement sustainable development plans and standards that allow for the inclusion of environmental conservation and rehabilitation as a fundamental part of all development initiatives. Other similar group of responses were based on the importance of creating and protecting viable reserves for nature and the biosphere in a way that tends to protect the Earth's life support systems.

Minority group of respondents has concluded that one of the best ways to restore the ecosystem is to promote the recovery of endangered species and ecosystems. In addition, it was mentioned that exogenous organisms or organisms harmful to native species should be controlled or eliminated altogether. Finally, the rest agreed that the correct use of both renewable and non-renewable resources should be carried out in order not to exceed their limits.

#### IV. DISCUSSION

People across many different civilizations and time periods have always purchased and consumed goods. The modern concept of consumerism has begun in the late 1600s in Europe. Consumerism intensified throughout the 1700s and 1800s and became then a major societal phenomenon - the consumption of products became a vitally important task for most people. During the 15th to the 18th century, Europeans ‘discovered’ large sections of land, previously unknown to them (the Americas, Africa, Australia, and parts of Asia). The nations of England, France, Spain and Portugal established colonies throughout these regions, which started the Age of Imperialism. Huge amounts of raw materials from all over the world increased the rate of consumerism and created countless numbers of consumer goods that were distributed throughout the world. The vast colonies allowed also the European nations access to large markets of people in which they could then sell their products. Because money spent on a novelty item from afar, such as Indian cotton, was money lost to the local treasury and to local producers, Europeans tried to stem the tide of fashion and fineries, but it did not work. In that time, consumers were seen as fickle and a drain on wealth [The Atlantic 2016].

The Industrial Revolution also played a major role in the spread of consumerism, because it led to the emergence of many different factories and mines. These factories were able to produce countless number of inventions and products on a mass-scale (before each product was created on a small scale and often in people’s houses). The Industrial Revolution fundamentally changed this - factories were located in cities and towns where goods could be produced on a mass scale. This abundance of new and cheap goods meant that there were many different and affordable products for people to buy, consequently leading to consumerism, a system in which people could reasonably afford a variety of goods.

In the late 19<sup>th</sup> century in Britain also a variety of foods became accessible to the average person, who would previously have lived on bread and potatoes – consumption beyond mere subsistence. Though the proliferating shops and department stores of that period served only a restricted population of urban middle-class people in Europe, but the display of tempting products in shops in daily public view was greatly extended – and display was a key element in the fostering of consumerism fashion [BBC Future 2021].

The golden age of consumerism developed in the 20th century. The marketing campaigns of the 20th century became much more sophisticated. They promoted a sense of identity in relation to their products and caused people to associate their social standing in society with their level and quality of consumption. It caused an explosion in modern consumption rates. Nowadays, consumerism continues to intensify with influential marketing campaigns, outsourcing, and a cheap and steady supply of both resources and goods [History crunch 2021].

We have only one Earth. Today, the 7.9 billion people on it are using more of its resources than it can provide. Every new person is a new consumer, adding to that demand. Some of us take far more than others and there are many steps we must take to make our consumption sustainable [Population matters 2021].

More and more people (especially representatives of the young generation) notice these problems and are involved in highlighting and solving them.

*Green consumerism and consumer types*

Scientific articles based on green consumerism tend to focus on three target factors; food, travel and housing, as it is showed in Table 8. These three account for almost 70% of total household expenditure and 90% of household energy needs and CO<sub>2</sub> emissions [Alfredson 2002]. From these main categories, further sub-categories are derived which are more precise.

**Table 8**

Consumption categories and subcategories

Categories	Subcategories
Transport	Fuel. Vehicles and others
House heating	Heating. Household electricity and other
Food (including alcoholic beverages and outdoor consumption)	Margarine, butter and oil, Milk and yoghurt, Cheese, Meat, poultry and sausage, Fish, Egg, Bread, Grain and cereal, Potatoes, Vegetables, Root crops, Fruit, Dried leguminous plants, Sweets, snacks, soft drinks and Alcoholic beverages
Recreation and cultural	
Clothing and footwear	
Household services	
Health and medical care	

Source: Alfredson [2002]

Types of green consumers according to Kantar Worldpanel's Green Thermometer study. Firstly, there are the committed or **360° green consumers committed** or **360° green**: these are characterized by the fact that they are by thinking 100 per cent green. Their behavior is related to a behavior and support for the environment, always looking to recycle and not to generate any type of waste. Secondly, there are the **proactive green society**: they are environmentalists and are particularly concerned with the valuation of solutions related to social problems such as hunger, malnutrition and poverty, among others. They are activists, they make themselves known and create reference groups. Thirdly, there are the **influencers or green shoppers**: those who believe in the concept of "Green". Therefore, they are on the lookout for green products and increase their purchases gradually. In addition to this, they try to be an influencer in their primary social group so that, together, they can start to care about the worrying about the future and what awaits other generations. This type of consumers are the most likely to exist in our society, because several people are joining the movement. Fourthly, there are the **green pocket**, who are more concerned with the economy and savings than with the environment. Fifthly, there are the **dream greens**: they are dreamers seeking an increasingly sustainable planet. However, they do not take action to improve it, although they like the concept of green. Finally, are the **zero green**: these are the least environmentally friendly consumers. The environment is not a priority for them [Cardona et al. 2017].

### *Right relationship*

A right relationship proposes the creation of a whole earth economy based on an ethic of right relationship [Brown and Garver 2009]. It “offers a guidance system for functioning in harmony with scientific reality and enduring ethical traditions” [Brown and Garver 2009]. However, major questions arise in the formation of an ethic of right relationship such as:

- What is the economy for?
- How big should the economy be?
- What is a fair distribution of the economy’s benefits and burdens?
- How should the economy be governed?

A right relationship ethic answers these questions in such a way that the purpose of an economy encompasses more than maximizing profits and individuals’ utility functions.

A right relationship emphasizes the importance of situating the economy as not only serving humans but also as functioning within and supporting the health of the earth’s ecosphere. Importantly, the current anthropocentric economy emphasizes the importance of consumption activities; yet, humans typically do not acknowledge the damage consumption causes to the ecosystem [Brown and Garver 2009].

How does one structure a society that supports consumption in the meeting of one’s needs without going so far as to condone the permanent depletion of resources? The solution proposed is the development of a consumer ethic that would guide individuals in making their own consumption decisions in order to live an ecologically sustainable lifestyle while navigating within a capitalist economic system [Schwartz 2010].

The role of consumption carries too much significance in the lives of humans, and with a right relationship, the ever-present desire to generate economic growth as a solution to many of the human population’s problems would be rejected. Instead, steady state economy, as proposed by Herman Daly in 1973, would replace the goal of ever-increasing economic growth. In a steady state, population, technology, and per capita consumption stabilizes. The core question then is whether it is possible to alter social norms such that only necessary consumption is revered while conspicuous or wasteful consumption is derided [Czech 2000].

An appropriate consumer ethic will take into account all potential negative outcomes associated with consumption of a particular good or service [Schwartz 2010]. More specifically, there are three categories into which such negative outcomes may be placed including harm to others, bad consequences, and moral offense. In this way, the entire ecosystem will be respected during the consumption process as negative environmental consequences may easily enough be tied to harm to others. Ultimately, damage to the ecosystem threatens the viable existence of future generations of humans. This is enough to place nongreen consumption with the first two categories mentioned before: harm to others and bad consequences.

Even after a successful evolution, it is going to be nearly impossible to separate oneself from consumption associated with negative outcomes [Schwartz 2010]. There are some rules applicable to this discussion include the following: if at all possible, avoid those products and services that harm others; choose the lesser of the evils if a bad outcome cannot be avoided; and determine whether the good or service one is purchasing is a necessity or a luxury, and if it is a luxury that causes harm, then refrain from purchasing that good or service.

However, to follow these rules, one needs to know the relevant information. The question, then, is whether we can expect the consumer to expend the energy necessary to gather basic information about potential purchases. Nevertheless, much of the information is either not available or imposes additional costs (time and energy) on the ethical consumer.

### *Future recommendations*

An interesting concept is presented by Sachdeva et al. [2015]. She and the co-authors claim, that one effective, albeit counter-intuitive, path to promoting sustainable practices might be to remove green consumption from the domain of morality altogether. A green behavior that is viewed as a conventional norm and / or becomes habitual rather than an effortful, personal sacrifice (i.e., a morally motivated action) may not earn moral credits or credentials. In other words, consumers might be more likely to engage in green consumerism if they think of it as a 'conventional' behavior or it becomes automatic.

Green consumerism has often been framed as a 'hierarchy-of-needs' issue where consumers from developing nations cannot afford to consider the ethical implications of their purchases due to financial problems. Green consumerism is a culturally learned, context-dependent behavior. That needs further research outside of traditional research populations and that could help develop strategies for matching green consumerism (and accompanying marketing communication) with specific contexts and culture.

A more inclusive approach to green consumer behaviors would also involve shifting the focus from an individual consumer as the decision-maker to a family, a community or other unit of actors. Moreover, the conceptualization of green consumerism would need to be broadened in order to be inclusive of diverse social, economic, and ecological constraints. For instance, in some communities, engaging in urban food-growing movements rather than purchasing organic food might represent green consumerism. Considering a diversity of cultural, socio-economic and ideological backgrounds will further enable research in green consumerism to contribute to a sustainable environmental future [Sachdeva et al. 2015].

A study conducted by the Organization of Consumers and Users (OCU) and the New Economy and Social Innovation Forum (NESI) has found that 73.5% of Spanish citizens now regularly make consumer decisions based on ethical or sustainability considerations. Most of them are determined to reduce the over-consumption. They try to reduce the consumption of plastics and packaging. They reuse, exchange, donate and give away what they do not need [Organization of Consumers 2018]. The dissemination of the concept of "ecological violence" [Kostecka and Butt 2019, Butt and Kostecka 2019] can help in faster extending the acceptance of changes in civic behavior to more pro-environmental ones.

## **V. CONCLUSIONS**

The biology students from the University of Granada, according to their answers, have come to believe that consumerism is an existing problem and is closely related to the deterioration of the planet. They are adamant that the current level of consumerism is unsustainable and give the Earth only 100 years until collapse.

What is remarkable about the responses to questions of hypothesis 2, is that women recognise and understand the concept of green products to a greater extent and include them in the green movement. In contrast, men confuse the concept and do not see themselves as part of this green community.

Surveyed students believe in one or several solutions to reduce consumerism, but there are several changes they would not accept, in with women were more flexible. Students are pessimistic about a change in society's thinking, and see attitude change at the individual level as more likely.

Finally, it also has been shown that there is a great lack of knowledge about the different decades of UNESCO education.

Differences in the source of education about sustainable development have been observed between the different genders. In women, the school was the main source of transmission of this

knowledge, followed by "the family" with a large difference. In contrast, men chose "the family" as the initiators in this community of sustainable development, followed by "the school" with very little difference.

On the decade of Biodiversity, it can be concluded that women have seen remarkable changes whereby they consider that the procedure to avoid the loss of biodiversity is more efficient than in previous years. On the other hand, men do not see this improvement as clear.

As far as the decade of ecosystem restoration is concerned, similar results have been observed between the two genders, where it has not become clear how much confidence the students have in the fulfilment of the objectives of this project.

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## SPOWOLNIENIE KONSUMPCJI - Z PERSPEKTYWY HISZPAŃSKICH STUDENTÓW BIOLOGII

### Streszczenie

*Konsumpcjonizm jest dziś bardzo ważną kwestią ze względu na jego wykładniczy wzrost i wpływ na środowisko. Z tego powodu pojawiły się liczne ruchy, które próbują przekonać ludzi do spowalniania transformacji ekosystemów, przykładem może być np. zielony konsumpcjonizm. Aby poprawić obecną sytuację, bardzo ważne jest rozpoznanie właściwych ekologicznych zachowań i poznanie zaleceń na przyszłość. Opinia młodych ludzi studiujących biologię może dać wskazówki na temat zgody na spowalnianie konsumpcji. Artykuł przedstawia również opinię naukowców na ten temat.*

**Słowa kluczowe:** zielony konsumpcjonizm, spowalnianie konsumpcji, zasoby naturalne, ekologia, rekomendacja na przyszłość, studenci